

# Charles A. S. Hall

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SUNY College of Environmental Science and Forestry  
One Forestry Drive, Syracuse, NY 13210  
(315) 470-6870 or 470-6743 (Secretary); 470-6934 (FAX)

## **CURRICULUM VITAE**

### **EDUCATION**

B.A. Colgate University, Hamilton, NY, Biology 1965 (Advisor: Oran Stanley)  
M.S. Pennsylvania State University, Univ. Park PA, Zoology 1966 (Advisor: William Cooper)  
Ph.D. University of North Carolina, Chapel Hill NC, Zoology 1970 (Advisor: H. T. Odum)

### **PROFESSIONAL POSITIONS (Post Ph.D.)**

1970 - 1974 Research Associate, Staff Scientist II (half time), Department of Biology,  
Brookhaven National Laboratory, Upton, NY (Director: George Woodwell)

1975 - 1977 Research Scientist II (half-time), The Ecosystems Center, Marine Biological  
Laboratory, Woods Hole, MA (Director: George Woodwell)

1972 - 1985 Visiting Assistant Professor, Assistant Professor, Section of Ecology and  
Systematics, Cornell University, Ithaca, NY

1985 - 1987 Research Associate Professor, Biological Station and Department of Zoology,  
University of Montana, Yellow Bay and Missoula, MT

1987-1992 Associate Professor, SUNY College of Environmental Science and Forestry,  
Syracuse, NY

1992 - Professor, SUNY College of Environmental Science and Forestry, Syracuse, NY

2001 - ESF Foundation Distinguished Professor, SUNY College of Environmental  
Science and Forestry, Syracuse, NY

### **PROFESSIONAL INTERESTS AND GOALS**

Systems Ecology: The application of integrative tools of science, including especially empirical simulation modeling, to the understanding and management of complex systems of nature and of people and nature. My principal focus throughout the diversity of projects represented herein is, and always has been, the examination of how organisms and societies invest energy in resource exploitation, and how such investments change as the quality of resources changes. I have applied these approaches to small rivers, estuaries, tropical forests, fish migrations, pollution,

tropical land use change, petroleum extraction, and the national economies of the United States, Argentina and Costa Rica. Most recently my interests have been toward integrative geographical modeling of environments and economies, especially in the tropics. My ultimate goal is to develop biophysical economics as an alternative to neoclassical economics, which I believe to be fatally flawed on many levels.

## **HONORS**

ESF Foundation Award for Exceptional Achievement in Teaching (2001)

SUNY Outstanding Researcher Award (2006)

AAAS Fellow

Fulbright Fellow (Argentina)

Guest of honor, National Universities of Argentina

Three of my papers listed in the “Most Cited 100 papers in Ecological Economics”

Outstanding Publication Award from both National Wildlife Federation and the University of Illinois Sigma Xi for:

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.

(Note: Cleveland and Kaufmann were once my students.)

Moore Lecturer, University of Virginia Department of Environmental Sciences

100 Outstanding World Scientists of 2004

Who's Who in the United States

Who's Who of Emerging Leaders in America

Who's Who in American University Teaching

Who's Who in the West

Who's Who in American Science and Technology

American Men and Women of Science

Captain, Glenwood Pines Hockey Team 1979-1985

## **MAJOR STUDENT AWARDS**

Paul Detwiler (Ph.D., Cornell 1986) received the “Outstanding Graduate Student Publication” award from the Section of Ecology and Systematics at Cornell University for his publication entitled, “Land use change and the global carbon cycle: the role of soils” [*Biogeochemistry* 2:67-93] that was a chapter in his dissertation.

Peter Rand (M.S. 1990, ESF) received the outstanding Sea Grant paper award for “Factors limiting primary productivity in Lake Ontario tributaries receiving salmon migrations”.

Ye Qi (Ph.D. 1994, ESF) received one (of only four nationally) NOAA Climate Change Postdoctoral Fellowships.

My student, Jerry Mead, has received a number of “outstanding papers” awards from the Great Lakes Research Consortium.

Also most of my graduate students get outstanding positions at major universities and NGOs in

the U.S. and abroad. I am proud of every one of them!

### **PROFESSIONAL ASSOCIATION MEMBERSHIPS**

Ecological Society of America  
American Association for the Advancement of Science (Fellow)  
International Society for Ecological Economics

### **PROFESSIONAL ASSOCIATION SERVICE**

Ecological Society of America: Member of Council and Representative to AAAS (1977-1990)  
American Association for the Advancement of Science: Member of Section W: Atmospheric and Hydrospheric Sciences (1977-1990)

Biogeochemistry:	Editorial Board (1984-1989)
Ecological Economics:	Editorial Board (1989-present)
Conservation Biology:	Editorial Board (1985-1991)
Population and resources	Editorial Board (2000-present)

### **INTERNATIONAL EXPERIENCE**

1965	Colgate University Tropical Ecology Course, Ocho Rios, Jamaica
1972	Invited external reviewer, Bahia Jobos Nuclear Power Plant environmental assessment, Puerto Rico
1973	Invited lecturer, University of Stockholm, Sweden and Max Plank Institute for Limnology, Schlitz, Germany
1977	Research project meeting and field trips for project, "The role of tropical forests in the global carbon cycle," Costa Rica
1982	Invited participant, Wallenberg Foundation symposium on environment and economics, Stockholm
1982	Reviewer for U.S. Department of Energy - quality of tropical forest data, FAO, Rome, Italy
1984	Invited researcher, CATIE, Turrialba, Costa Rica Project: Energy and Central American Agriculture
1984	Co-principal teacher, Agroecology and modeling course, Nanjing University, Nanjing, China
1986	Fulbright Fellow and principal teacher for Agroecology and Modeling course, University of Buenos Aires, Argentina. Invited lecturer, Bariloche Institute
1986	Invited lecturer, FAO, Rome. Informal computer consultant, various institutes in Italy
1986	Invited lecturer, University of Stockholm, Sweden
1986	Invited lecturer, University of Oslo, Norway
1987	Invited speaker, IX International Conference of Tropical Ecology and the rehabilitation of disturbed ecosystems, Varnasi, India
1988 - 2006	Participant, LTER Research, Luquillo Forest, Puerto Rico
1988	Invited speaker, International Energy Agency conference on biomass energy,

- Garpenberg, Sweden
- 1989 Invited speaker, German Parliament (West Berlin) on tropical deforestation
- 1990 - 1995 Invited speaker, LTER Annual Meeting, Rio Piedras, Puerto Rico
- 1990 Invited main speaker, Seminario Internacional Sobre Economia y Ecologia, CATIE, Turrialba, Costa Rica
- 1991 Invited Plenary Speaker, Simposio Nacional Agricultura Sostenible, Mexico City
- 1992 European Union sponsored meeting, Invited speaker, Nagu Finland
- 1992 Invited Teacher, Common Market Advanced Education Program, Priority setting in environmental management, Urbino, Italy
- 1993 Co-taught geographical modeling course Unam & UAM, Mexico City(w/ M. Hall)
- 1995 Co-taught geographical modeling course - Instituto de Ecologia, Jalapa, Mexico
- 1994-95 Sabbatical at CATIE, Turrialba, Costa Rica
- 1998, 1999 Co-taught geographical modeling course – Universidad de Rio Cuarto, Cordoba, Argentina (with M. Hall)
- 2002 Co-taught geographical modeling course – Univ. de Juan Misael Saracho, Tarija, Bolivia (w/ M. Hall)
- 1998 & 2000 Attendee and Presenter, Conference on Energy and Environment, Puerto Venere, Italy
- 1999 Director, Symposium on analysis of effectiveness of development using geographical tools, San Jose, Costa Rica
- 2000 Invited plenary speaker (two papers) UNESCO Symposium on forests, water and people. Kuala Lumpur, Malaysia
- 2003 Invited participant in conference on emerging ecosystems. Brazilia, Brazil
- 2004 Research advisor for Mercy Borbor (Ecuador) –visited and advised in Ecuador
- 2004 Attendee and Plenary speaker for International meeting on advances in energy Research, Campinas Brazil
- 2004 Plenary Speaker, Conference on joint SUNY – Moscow State interactions, Moscow, Russia
- 2005 Plenary speaker, Association for the Study of Peak Oil. Lisbon, Portugal.
- 2005 Plenary Speaker, Chinese Academy of Sciences Sympos.on development, Beijing
- 2005 Presenter: Chinese Normal University, Xinhua University, Shanghai University, Nanjing University, Nanjing Normal University
- 2005 Co-taught geographical modeling course – Universidad de Rio Cuarto, Cordoba, Argentina (with M. Hall)

### **SELECTED PROFESSIONAL ACTIVITIES**

- 1971-74 Participant, power plant environmental impact modeling studies, U.S. Atomic Energy Agency
- 1973 Participant, Symposium on external costs of energy production, U.S. Atomic Energy Agency
- 1974 Witness, Federal Power Commission Hearings: Indian Point Nuclear Plant Licensing
- 1975 - 1976 Member, NAS Panel: Environmental impact of resource management
- 1975 Member, NAS Panel: Global cycle of carbon

- 1976 Invited Participant, UNESCO Conference on the role of coastal lagoons, Duke University Marine Lab
- 1978 External reviewer for Sea Grant research program, University of Rhode Island
- 1979 Session Chairman, National Sea Grant Review, Baton Rouge, LA
- 1978 - 1984 Participant, U.S. Department of Energy Carbon Cycle Reviews
- 1979 Invited Speaker, Symposium on the role of tropical forests in the global carbon cycle, Rio Piedras, Puerto Rico
- 1980 Invited participant, Woods Hole Conference on options for the Hudson River power plants (this conference was a contributing factor in designing the settlement to the Hudson River power plant controversies: see NY Times, Dec. 20, 1908, page 1 and lead editorial)
- 1981 Our science paper, "Petroleum production and drilling in the United States: Yield per effort and energy return on investment" reported on page 1 of Wall Street Journal, Feb. 7, 1981 (Followed by many very interesting phone calls)
- 1982 - 1983 External Reviewer, Center for Complex Systems, University of New Hampshire
- 1984 Organizer and session chairman, AAAS Symposium "The role of the biota in the global carbon cycle"
- 1987 Organizer and chairman for ISEM-ESA conference on "Evaluating the role of theoretical models in ecology"
- 1987 - 1990 Participant in workshops on assessing and a modeling disturbance in tropical ecosystems
- 1991 Invited participant in NCAR Symposium on climate change and hydrology
- 1991 Invited plenary speaker at International symposium on agriculture and the environment, Ohio State
- 1992 Invited plenary speaker, International Society for the System Sciences, University of Denver
- 1995 Invited plenary speaker, International Society for Ecological Economics, Boston University
- 1999 Invited plenary speaker, International Society for Ecological Economics, Washington D. C.
- 2003 Sabbatical, University of Montana Biological Station
- 2005 Plenary Speaker, U.S. Chapter of ASPO (Association for the study of Peak Oil, Denver)
- 2005
- Various Invited speaker, ESA, ISEM, AFS and many other meetings

### **INVITED LECTURER**

I no longer keep track of individual lectures but I am asked to speak at major Universities about half a dozen times a year. Cumulatively I have spoken at the majority of the State Land Grant or Equivalent Universities, a majority of the Ivy League Universities, a majority of the major Canadian Universities and a large number of private liberal arts and engineering universities.

### **PUBLICATIONS OF CHARLES A.S. HALL** {Chronological}

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**Books are in bold.**

\* = "Flagship" or most important publications (in my view). Most of these are available as PDF files on my website. If you read them and like or don't like them please send me a brief response [chall@syr.edu](mailto:chall@syr.edu).

**1969**

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- (1) Hall, C.A.S. 1969. Mortality of the mayfly nymph, Ephemerella rotunda, at low dissolved oxygen concentrations. J. Elisha Mitchell Sci. Soc. 85(1): 34-39 (M.S. Thesis, Pennsylvania State University, 1966).

**1970**

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- (2) Manny, B.A. and C.A.S. Hall. 1970. Diurnal changes in stratification and dissolved oxygen in the surface waters of Lake Michigan. Pages 622 – 634 in Proceedings of the 12<sup>th</sup> Conference on Great Lakes Research. International Association for Great Lakes Research.

**1971**

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- (3) Hall, C.A.S. 1971. Preserving and enhancing the qualities of the waters of North Carolina. ESE Notes (Department of Environmental Science and Engineering) 8 (1) : 1-2.
- (4) Woodwell, G.M. and C.A.S. Hall. 1971. The ecological effects of energy: a basis for policy in regional planning. Pages 50-58 in M.D. Goldberg, ed. Energy, Environment and Planning: The Long Island Sound Region. Proceedings of a Conference held at Brookhaven National Laboratory, October 1971.

**1972**

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- \* (5) Hall, C.A.S. 1972. Migration and metabolism in a temperate stream ecosystem. Ecology 53 (4): 585-604. (Ph.D. Thesis, University of North Carolina, Chapel Hill, 1970).
- (6) Motten, A.F. and C.A.S. Hall. 1972. Edaphic factors override a possible gradient of ecological maturity indices in a small stream. Limnol. Oceanogr. 17 (6) : 922-926.
- (7) Woodwell, G.M., P.H. Rich and C.A.S. Hall. 1972. Carbon in estuaries. Pages 221-240 in G.M. Woodwell and E.V. Pecan, eds. Carbon and the biosphere. Brookhaven Symposium in Biology 24.
- (8) (Review) Hall, C.A.S. 1972. Aquatic biology and water pollution. Review of Biology and Water Pollution Control, by C.E. Warren and P. Doudoroff. Ecology 53 (2): 371-372.
- (9) (Review) Levin, S.A. and C.A.S. Hall. 1972. Systems Analysis and Simulation in Ecology, Vol. 1 edited by B.C. Patten. Biometrics 29: 832-833.

(10) (Review) Hall, C.A.S. 1972. Ecology of Salt Marshes and Sand Dunes, by D.S. Ranwell. Trans. Am. Fish. Soc. 103 (2): 417-418.

## 1975

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(11) Hall, C.A.S. 1975. The Biosphere, the Industriosphere and the Interactions. Bull. At. Sci. 31: 11-21.

(12) Hall, C.A.S. 1975. Models and the decision-making process: The Hudson River power plant case. Pages 203-218 in S.A. Levin, ed. Ecosystems Analysis and Prediction. Proceedings of a Conference on Ecosystems, Alta, Utah, July 1974. Reprinted in Models as a Ecological Tools: Theory and Case Histories (Hall and Day, eds.)

\* (13) Hall, C.A.S., C. Ekdahl and D. Wartenberg. 1975. A fifteen-year record of biotic metabolism in the Northern hemisphere. Nature 255: 136-138.

(14) Hall, C.A.S. and R. Moll. 1975. Methods of assessing aquatic primary productivity. Pages 19-54 in H. Lieth and R.H. Whittaker, eds. The Primary Productivity of the Biosphere. Springer-Verlag, New York.

(15) (Review) Hall, C.A.S. 1975. Electric Power Plants in the Coastal Zone: Environmental Issues, by J. Clark and W. Brownell. Trans. Am. Fish. Soc. 104: 418-420.

## 1976

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(16) Haedrich, R.L. and C.A.S. Hall. 1976. Fishes and Estuaries. Oceanus 19 (5): 55-63.

(17) Hall, C.A.S. 1976. Notes on the population biology ecosystem biology interface. Pages 37-40 in S.A. Levin, Ed. Ecological Theory and Ecosystems Models. The Institute of Ecology.

(18) Hall, C.A.S. The implications of future energy supplies for environmental management. 1976. Env. Mgment. 1: 5-7.

(19) Peterson, B.J., C.A.S. Hall, J.P. Reed, and T. Wood. 1976. Comparative respiration of Cape Cod ecosystems. Biol. Bull. 151 (2): 424.

(20) (Review) Hall, C.A.S. and S.E.M. Bayley. 1976. The structure of Marine Ecosystems, by J.H. Steele. Trans. Am. Fish. Soc. 76: 825-826.

## 1977

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(21) Hall, C.A.S., G. Rowe, J.H. Ryther and G.M. Woodwell. 1977. Acid rain, zooplankton fecal pellets and the global carbon cycle. Biol. Bull. 153: 427-428.

(22) Woodwell, G.M., D.E. Whitney, C.A.S. Hall, and R. Houghton. 1977. The Flax Pond ecosystem study: exchanges of carbon in water between a salt marsh and Long Island Sound. *Limnol. Oceanogr.* 22 (5): 833-838.

\* (23) Hall, C.A.S. 1977. Models and the decision making process: The Hudson River power plant case. Pages 345-364 in C.A.S. Hall and J. Day, eds. *Models as Ecological Tools: Theory and Case Histories*. Wiley Interscience, New York. 684 pp.

\* (24) Hall, C.A.S. and J. Day. 1977. Systems and models: Terms and basic principles. Pages 5-36 in C.A.S. Hall and J. Day, eds. *Model as Ecological Tools: Theory and Case Histories*. Wiley Interscience, New York. 664 pp.

(25) Hall, C.A.S., J. Day and H.T. Odum. 1977. A circuit language for energy and matter. Pages 37-48 in C.A.S. Hall and J. Day, eds. *Models as Ecological Tools: Theory and Case Histories*. Wiley Interscience, New York. 684 pp.

(26) Wartenberg, D. and C.A.S. Hall. 1977. A simulation that failed: The biospheric productivity model. Pages 365-380 in C.A.S. Hall and J. Day, eds. *Models as Ecological Tools: Theory and Case Histories*, Wiley Interscience, New York. 684 pp.

\* (27) Hall, C.A.S. and J.W. Day (eds.) 1977. **Ecosystem modeling in theory and practice. An introduction with case histories.** Wiley Interscience, NY. 684 pp. (First one quarter translated into Chinese).

## 1978

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(28) Hall, C.A.S., R. Howarth, B. Moore, and C. Vorosmarty. 1978. Environmental impacts of industrial energy systems in the coastal zone. *Annual Rev. of Energy* 3: 395-475.

(29) Howarth, Robert W. and C.A.S. Hall. 1978. What Do You Want to Do With Your Last 27,000 Gallons of Oil? *Human Ecology Forum*. 8 (3): 2-5.

## 1979

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(30) Hall, C.A.S., N. Tempel and B. Peterson. 1979. A benthic chamber for intensely metabolic lotic systems. *Estuaries* 2: 178-183.

(31) Hall, C.A.S., M. Lavine and J. Sloane. 1979. Efficiency of energy delivery systems: Part I. An economic and energy analysis. *Environ. Mgmt.* 3 (6): 493-504.

(32) Hall, C.A.S., E. Kaufmann, S. Walker and D. Yen. 1979. Efficiency of energy delivery systems: Part II. Estimating energy costs of capital equipment. *Environ. Mgmt.* 3 (6): 505-510.

(33) Sloane, J., C.A.S. Hall and L. Fisher. 1979. Efficiency of energy delivery systems: Part III.



Assessing potential savings through a comprehensive regional insulation program.  
Environ. Mgmt. 3 (6): 511-515.

(34) Woodwell, G.M., C.A.S. Hall, D.E. Whitney and R.A. Houghton. 1979. The Flax Pond ecosystem study: Exchanges of inorganic nitrogen between an estuarine marsh and Long Island Sound. *Ecology* 60: 695-702.

(35) Woodwell, G.M., C.A.S. Hall, D.E. Whitney, R.A. Houghton and R.A. Moll. 1979. The Flax Pond ecosystem study: The annual metabolism and nutrient budget of a salt marsh in R.L. Jeffries and A.J. Davy (eds.). *Ecological Processes in Coastal Environments*. Blackwell Scientific Publications, 1979, pp. 491-511.

## 1980

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(36) Detwiler, R.P. and C.A.S. Hall. 1980. The development of an empirically-driven simulation model of carbon exchange between human-impacted tropical ecosystems and the atmosphere. pp. 140-156 in S. Brown, A. Lugo, and B. Liegel, eds. *The role of tropical forests on the world carbon cycle*. United States Department of Energy EV-78-S-05-6047.

(37) Lugo, A.E., S. Brown and C.A.S. Hall. 1980. The role of tropical forests in the carbon balance of the world. In Lois E. Schmitt, ed. *Proceedings of the Carbon Dioxide and Climate Research Program*, U.S. Department of Energy UC-11, pp. 261-276.

(38) (Review) Hall, C.A.S. and R.P. Detwiler. 1980. *The Global Carbon Cycle* by B. Bolin et al. *Bioscience* 30 (4): 266.

(39) (Review) Hall, C.A.S. and S.A. Levin. 1980. *An introduction to systems analysis: with ecological applications*. University Park Press, Baltimore and Arnold, London, J.N.R. Jeffers. *Trans. Amer. Fish. Soc.* 109(5): 582-584.

## 1981

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\* (40) Hall, C.A.S. and C.J. Cleveland. 1981. Petroleum drilling and production in the United States: Yield per effort and net energy analysis. *Science* 211: 576-579.

(41) Hall, C.A.S. and C. Cleveland. 1981. Oil exploration. *Science (letters)* 213: 1448-1450.

(42) Detwiler, R.P., C.A.S. Hall, P. Bogdonoff, C. McVoy and S. Tartowski. 1981. The role of tropical land use change in the global carbon cycle: detailed analysis for Costa Rica and Panama and preliminary analysis for Peru and Bolivia, p. 69-92. in W. Mitsch (ed.), *Energy and Ecological Modeling. Symp. Proc.*, Elsevier Publishing Co.

(43) Hall, C.A.S., C. Cleveland and M. Berger. 1981. Energy return on investment for United States Petroleum, Coal and Uranium, p. 715-724. in W. Mitsch (ed.), *Energy and Ecological Modeling. Symp. Proc.*, Elsevier Publishing Co.

- (44) Kaufmann, R. and C.A.S. Hall. 1981. Energy return on investment for imported petroleum, p. 697-702. *in* W. Mitsch (ed.), Global Dynamics of Biospheric Carbon. U.S. Department of Energy CO2 Research Series 19. Washington, D.C.

## 1982

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- (45) Detwiler, R.P., C.A.S. Hall and P. Bogdonoff. 1982. Simulating the impact of tropical land use changes on the exchange of carbon between vegetation and the atmosphere, p. 141-159. *in* S. Brown, (ed.), Global Dynamics of Biospheric Carbon. U.S. Department of Energy CO2 Research Series 19. Washington, D.C.
- (46) Boynton, W.R., C.A.S. Hall, P.G. Falkowski, C.W. Keefe, and W.M. Kemp. 1982. Phytoplankton productivity in aquatic ecosystems. Encyclopedia of Plant Physiology. New Series Vol. 12D. pp. 305-327.
- (47) (Review) Hall, C.A.S. 1982. Comparison of Forest Water and Energy Exchange Models, edited by S. Halldin, EOS 63 (12): 204.

## 1983

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- \* (48) Cleveland, C.J., R. Costanza, C.A.S. Hall and R. Kaufmann. 1983. Energy and the United States economy: a biophysical perspective. Science 225: 890-897.
- (49) Hall, C.A.S., C.J. Cleveland and R. Kaufmann. 1983. Time series analysis of the U.S. energy and economic data. Pp. 69-72. *in* A.M. Jansson (ed.) Proc. Wallenberg Symposium. Stockholm.
- (50) Molofsky, J., E.S. Menges, C.A.S. Hall, T.V. Armentano and K. Ault. 1983. The effects of land use alterations on tropical carbon exchange. pp. 181-194. *in* T.N. Veziroglu (ed.), Miami International Symposium on the Biosphere, Elsevier Science Publishers.

## 1984

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- \* (51) Hall, C.A.S., R.P. Detwiler, P. Bogdonoff and S. Underhill. 1984. Land use change and carbon exchange in the tropics: I. Detailed estimates for Costa Rica, Panama, Peru, and Bolivia. Environ. Mgmt. 9: 313-334. (Cover article).
- (52) Detwiler, R.P., C.A.S. Hall, and P. Bogdonoff. 1984. Land use change and carbon exchange in the tropics: II. Estimates for the entire region. Environ. Mgmt. 9: 335-344.
- (53) Hall, C.A.S., R.P. Detwiler, P. Bogdonoff and S. Underhill. 1984. Land use change and carbon exchange in the tropics: III. Structure, basic equations and sensitivity analysis of the model. Environ. Mgmt. 9: 339-346.

(54) Hall, C.A.S. and D. DeAngelis. 1984. Models in Ecology: Paradigms found or paradigms lost? Bulletin of the Ecological Society of America 66: 339-346.

(55) Cleveland, C.J., R. Costanza, C.A.S. Hall, and R. Kaufmann. 1984. Energy and economic activity. Science (letters) 230: 740.

## 1986

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(56) Hall, C.A.S. 1984. The changing intellectual climate of fisheries management. Forum, Environ. Mgmt. 10: 577-580.

(57) Molofsky, J., C.A.S. Hall and N. Myers. 1984. A comparison of tropical forest surveys. U.S. Department of Energy. Carbon Dioxide Research Program TR032. Washington, D.C. 66p.

(58) Detwiler, R.P. and C.A.S. Hall. 1984. Land use change and carbon exchange in the tropics: II. Estimates for the entire region: Reply. Environ. Mgmt. 10: 577-580.

\* (59) Hall, C.A.S., C.J. Cleveland and R. Kaufmann. 1986. **Energy and Resource Quality: The ecology of the economic process.** Wiley Interscience, NY. 577 pp. (Second Edition. University Press of Colorado).

## 1987

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(60) Paruelo, J.M., P.J. Aphalo, C.A.S. Hall and D. Gibson. 1987. Energy use and economic output for Argentina. pp. 169-184 in Gonzague Pillet (ed.). Environmental Economics. The analysis of a major interface. Leimgruber, Geneva.

(61) Hall, C.A.S. 1987. Ecosystem scientists are also conservation biologists. Conservation Biology, 1: 263-264.

(62) (Review) Hall, C.A.S. 1987. Energy and Ecology by David Gates. Bioscience. 38: 188.

## 1988

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\* (63) Detwiler, R.P. and C.A.S. Hall. 1988. Tropical forests and the global carbon cycle. Science 239: 42-47.

(64) Detwiler, R.P. and C.A.S. Hall. 1988. The global carbon cycle. Science (letters) 241: 1738-1739.

(65) Rykiel, E.J., W.E. Grant and C.A.S. Hall (ed.) 1988. An evaluation of the role of theoretical models in Ecology. Special Issue, Ecological Modeling 43: 1-136.

\* (66) Hall, C.A.S. 1988. An assessment of several of the historically most influential theoretical

models used in ecology and of the data provided in their support. *Ecological Modeling* 43: 5-31.

(67) Hall, C.A.S. 1988. What constitutes a good model and by whose criteria? *Ecological Modeling* 43: 125-127.

(68) Hall, C.A.S. 1988. Energy, economics and forestry production: a neophysiocrat's perspective. p. 242-277. *in* G. Lonner and A. Tornquist (ed.). *Economic evaluations of biomass oriented systems for fuel*. International Energy Agency, Task III, Applications of Systems Analysis. Publ. by SIMS, Swedish University of Agricultural Studies, Uppsala.

(69) Benke, A., C.A.S. Hall, C. Hawkins, R. Lowe-McConnell, J.A. Stanford, B. Subercrop and J. Ward. 1988. Bioenergetic consideration in the analysis of stream ecosystems. *J.N. American Benth. Soc.* 7 (4): 480-502.

(70) Hall, C.A.S. 1988. Can yesterday's environmental education solve tomorrow's environmental problems? Keynote address for M.D. Johnson and Y.D. Choi (ed.). *Managing environmental resources, Proceedings of the fifth annual Graduate Student Conference on Forestry and Environmental Science.* pp. 1-2.

(71) Hall, C.A.S., S. Brown, P. Bogdonoff, D. Barshaw, L. Kaufman, F. O'Hara and S. Underhill. 1988. Bibliography of tropical studies of importance for the global carbon cycle. U.S. Department of Energy Carbon Cycle series CDIAC- 24/V1. (1885 entries).

\* (72) Hall, C.A.S. 1988. Ecology. *World Book Encyclopedia.* pp. E 50-55. (Revised:1993;1999).

## 1989

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\* (73) Hall, C.A.S., J.H. Jourdonnais and J.A. Stanford. 1989. Assessing the impacts of stream regulation in the Flathead River Basin, Montana, U.S.A. I. Simulation modeling of system water balance. *Regulated Rivers: Research and Management.* 3: 61-77.

\* (74) Day, J.W., C.A.S. Hall, M. Kemp and A. Yanez-Arenciba. 1989. **Estuarine Ecology.** Wiley Interscience. New York. 558 pp.

(75) (Review) Hall, C. 1989. Review of U. Sundberg. *Operational Efficiency in Forestry.* *Journal of Forestry,* Vol. 8(2): pp. 42-43.

(76) (Review) Hall, C.A.S. and J. Cornell. 1989. P. Ehrlich and J. Roughgarden's "The Science of Ecology". *Climate Change* 17 (1).

## 1990

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(77) Hall, C.A.S. and D. Bradley. 1990. *Ecological economics: Its implications for Forest Management and Research (a workshop summary).* *Conservation Biology* 4: 221-224.

\* (78) Hall, C. 1990. Sanctioning resource depletion: economic development and neo-classical economics. *The Ecologist* 20: 61-66.

(79) Joudonnais, J., J.A.S. Stanford, F.R. Hauer and C.A.S. Hall. 1990. Assessing options for stream regulations using hydrologic simulations and cumulative impact analysis: Flathead River Basin, USA. *Regulated Rivers* 5: 279-293.

(80) Hall, C.A.S. and J. Day. 1990. **Ecosystem modeling in theory and practice**. (Second Edition. University Press of Colorado).

(81) Hall, C.A.S. Limiting the Scope. 1990. Review of operational efficiency in forestry. *J. of Forestry* Vol. 88, 2. 1990.XX

## 1991

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(82) Dale, V.H., C.A.S. Hall and R. Houghton. 1991. Estimating the effects of land use change on global atmospheric CO<sub>2</sub> concentration. *Can. Jour. Forest Research*. 21: 87-90.

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## TEACHING

### List Of Thesis and dissertations: Students of Charles Hall

#### 2006:

- **Mead, Jerry** (PhD EFB) Spatial modeling of stream trophic structure for Little Sandy Creek
- **Schmitt, Laura** (PhD EFB) The relation of soil erosion and poverty on the Island of Negros, The Philippines.
- **Harris, Nancy** (PhD EFB) Measuring the carbon balance of a tropical forested ecosystem along a gradient of elevation in the Luquillo Mountains, Puerto Rico: an empirical and modeling study scaled from leaves to landscapes.
- **Organ, Jeffrey** (PhD EFB with William Porter) Ecological Modeling of White-tailed Deer Populations for use in Adaptive Wildlife Management
- **Quaye, Amos** (MS GEPES) A biophysical analysis of food production in Ghana: History and potential for food self sufficiency.
- **Chen, Amy** (MS GEPES). Some meteorological consequences of land use change from urbanization and industrialization along a rural to urban gradient in eastern Puerto Rico.

#### 2005:

- **Wu, Wei** (PhD GEPES) Spatial Modeling of the Probability of Cloud Cover Evapotranspiration and Stream Flow in North-Eastern Puerto Rico
- **Borbor, Mercy.** (PhD GEPES) Modeling how land use affects nutrient budgets in the Guayas Basin – Ecuador: Ecological and economic implications

#### 2003:

- **Minor, Maria.** (PhD- EFB) . Assessing the sustainability of short-rotation forestry for energy production in New York State.
- **Hallock Jr., John L** (MS-EFB) Effects of a Recently-Licensed Hydroelectric Project and Channel Gradient on Benthic Macroinvertebrates in the Salmon River, New York
- **Cornell, Joseph D.** (PhD EFB) Modeling Forest Cover in Central America From 1880 - 2000 A.D. Using GIS
- **Kroeger, T.** (PhD GEPES) Exploring the Comparative Cost-Effectiveness of Economic Incentive and Command-And-Control Instruments, and of Renewable A Case Study of Lima-Callao, Peru
- **Parajuli, Rudriksha R.** (MS GEPES) An Analysis of the Relationship Between Human Population Growth and Cereal Supply in Nepal



- **Rubin, Benjamin Dana** PhD EFB with Paul Manion) Assessment of the Health and Sustainability of New York Forest Based on Forest Structure, Mortality and Disease

#### 2001:

- **Taweesuk, Siripun** (PhD GEPES) Dynamic Simulation Modeling of the Land Use, Economy and Environment in Chiang Mai, Thailand Using GIS and Remote Sensing
- **Wang, Hongqing** (PhD EFB) Dynamic Modeling of The Spatial and Temporal Variations of Forest Carbon and Nitrogen Inventories, Including Their Responses to Hurricane Disturbances, in The Luquillo Mountains, Puerto Rico
- **Wells, Daniel** (MS EFB with Theresa Donovan) Using multivariate models to predict avian distribution in the St. Lawrence Plain region of New York.

#### 2000:

- **Ko, Jae-Young** PhD; An integrated assessment of energy and resource efficiency trends at regional, national, and international scales

#### 1999:

- **Borbor-Cordova, Mercy J.** MS; A systems analysis of Banana and Shrimp Production in Ecuador Emphasizing Their Environmental Impact on Coastal Ecosystems
- **Killilea, Mary Elizabeth** MS; Variation in Abundance and Tree Growth in New York State as a Function of Environmental Gradients
- **Kroeger, T.** MS; Estimating the Importance of energy and Technological Progress in Economic Growth: An Econometric Analysis of the Growth Experience of Selected East Asian and Latin American Economies, 1970-95
- **McCabe, Jason A.** MS; Mass Trapping and Impact of *IPS PINI*, the Pine Engraver, in Itasca State Park, MN

#### 1998:

- **Buzby, Karen M.** PhD; The Effect of Disturbance on the Ecological Efficiency of a Small Tropical Stream
- **Klocker, Julie Ann** MS; The Sustainability Trade-Offs of Coffee Production in Costa Rica
- **Montanye, Dawn R.** MS; Examining Sustainability: An Evaluation of USAID Policies for Agricultural Export-Led Growth in Costa Rica

#### 1996:

- **Everham, Edwin M. III** (PhD GEPES) Hurricane Disturbance and Recovery: An Empirical and Simulation Study of Vegetation Dynamics in the Luquillo Experimental Forest, Puerto Rico
- **Tian, Hanquin** (PhD GEPES) Metabolism of the Biosphere in Changing Global Environments: Carbon Flux and Land Use Change as Studied at Scales From Landscape to Global

#### 1994:

- **Pontius, Robert Gilmore, Jr.** PhD; Modeling Tropical Land Use Change and assessing Policies to Reduce Carbon Dioxide Release From Africa

- **Qi, Ye.** (PhD GEPES) Human-induced biospheric change and the global carbon cycle: a spatial modeling approach and its application to tropical Asia.

### 1990

- **Nass, Bryan L.** MS; A Simulation Model of Plankton and Nutrient Dynamics for the Epilimnion of Oligotrophic Flathead Lake, Montana
- **Rand, Peter S.** MS; The Effect of Salmon Migrations on Phosphorus Dynamics and Primary Production in Two Tug Hill Streams, NY
- **Uhlig, James S.** MS; Changing Patterns of Shifting Cultivation in East Malaysia and Thailand and Their Effects on the Global Carbon Cycle

### 1989

- **Wooster, Katherine M.** (MS EFB) A Geographically-Based Microclimatological Computer Model for Mountainous Terrain With Application to the Luquillo Experimental Forest in Puerto Rico

### Cornell University:

- **Tartowski, S.** (1999) Nitrogen biogeochemistry in a drought-pulsed ecosystem: the effects of grazers on vegetation and nitrogen cycling in an Australian semi-arid grassland. Ph. D. Dissertation, Cornell University, Ithaca NY.
- **Carter, Jacoby.** MS (1992) A comparison of the distribution of plant species in Flathead Lake and Swan Lake and its implications for Kerr Dam Management practices.
- **Detwiler, Ralph Paul** PhD; (1986) Tropical, forests and the global carbon cycle. . Ph.D. Dissertation, Cornell University, Ithaca NY.

### Fall 1972

Bio. Sci. 479                      Research in Ecology, Evolution and Systematics - Independent Study  
 Bio. Sci. 565                      Special Topics in Limnology

### Spring 1973

Bio. Sci. 462/3                    Limnology (Lectures and Laboratory)  
 Bio. Sci. 479                      Research in Ecology, Evolution and Systematics - Independent Study  
 Bio. Sci. 668                      Ecosystems (with Whittaker and Marks)

### Fall 1973

Bio. Sci. 479                      Research in Ecology, Evolution and Systematics - Independent Study  
    (including Honors students)  
 Bio. Sci. 565                      Special Topics in Limnology  
 Bio. Sci. 568                      Applied Ecology Seminar

### Spring 1974

Bio. Sci. 462/3                    Limnology (Lectures and laboratory)  
 Bio. Sci. 479                      Research in Ecology, Evolution and Systematics - Independent Study  
    (including Honors Students)  
 Bio. Sci. 568                      Estuarine Ecology (with Barlow)

Fall 1974

Bio. Sci. 479            Research in Ecology, Evolution and Systematics - Independent Study  
(including Honors Students)

Spring 1975

Bio. Sci. 460            Systems Ecology (with Goodman)  
Bio. Sci. 479            Research in Ecology, Evolution and Systematics - Independent Study

Fall 1975

Bio. Sci. 479            Research in Ecology, Evolution and Systematics - Independent Study

Spring 1976

Bio. Sci. 460            Systems Ecology  
Bio. Sci. 568            Estuarine Ecology (with Barlow)

Fall 1976

Bio. Sci. 469            Research in Ecology, Evolution and Systematics - Independent Study

Spring 1977

Bio. Sci. 468            Systems Ecology  
Bio. Sci. 768            Ecosystems (with Whittaker, Chabot and Likens)  
Bio. Sci. 469            Research in Ecology, Evolution and Systematics - Independent Study

Fall 1977

Bio. Sci. 360            General Ecology  
Bio. Sci. 469            Research in Ecology, Evolution and Systematics - Independent Study

Spring 1978

Bio. Sci. 468            Systems Ecology  
Bio. Sci. 668            Marine and Estuarine Ecology (with Barlow)  
Bio. Sci. 469            Research in Ecology, Evolution and Systematics - Independent Study

Fall 1978

Bio. Sci. 260            Introductory Ecology

Spring 1979

Bio. Sci. 768            Ecosystems (with Whittaker)  
Bio. Sci. 469            Research in Ecology, Evolution and Systematics - Independent Study

Spring 1980

Bio. Sci. 468            Systems Ecology  
Bio. Sci. 469            Research in Ecology, Evolutional Systematics - Independent Study  
Bio. Sci. 666            Marine Ecology (with Barlow)  
Bio. Sci. 760            Special Topics in Evolution and Ecology

Fall 1980

Bio. Sci. 260            Introductory Ecology (with Risch)  
Bio. Sci. 469            Research in Ecology, Evolution and Systematics - Independent Study

Spring 1981

Bio. Sci. 360            General Ecology (4 lectures)  
Bio. Sci. 666            Marine Ecology (4 lectures)  
Bio. Sci. 768            Ecosystems (with Likens and Shachak)

Fall 1981

Bio. Sci. 260            Introductory Ecology (with Risch)  
Bio. Sci. 469            Research in Ecology, Evolution and Systematics - Independent Study  
Bio. Sci. 405            Energy Seminar

Spring 1982

Bio. Sci. 468            Systems Ecology  
Bio. Sci. 399            Energy Seminar  
Bio. Sci. 49            Research in Ecology, Evolution and Systematics - Independent Study

Fall 1982

Bio. Sci. 405            Energy Seminar  
Bio. Sci. 469            Research in Ecology, Evolution and Systematics - Independent Study

Fall 1983

Bio. Sci. 260            Introductory Ecology  
Bio. Sci. 468            Systems Ecology

Spring 1984

Bio. Sci. 400            Applied Ecology

(I had from four to ten independent study students each semester.)

(I have given lectures in, and frequently led a major part of, both the January and the June-July Ecology course in MBL or at Shoals Marine Laboratory, including extensive stream and estuary field work and sometimes computer simulation of results.)

**TEACHING:** University of Montana

Summer 1986

Systems Ecology

Fall 1986

Energy Seminar

Winter 1987

Energy Seminar

**TEACHING:** SUNY Environmental Science and Forestry

Fall 1987  
Systems Ecology

Spring 1988

Ecosystems  
The Ecology of the Economic Process  
Systems Ecology Seminar

Fall 1988  
Systems Ecology

Spring 1989  
Ecosystems  
The Ecology of the Economic Process  
Systems Ecology Seminar

Fall 1989  
Systems Ecology

Spring 1990  
Ecosystems  
The Ecology of the Economic Process  
Systems Ecology Seminar

Fall 1990  
Systems Ecology

Spring 1991  
Ecosystems  
The Ecology of the Economic Process  
Seminar: The physiology of global warming

Fall 1991  
Systems Ecology

Spring 1992  
Ecosystems  
The Ecology of the Economic Process  
Seminar: Modeling Tropical Forests

Fall 1992  
Systems Ecology

Spring 1993

Ecosystems  
The Ecology of the Economic Process

Seminar: Modeling Tropical Forests

Fall 1993

Systems Ecology

Spring 1994

Ecosystems

The Ecology of the Economic Process

Seminar: Modeling Tropical Forests

Fall 1994

Systems Ecology

Fall 1995

Systems Ecology

Seminar: Geographical Modeling

Spring 1996

Ecosystems,

Environment, resources and development

Fall 1996

Systems Ecology

Seminar:

Spring 1997

Ecosystems,

Environment, resources and development

Fall 1997

Systems Ecology

Spring 1998

Ecosystems,

Environment, resources and development

Fall 1998

Systems Ecology

Seminar: tropical ecology

Spring 1999

The global environment and the evolution of human culture,

Ecosystems,

Environment, resources and development

Fall 1999

Systems Ecology

Environment, resources and development

Spring 2000

The global environment and the evolution of human culture,

Ecosystems

Fall 2000

Systems Ecology

Environment, resources and development

Freshman Field course

Spring 2001

The global environment and the evolution of human culture

Ecosystems

Fall 2001

Systems Ecology

Environment, resources and development

Seminar on energy and history

Spring 2001

The global environment and the evolution of human culture

Ecosystems

Seminar on energy costs of producing an ESF graduate

Fall 2001

Systems Ecology

Environment, resources and development

Seminar on energy and history

Spring 2002

The global environment and the evolution of human culture

Ecosystems

Seminar on energy costs of Pyramid Mall

Fall 2002

Systems Ecology

Environment, resources and development

Spring 2003

The global environment and the evolution of human culture

Ecosystems

Fall 2003

Sabbatical at the University of Montana Biological Station.

Spring 2004

The global environment and the evolution of human culture  
Ecosystems  
Environment, resources and development  
Seminar on energy costs of development

Fall 2004

Systems Ecology  
Energy Course (With Manno)

Spring 2005

The global environment and the evolution of human culture  
Ecosystems  
Environment, resources and development  
Seminar on tropical development

Fall 2005

Systems Ecology  
Energy Course (with Lindberg)

Spring 2006

The global environment and the evolution of human culture  
Ecosystems  
Environment, resources and development  
Seminar on tropical development

**RESEARCH AND TRAINING GRANTS**

- 1972 Carbon budget of Flax Pond. National Science Foundation. \$210,000 (with G.M. Woodwell).
- 1975 Cascadilla Creek Project. Cornell University faculty grant for the improvement of undergraduate education. \$1300.
- 1978 Modeling exchanges of carbon between tropical vegetation and the atmosphere. U.S. Department of Energy. \$179,000 (with A. Lugo and S. Brown).
- 1980 Energy analyses. Cornell University School of Agriculture and Life Sciences. \$2000.
- Continuation Funds, Carbon project. U.S. Department of Energy. \$97,000.
- Supplementary Funds, U.S. Department of Energy. \$1200.
- Computer funding for carbon analyses. National Institutes of Health. \$2950.
- 1981 Continuation Funds, U.S. Department of Energy. \$117,000.



- 1982 Merging the tropical biosphere model and carbon inventories with land use change estimates. U.S. Department of Energy. \$41,000.
- Travel Grant, U.S. Department of Energy. \$7500 (with S. Brown).
- Computer accessories. National Institutes of Health Institutional Grant. \$3000.
- Supplementary funding U.S. Department of energy. \$3000.
- 1983 Incorporating historical factors in GLOBC7. U.S. Department of Energy. \$47,000.
- Simulation of spatial and temporal changes in primary and secondary production and salmon dynamics of the Northeast Pacific Ocean. Sea Grant. \$1974.
- Validation and transfer of GLOBC7. Holcomb Research Institute. \$8000.
- 1984 Continuation funding. U.S. Department of Energy. \$30,000.
- 1986 Travel grant. University of Oslo. \$1500.
- Preliminary study of the use of otoliths for assessing life histories of trout in the Clark Fork River. Montana Fish, Game and Parks. \$3000.
- An assessment of the importance of grazing, nutrient regeneration and regulatory nutrients on a large lake ecosystem model. Soap and Detergent Association. \$64,000 (with Craig Spencer).
- 1988 Forest response to disturbance. National Science Foundation through the University of Puerto Rico. \$9800.
- Exchanges of carbon between the atmosphere and terrestrial ecosystems as a result of land-use changes. U.S. Department of Energy. \$34,000.
- New Faculty Development Award. New York State/United University Professions. \$750.
- Long-term ecological research on the Luquillo Forest. National Science Foundation. \$2,600,000 (my share = \$120,000).
- 1989 Exchanges of carbon between the atmosphere and terrestrial ecosystems as a result of land-use changes. U.S. Department of Energy. \$37,000.
- Flathead Lake plankton dynamics model. Soap and Detergent Association. \$15,216.
- “Instructional supplement to system ecology” - Grant for improvement of teaching. State University of New York. \$2400.

- 1990 Sources and sinks of carbon from tropical land use change. U.S. Department of Energy. \$74,982.  
Consolidating Luquillo Experimental Forest information using a GIS. U.S. Forest Service. \$31,600.
- 1991 Spatial and temporal patterns of biotic exchanges of CO<sub>2</sub> between the atmosphere and tropical landscapes and their role in the global carbon cycle. U.S. Department of Energy. \$449,000.
- IBM RISC 600-350 Geographical modeling facility for SUNY-ESF. IBM and SUNY Graduate Research and Education Program. \$50,000.
- 1992 Supplement to Developing software for combining simulation models of forest change and resultant exchange of the atmospheric CO<sub>2</sub> with geographic information systems. U.S. Forest Service. \$10,700. Supplement to above \$5000.
- 1994 Supplement to DOE grant. \$27,000.  
NSF LTER Grant for Luquillo Forest. \$2,600,000 (my share = 120,000)
- 1995 U.S. Forest Service. Developing computer visualizations of Luquillo Forest for El Portal Visitor Center. \$20,000.
- U.S. Forest Service. Developing gradient analyses of eastwide datasets. \$3000.
- 1996 National Science Foundation SBIR Program (with Marshall Taylor) \$84,000.
- 1997 U. S. Sea Grant Small Stream models (\$50,000) with Neil Ringler
- 1998 USDA Forest Service Hydrological model of Luquillo Mountains (\$10,000)
- 1999 USDA Multicultural scholars program. (With M. Hall and others) (\$100,000)
- 2000 USDA Multicultural scholars program. (With M. Hall and others) (\$100,000)
- 2000 NSF LTER Grant for Luquillo Forest. \$800,000 (my share = \$40,000)
- 2000 Travel Grant to Malaysia, UNESCO \$2,500
- 2001 US Forest Service. Measuring carbon exchange in Luquillo Mountain forests (With Ye Qi, Univ California, Berkeley) (\$50,000)
- 2002 U.S. Forest Service Grant for Modeling photosynthesis in Luquillo Forest \$5,000
- 2003 NSF LTER Renewal Grant for Luquillo Forest. \$1,500,000 (my share = \$110,000)
- 2003 U.S. Forest Service Grant for Measuring photosynthesis in Luquillo Forest \$9,000
- 2004 NASA Seed grant Developing models for ecological impacts of urbanization in tropics. \$10,000

- 2004 Predicting Future Water Quality from Land Use Change Projections in the Catskill-Delaware Watersheds (Awarded \$222,653 by NY State Department of Environmental Conservation, August 2004 to December 2007. To M. Hall, P.I., and Co-PI/s Charles Hall, Rene Germaine, Mary Terrell)
- 2004 U.S. Forest Service. Synthesizing photosynthetic measurements in Luquillo Forest. \$18,000
- 2005 Santa Barbara Foundation Measuring long term energy return on investment for global petroleum. \$10,000