

ANNUAL REPORT
DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY
SUNY College of Environmental Science and Forestry
(June 1, 20011 - May 31, 2011; i.e., Summer 20011, AY 2010-20011)

NAME:

I. INSTRUCTIONAL ACTIVITIES

1. Regular Course Offerings

	<u>Course No.</u>	<u>Title</u>	<u>Credit</u>	<u>No.</u>	<u>No. of Lab.</u>
<u>Students</u>	<u>Sections</u>				<u>Hrs.</u>
FALL:	ESC 325/525	Energy (with T. Volk)	3	36	
	EFB 518	Systems Ecology	4	12	1
	ES 5??	Introd. to research (w/R. Yanez)	1	6	
	EFB 498	Research	3	3	
SPRING	EFB/ES 120	Global Environment	3	116	
	EFB 116	Ecosystems	3	25	
	EFB 522	Biophysical Economics	3	10	
	EFB 498	Research	2+-	5	
	EST 400	Senior Paper	3	4	

2. Non-Scheduled Course Offerings (e.g., 496, 899, 999)

<u>Course No.</u>	<u>Title</u>	<u>Credit</u>	<u>No.</u>
		<u>Hrs.</u>	<u>Students</u>
EFB 495	Undergraduate TAs		2
EFB /EST	Masters Research		4
EFB/EST 999	Doctoral Research		5

3. Continuing Education and Extension (short courses, workshops, etc.)

Systems Ecology 2 week short course at Nacional Universidad do Rio Cuarto, Argentina

4. Guest Lecture Activities

<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
EFB 220 Urban Ecology	Energetics of Cities	1
EST 296 Introduction to Environmental Studies	Overview of biology concentration	1
EST 426/626 Concepts of Sustainable Development	Oil: Nature's premium fuel	2

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor about 25 and unofficial advisor: countless

B. Graduate Students: (Name, degree sought, starting date, month & year; if a degree was completed, please give date and full citation for the thesis or dissertation).

MAJOR PROFESSOR

1. Anna Stewart	PhD	8/07	
2. Ajay Gupta	MS	5/12	Degree finished
3. Carlos P. Ramirez	PhD	8/09	
4. Steve Balogh	PhD	8/08	
5. Braulio Quintero	PhD	8/09	
6. Alex Poisson	PhD	8/11	

CO-MAJOR PROFESSOR

1. Suzanna DelGranado	PhD (with Jack Manno)	8/07	
2. Seth Myers	PhD (with Myrna Hall)	8/05	(Myrna does most advising etc)
3. Whitney Lash	PhD (with Valerie Luzadis)	8/06	
4. Egan Waggoner	MS (with Rick Smardon)	5/11	

MEMBER, STEERING COMMITTEE (other than those listed above)

A few

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

Two

III. RESEARCH COMPLETED OR UNDERWAY

A. Departmental Research (unsupported, boot-legged; title - % time spent)

Lots

B. 1. Grant-supported Research (source, subject, amount - total award and current year, award period starting and ending dates; list graduate research assistants supported by each grant)

National Science Foundation \$ 5,000,000 (my share \$152,000) (\$25,000 per year) Long Term Ecosystem Research in the Luquillo Forest Grant period 2006-2012
Supported: Whitney Lash

Positioning Rust-Belt Cities for a Sustainable Future: A Systems Approach to Enhancing Urban Quality of Life.” National Science Foundation Urban Long-Term Research Area Exploratory Award (ULTRA-EX), (\$300,000, my research \$37,596), David Nowak (PI), Myrna Hall, Charlie Hall, Rick Smardon, and E. Carter (co-PIs). September 2009 – December 2011.
Supports Steve Balogh

Social-Ecological System Change, Vulnerability, and the Future of a Tropical City” National Science Foundation Urban Long-Term Research Area Exploratory Award (ULTRA-EX), (\$300,000, my research \$30,000), Ariel Lugo (PI), Tischa Munoz (co-PI), March 2010 to March 2012. Supports Bali Quintero [Administered in Puerto Rico]

United Kingdom Department of International Development \$180,000
Consolidating and promulgating EROI Research Supports, Steven Balogh, Alex Poisson, Shelly Arnold, Jessica Lambert

An Environmental Basis for Rural Planning in the Province of Cordoba, Argentina.” Argentine National Government Award, (\$1,000,000, my research portion (about \$10,000) is for travel, per diem, and potentially tuition for an Argentine student to study some semesters at ESF), Oscar Giayetto and Juan-Jose Cantero (PIs). May 2010 to May 2013.

Various private sources: Multiple Sponsors \$11,000

2. Research Proposals pending (as in B.1., above)

IV. PUBLICATIONS (Full bibliographic citation, i.e., do not use "with Jones," or "Jones, et al."; please list only publications published, in press, or actually submitted during this reporting period --- **do not list manuscripts in preparation**).

A. Refereed Publications

Published (note many of these were in press but with no page numbers last year so there is some inflation

- Murphy, D.J, Hall, C.A.S. 2011. Energy return on investment, peak oil, and the end of economic growth. *Annals of the New York Academy of Sciences. Special Issue on Ecological economics.* 1219: 52–72.
- Balogh, Stephen, Charles Hall, Aileen Guzman, Darcy Balcarce, and Abbe Hamilton. 2012. The potential of Onondaga County to feed its own population and that of Syracuse, New York. Pp. 273-319 In D. Pimentel (ed) *Global economic and environmental aspects of biofuels.* 273-320. CRC Press.
- Murphy, D.J., Hall, C.A.S. 2011 Adjusting the economy to the new energy realities of the second half of the age of oil. *Ecological Modeling. Volume 223, Issue 1*, 24 December 2011, Pages 67–71
- Hall, Charles A., and John R. Benemann. "Oil from Algae?" *BioScience* Page 741-742.
- Gupta, A. J. and C. A. S. Hall. 2011 Energy Costs of Materials Associated with the Exponential Growth of Thin-Film Photovoltaic Systems, pp.48-60 in *Fundamentals of Materials for Energy and Environmental Sustainability*, edited by D.S. Ginley and D. Cahen (Materials Research Society, Warrendale, PA, and Cambridge Univ. Press, Cambridge, England
- Hall, C.A.S., and Hanson, D. (Eds.) 2011. *Sustainability: Special Issue on EROI* (Will be book)
- Hall, C.A.S. 2011. Introduction to special issue: *Sustainability: Special Issue on EROI.* Pages 1773-1777.
- Gupta, A., Hall, C.A.S. 2011. A Review of Past and Current EROI Data: *Sustainability: Special Issue on EROI.* Pages 1796-1809.
- Hall, C.A.S., Murphy, D. and Cleveland, C., 2011. Order from chaos: A Preliminary Protocol for Determining EROI for Fuels. *Sustainability: Special Issue on EROI.* Pages 1888-1907.
- Hall, C.A.S., King, C. 2011. Relating financial and energy return on investment: *Sustainability: Special Issue on EROI.* Pages 1810-1832.
- Guilford, M., C.A.S., Hall, P. O'Conner, and C.J., Cleveland, 2011. A new long term assessment of EROI for U.S. oil and gas: *Sustainability: Special Issue on EROI.* Pages 1866-1887.
- Grandall, L., C.A.S., Hall, and M. Hook, 2011. Energy return on investment for Norwegian oil and gas in 1991-2008: *Sustainability: Special Issue on EROI.* Pages 2050-2070.
- Hu, Yan, Dong, T., Feng, C.A.S., Hall, 2011. Empirical Analysis of production and EROI from China's largest oil field – the Daqing Oil Field: *Sustainability: Special Issue on EROI.* Pages 2323-2338.
- Sell, B., C.A.S, Hall, and D., Murphy. 2011. EROI for traditional natural gas in Western Pennsylvania: *Sustainability: Special Issue on EROI.* Vol. 1986-2008
- Hall, C.A.S. 2011. Synthesis. *Sustainability: Special Issue on EROI.* Pages 2496-2499.
- Murphy, D.J., C.A.S. Hall, 2011. Adjusting then economy to the new energy realities of the second half of the age of oil. *Ecological Modeling* Pages 67-71
- Hall, Charles A.S. "Congratulations Carey King." *Environmental Research Letters* 6 (2011): 1-2.
- Hall, C.A.S., and K. Klitgaard. 2012. *Energy and the Wealth of Nations: Understanding the Biophysical Economy.* Springer, NY.**
- Willig, M.R. Christopher P. Bloch, Alan P. Covich, Charles A. S. Hall, D. Jean Lodge, Ariel Lugo, Whendee L. Silver, Robert B. Waide, Lawrence R. Walker, and Jess K. Zimmerman. (2012) *Long-term Research in the*

Luquillo Mountains: Synthesis and Foundations for the Future. *Chapter 8* in LTER Research in the Luquillo Mountains. Cambridge University Press.

Harris, N.L., Hall, C.A.S., Lugo, A.E., (In press) A test of the maximum power hypothesis along an elevational gradient in the Luquillo Mountains of Puerto Rico: Ecological Bulletin

Book Series Editor Energy and the Economy Springer

B. Papers Presented at Science Meetings (give title, date, occasion, and location)

Peak oil, declining EROI and the new economic realities: New limits to growth?

Presented at:

(in London) :

UK all party Parliamentary group Parliament

U.K. Atkins Engineering

New Economics Foundation

U.K. Dept for International Development

Arup engineering

U.K. Department of Energy and Climate Change

Oxford University: Sir David King and colleagues

Plenary Speaker Sustainability Summit Milwaukee Wisconsin

Lead Plenary speaker at Ecological Engineering Meeting, June 7th 2012.

Speaker NSF UL:TRA conference, San Juan Puerto Rico

Invited University presentations:

“Peak oil, EROI and your financial future” SUNY Oswego April 23

“Peak oil, EROI and your financial future” Oxford University U.K. March 29th

D. Public Service Presentations (lectures, seminars, etc. to and for the public; give group or occasion, date(s), and attendance)

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

1. Government Agencies (Federal, State, Local):

none

2. Industrial and Commercial Groups, etc.

none

B. Unfunded Service to Governmental Agencies, Public Interest Groups, etc.

Many small issues

VI. PROFESSIONAL DEVELOPMENT

A. Professional Honors and Awards (for teaching, research, outreach, etc.)

None

B. 1. Activities in Professional Organizations (offices held, service as chairman, member, participant or consultant)

None

2. Professional Society Membership

AAAS (Fellow)

International society of Ecological Economics (Editorial Board)

North American Society of Ecological Economics

Active in ASPO (Association for the study of peak oil)

3. Other Professional Activities

a. Editorial activity

Journal (s)

Responsibility

Editorial Board Ecological Economics Managing editing for specific papers
Special issue of Journal Sustainability on Energy Return on Investment

Other (books, symposia, etc.)

Series chief Editor, Springer Series on Energy

b. Reviewer (Approximate)

Journal(s)

No. of manuscripts

Ecological Economics	2
Energy	1
Energies	2
Others	
Books: Springer (Book proposals)	6

Agency

No. of proposals

Other

Scientific Advisory Board
International Institute of Economic Analysis,
Zurich, Switzerland

c. Participation (workshops, symposia, etc.)

Name of workshop, etc.

Date

Place

Organizer: Third International meeting on Biophysical Economics, Syracuse N.Y.
(April 2011)

Organizer: First meeting on teaching Biophysical Economics in High Schools and
Community Colleges SUNY ESF, Syracuse N.Y. (June 11, 2011)

Participant: NSF ULTRA meetings in Syracuse and San Juan

C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

D. Foreign Travel (Where, When, Purpose)

London, England March 2012 Speak to Parliament and two UK Departments, and two major
engineering firms.

Toronto, to International Degrowth conference.

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

B. College-level

President's committee on a carbon-neutral ESF

Informal committee to generate a program in Biophysical and Ecological Economics

C. University-wide, including Research Foundation

VIII. SUMMARY OF SIGNIFICANT ACTIVITIES AND ACCOMPLISHMENTS DURING THIS REPORTING PERIOD, ESPECIALLY THOSE MOST NOTEWORTHY AND RELATIVE TO THE COLLEGE'S AND DEPARTMENT'S MISSION.

DEPARTMENT/COLLEGE

STUDENTS: I continued with my normal teaching: Systems Ecology and Energy in Fall, plus a seminar with Ruth Yanai, Global. Ecosystems and Biophysical Economics in Spring. All serious, demanding courses. Also as I think anyone knowledgeable will tell you, there is usually a line of students waiting for personal interaction with me essentially every afternoon.

My graduate students continue to do very well. Anna Stewart continues to receive about every possible prize including a Fulbright for her PhD research. She just received a best poster award for her workshop at Columbia University. Suzanna el Granado received a Fulbright grant for her research in Bolivia. My former graduate students continue to receive what I consider premium job offers. David Murphy accepted a joint faculty/research position between Northern Illinois University and Argonne National Laboratory focusing on energy and its relation to economics. He turned down a position to be a Congressional Fellow in Washington, D.C. Aileen Guzman has a great position with an NGO in New York. Jill MacMichael has an offer (pending funding) for U.S. Department of Energy. Ridhima Nayaar is working for a green building company in New York.

RESEARCH: Accomplishments

My sabbatical paid off in many ways:

- 1) Nearly 20 peer reviewed papers, although there is some double counting with papers in press last report
- 2) Editing a special issue of the Journal Sustainability on Energy Return on Investment, and administering the review process for some 20 papers
- 3) Publishing our new book "Energy and The wealth of Nations" while continuing the editing of a new Springer series of "100 page" books on energy The book has received 6 very positive reviews so far in scientific, management and financial Journals. These are available on my web page.

OUTREACH: I run an energy list serve with about 500 members where I distill and send out at weekly intervals what I believe to be the most important energy and energy/economic information.

I continue to be interviewed for Television and Media Several times a year. My research and teaching in Argentina constitutes international outreach.

My assessment of my year:

SELF: This year I am 69 and have pretty much decided to retire in a year. We have purchased our retirement home in Montana. SO the year has been spent on consolidating what I perceive my gains at ESF and Life are. All of my courses are on line and some are being used in other Universities, for example UCLA. Well I guess I published a little and taught a little too.

IX. A. FUTURE PLANS, AMBITIONS, AND POTENTIAL CONTRIBUTIONS FOR YOUR OWN PROFESSIONAL DEVELOPMENT AND THE ENHANCEMENT OF THE PROGRAM IN ENVIRONMENTAL AND FOREST BIOLOGY (brief summary)

I continue to worry about what will remain at ESF after I am gone from here or from the Earth. I take great satisfaction that Systems Ecology and Ecosystems, what I was brought here to develop, are strong and healthy, that we have a functional new energy minor and it will soon be a major and that we have a formal course in Biophysical Economics. Our Environmental Sciences program is more formalized and perhaps strengthened, although with less punch than I envisioned. I have begun working with about 5 other faculty members to create unified undergraduate programs (minor etc) in Biophysical and Ecological Economics (BEE).

B. PROJECTED ACTIVITIES FOR NEXT YEAR

:	EST 325/525	Energy (with T. Volk)	3
	EFB 518	Systems Ecology	4

3. Spring semester 2012

EFB/ES	120	The Global Environment	3
EFB	516	Ecosystems	3
EFB	522	BioPhysical Economics	3

b. Proposed research activity

Consolidate, finish up a few projects

c. University, Professional society, and public service

3. Spring Semester 2013
My last semester!