

**ANNUAL REPORT: June 1, 2012 – May 31, 2013**  
**(i.e., Summer 2012, AY 2012-2013)**  
**DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY**  
**SUNY-ESF**

NAME: Sadie J. Ryan

**I. INSTRUCTIONAL ACTIVITIES**

1. Regular Course Offerings

	Course No.	Title	Credit Hrs.	No. Students	No. of Lab. Sections
SUMMER:					
FALL:	EFB 496/796*	Emerging Infectious Diseases	3	17/2	0
	EFB 797	Adaptive Peaks Seminar (Co-I with J. Cohen)	1	13	0
SPRING:	EFB 360	Introduction to Epidemiology	3	32	0
	EFB 496	Conservation Biology in Ecuador	1	10	0
	EFB 797	Adaptive Peaks Seminar (Co-I with J. Cohen)	1	26	0
	EFB 496/796*	Parameter Estimation and Population Modeling (Co-I with J. Cohen)	3	2/7	1

\*Listed as provisional offerings, but are planned as regular, when COI approval happens

**NOTE: PLEASE INDICATE WHICH COURSE(S) HAD A SERVICE-LEARNING COMPONENT AND BRIEFLY EXPLAIN THE NATURE OF THIS COMPONENT.** For examples of service-learning in courses, see: <http://www.esf.edu/students/service/courses.htm>. Service-learning is a form of structured experiential education in which students engage with the community to be active learners, to enrich their sense of civic responsibility, and to explore practical application for course content. Faculty oversight, reflective thinking, and reciprocity are key components of service-learning.

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

	Course No.	Title	Credit Hrs.	No. Students
FALL:	EFB 298	Research Internship/Environ Bio	2	1
	EFB 498	Independent Research/Environ Bio	1	2
	EFB 798	Research Prob/EFB	1	1
	EFB 899	Masters Thesis Research	2	1
SPRING:	EFB 298	Research Internship/Environ Bio	2	2
	EFB 420	Prof Internship/Environ Bio	3	1
	EFB 495	Undergrad Exp/Coll Teaching	1	1
	EFB 498	Independent Research/Environ Bio	4	1
	EFB 798	Research Prob/EFB	2/1	2
	EFB 899	Masters Thesis Research	1	1

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

4. Guest Lecture Activities

	<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
EST 696:	Environmental Health Policy		1

## II. STUDENT ADVISING

- A. Number of undergraduates for whom you are the student's official advisor 23 and unofficial advisor \_\_\_\_\_
- B. Graduate Students: (list 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

Rebecca Fuda, PhD, August 2012  
Andrea Thomen, MS, August 2012  
Lindsay Scales, MPS, August 2012

### CO-MAJOR PROFESSOR

### MEMBER, STEERING COMMITTEE (other than those listed above)

Kelley Fitzsimmons, MS

Anna M. Stewart-Ibarra, PhD

Stewart-Ibarra, A. M. 2012 "A Social-Ecological Analysis of Vulnerability to Dengue Fever in Southern Coastal Ecuador" Doctoral Dissertation, Department of Environmental and Forest Biology (EFB), SUNY College of Environmental Science and Forestry, Syracuse, NY

Sarah Wilkinson, MS

Wilkinson, S. 2013 "Dynamics of Un-hunted White-tailed Deer at Eastern National Park Service Sites", MS Thesis, Department of Environmental and Forest Biology (EFB), SUNY College of Environmental Science and Forestry, Syracuse, NY

### CHAIRMAN OR READER ON THESIS EXAMS, ETC.

Frank Sylvester, MS/JD

Sylvester, F. 2013 "The Continuing Problem of the Non-Consenting Owner: How States Balance Natural Resource Development and Landowner Rights", MS Thesis, Department of Forest and Natural Resource Management (FNRM), SUNY College of Environmental Science and Forestry, Syracuse, NY.

## III. RESEARCH COMPLETED OR UNDERWAY

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

- Modeling of malaria and dengue response to land use and climate change
- Multilevel analysis of land use and land cover change in Latin America and Caribbean (LAC)
- Primate social systems, ecology, phylogeny, community structure, and disease ecology

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)

NSF CNH-ex: **“Hotter Hotspots: Land-Use Intensification and Protected-Area Vulnerability in Africa's Albertine Rift”** Hartter, J., UNH (PI), **Ryan, S.J., SUNY-ESF (co-PI)**, Palace, M., UNH (co-PI), Diem, J.E., GSU (co-PI), Chapman, C.A., McGill (co-PI) - \$249,995, 2011-2014 (\$23, 718 AY SJR)

National Geographic: **“Parks, People, and Climate Change: Assessing Household Vulnerability in Equatorial Africa”** Hartter, J., UNH (PI), **Ryan, S.J., SUNY-ESF (co-PI)** - \$20,000 (project costs only), 2012-2014. (\$0 AY – project costs only)

INECOL/SUNY-ESF Seed Grant, **“Emerging diseases and health status of black howler monkeys in degraded habitat in Balancan, Tabasco, Mexico”** – **Ryan, S.J., SUNY-ESF (PI)**, Serio-Silva, J.C. (co-PI) - \$5,000, 2012/2013 (\$0 AY – project costs only)

SciFund, **“Amphibian Ranavirus Project”** - **Ryan, S.J., SUNY-ESF (PI)**, \$1,875 2012-2015 (\$0 AY – project costs only)

### Starting AY 2013

SUNY Conversations in the Disciplines (CID), **“From lab to landscape: integrated infectious disease research”** - **Ryan, S.J., SUNY-ESF (PI)**, Polhemus, M. SUNY UMU (co-PI), Stewart, A., SUNY UMU (co-PI), \$5,000

Department of Defense (DOD), Global Emerging Infectious Surveillance (GEIS), **“Capacity Strengthening in Ecuador: Partnering to improve surveillance of febrile vector-borne diseases”** – Stewart, A.M. SUNY UMU (PI), Endy, T. SUNY UMU (PI), **Ryan, S.J. SUNY ESF (co-I)**, Leon, R. USFQ (co-I), Bayot, B. ESPOL (co-I), Cardenas, W. ESPOL (co-I), Munoz, A. Columbia U (co-I), Carr, D. UCSB (co-I), Mehta, S. Cornell (co-I), \$196,000; *contracts AQ*

McIntire-Stennis (USDA), **“Modeling Super Spreading in an Emerging Emerald Ash Borer (*Agrilus Planipennis*) Infestation”** – **Ryan, S.J. (PI)**, Fierke, M. (co-PI), \$51,865 2013-2015  
(Includes funding for one PhD student, co-supervised with M. Fierke)

MOU with NYDEC: **“Factors Limiting New England Cottontail (*Sylvilagus transitionalis*) Populations in New York: Implications for Habitat Restoration”** - Cohen, J., SUNY-ESF (PI), **Ryan, S.J. SUNY-ESF (co-PI)**, Whipps, C., SUNY-ESF (co-PI), \$880,000 2013-2018  
(Includes partial funding for one PhD student (Cohen) and one MS student (Ryan))

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

NSF Preliminary Proposal **“How Bioenergetics and Foraging Determine Population Dynamics”** - **Ryan, S.J. (PI)**, Johnson, L.R. (co-PI). \$n/a. *Invited for full proposal.*

NIH R01 PAR-11-145 (International Research in Infectious Diseases, including AIDS) **“Understanding the Dynamics of Rickettsia Infections and other Tick-Borne Zoonotic Pathogens in Selected Communities in Eastern and Southern Africa”** - Mukaratirwa, S. UKZN (PI), Chitanga, S. UKZN (co-PI), Gaff, H.D. ODU (co-PI), Hynes, W. ODU (co-PI), **Ryan, S.J. SUNY-ESF (co-PI)**, \$625,000 (2 weeks AY x 5Y to SJR)

NSF Antarctic Organisms and Ecosystems (ANT) **“Quantifying how Bioenergetics and Foraging Determine Population Dynamics in Threatened Antarctic Albatrosses”** – Johnson, L.R. USF (PI), **Ryan, S.J. SUNY-ESF (co-PI)**, (\$122,738.00 to SJR)

SUNY/RF Research Collaboration Fund **“Developing an Interdisciplinary and International Research and Training Program to Address Global to Local Emerging Febrile Vector Borne Infestations”** – Endy, T. SUNY UMU (PI), Stewart, A. SUNY UMU (co-PI), **Ryan, S.J. SUNY ESF (co-PI) \$35,172**

3. Research Proposals submitted, but rejected (include information as in B.1, above)

NSF Antarctic Organisms and Ecosystems (ANT), **“Collaborative Research: Quantifying Population Impacts of Anthropogenic and Climate Changes on Foraging in Threatened Antarctic Albatrosses”** – Johnson, L.R. U Chicago (PI), **Ryan, S.J. SUNY-ESF (PI), \$384, 449**

NSF Ecology and Evolution of Infectious Diseases (EEID), **“Spatial eco-epidemiology of tickborne rickettsial pathogens: modeling the impacts of humans, hosts and ticks on the move”** - Gaff, H.D. ODU (PI), Brinkerhoff, R.J., U Richmond (co-PI), **Ryan, S.J., SUNY-ESF (co-PI), \$2,409,044 2013-2018**  
*(\$403,966 to SJR, funding to support one PhD student at ESF)*

NASA **“Range Margins of Odonata as Sensitive Indicators of Climate-Induced Environmental Changes in the Northeastern U.S”**. **Ryan, S.J. (PI)**, Evans, D.J. (PI), Howard (PI), Schlessinger (PI), Corser, J (PI), White, E. (PI) **\$236,713.57 2013-2014-**

National Institutes of Health, Program Announcement: Climate Change and Health: Assessing and Modeling Population Vulnerability to Climate Change (R21) PAR-10-235: **“Climate-ocean and socio-ecological dynamics predict local dengue vulnerability in Ecuador”**- Endy, T. SUNY UMU (PI), Polhemus, M. SUNY UMU (co-PI), Rochford, R. SUNY UMU (co-PI), Munoz, A.G. Columbia U (co-PI), Lowe, R. IC3 (co-PI), Bayot, B. ESPOL (co-PI), Castillo, K. (co-PI), Borbor-Cordova, M. (co-PI), Lopez-Carr, D. (co-PI), **Ryan, S.J. (co-PI) \$275,000 (Funding for technicians)**

Department of Homeland Security, International Research in Homeland Security Science & Technology Mission Areas DHS-11-ST-108-002: **“The use of satellite and land use data to model epidemic threat and determine optimal intervention policies for livestock, wildlife and zoonotic disease outbreaks in the USA”**, **Ryan, S.J. SUNY-ESF, (PI)**, Tildesley, M. U Warwick (co-PI), Keeling, M. U Warwick (co-PI), Smith, G. UPenn (co-PI) **\$750,000 (Funding for a postdoc at ESF)**

NSF Geospatial Sciences (GSS) **“The use of satellite and land use data to model epidemic threat and determine optimal intervention for policies for livestock, wildlife and zoonotic disease outbreaks in the USA”**, **Ryan, S.J. SUNY-ESF, (PI)**, Tildesley, M. U Warwick (co-PI), Keeling, M. U Warwick (co-PI), Smith, G. UPenn (co-PI) **\$389,781 (funding for a postdoc at ESF)**

Supporting Faculty, NIH-NIAID, joint program SUNY-ESF Outreach & New York Academy of Sciences: **“Community Health through Science Education: Afterschool Science as a Vehicle for Community Wellness Education.”** With SUNY ESF Office of Outreach \$n/a.

NSF Preliminary Proposal, 2012: **“Modeling the Mother Trees: the super spreader phenomenon in an emerging emerald ash borer (*Agrilus planipennis*) infestation”** **Ryan, S.J. SUNY-ESF (PI)**, M. Fierke SUNY-ESF (co-PI) \$n/a

NSF Preliminary Proposal, 2013: **“Anthropogenic impacts on mammalian community structure in a biodiversity hotspot”** \$n/a **Ryan, S.J. SUNY ESF (PI)**

SUNY-ESF Faculty Seed Grant Program 2013, **“Anthropogenic Impacts on Mammalian Community Structure in a Biodiversity Hotspot”** **\$8,000 – Ryan, S.J. (PI)** *(Seed and bridge to support extension of Uganda work, and a graduate student project costs)*

Department of Defense (DOD), Global Emerging Infectious Surveillance (GEIS), *pre-proposal* “**Creating a platform for surveillance of sylvatic FVBI in Ecuador**”, Polhemus, M. SUNY UMU (PI), Endy, T. SUNY UMU (co-PI), Stewart, A. SUNY-UMU (co-PI), King, C. SUNY UMU (co-PI), **Ryan, S.J. SUNY-ESF (co-PI)**.

**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**

Mordecai, E.A., Paaijmans, K.P., Johnson, L.R., Balzer, C.H., Ben-Horin, T., deMoor, E., McNally, A., Pawar, S., **Ryan, S.J.**, Smith, T.C., Lafferty, K.D., 2013. Physiological constraints dramatically lower the expected temperature for peak malaria transmission. *Ecology Letters* 16(1):22-30.

**Ryan, S.J.** and Hartter, J. 2012. Beyond ecological success of corridors: integrating land use history and demographic change to provide a whole landscape perspective. *Ecological Restoration*. 30(4): 320-328 [Invited paper: Special Issue on Design Approaches to Ecological Restoration]

M.J. Tildesley and **Ryan, S.J.** 2012. Disease prevention versus data privacy: using landcover maps to inform spatial epidemic models. *PLOS Computational Biology* 8(11): e1002723

Rudnick, D., **Ryan, S.J.**, Preziosi, D., Epps, C., Deiffenbach, F., Kintsch, J., Beier, P., Jenness, J., Perkl, R., Trombulak, S., Hartter, J., Gerber, L., Merenlender, A., Austen, D., Cushman, S. 2012. The role of landscape connectivity in planning and implementing conservation and restoration priorities. *Issues in Ecology* 16.

**Ryan, S.J.**, Cross, P.C., Winnie, J, Jr, Hay, C., Bowers, J., Getz, W.M. 2012. The utility of NDVI for predicting African buffalo forage quality. *Journal of Wildlife Management*. 76(7):1499-1508 (Cover Story)

**Ryan, S.J.**, Brashares, J. S, Walsh, C., Milbers, K., Kilroy, C., Chapman, C.A. 2012. A survey of gastrointestinal parasites of olive baboons (*Papio anubis*) in human settlement areas of Mole National Park, Ghana. *J. Parasitology* 98:885-888

**Submitted, in review**

**Ryan, S.J.**, Jones, J.H., Dobson, A.P. *in review*. Interactions between social structure, demography, and transmission determine disease persistence in primates.

Ben-Horin, T. **Ryan, S.J.**, Johnson, L.R., Lenihan, H.S. *in review*. Do malaria-transmitting mosquitoes senesce?

Dowhaniuk, N.S., Hartter, J., **Ryan, S.J.** *in review*. Discrepancies in geographic data cause challenges for managing protected areas: An example from an African biodiversity hotspot.

Diem, J.E., Hartter, J., **Ryan, S.J.**, Palace, M.D. *in review*. Validation of satellite-based rainfall products for western Uganda.

**Ryan, S.J.**, McNally, A., Johnson, L.R., Ben-Horin, T., Mordecai, E.A., Paaijmans, K., Lafferty, K.D. *in review*. Rising suitability, declining endemicity: climate change and shifting malaria in Africa.

Hartter, J., **Ryan, S.J.**, MacKenzie, C.A., Parker, J.N., Strasser, C.A. *in review*. Data Stewardship and Ethical Challenges in Conservation Science.

B. Non-refereed Publications

**Book Chapters**

Prins, H.T., Melletti, M., Korte, L., Cornelis, D., Mirabile, M., **Ryan, S.J.** *in press*. “Species Account: African Buffalo (*Syncerus caffer*)”, in Ecology, Evolution and Behaviour of Wild Cattle: Implications for Conservation. Burton, J. and Melletti, M., eds. Cambridge Press

Johnson, L.R., Lafferty, K.D., McNally, A., Mordecai, E., Paaijmans, K., Pawar, S., **Ryan, S.J.** *in press*. “Mapping the distribution of malaria: current methods and considerations”, in Spatial and temporal dynamics of infectious diseases, Chen, D. ed., Wiley.

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

**Talks**

**Ryan, S.J.**, Hartter, J., Palace, M., Diem, J., and C. Chapman. 2013. Parks, People, and Fragments: Remediating Decoupled Research into Natural-Human Systems. Session: New Frontiers for Research and Engagement in African Conservation Landscapes Association of American Geographers (AAG) Annual Meeting. April 9-13, 2013. Los Angeles, CA. *Sponsored by Human Dimensions of Global Change Specialty Group, Cultural and Political Ecology Specialty Group and the Hazards, Risks, and Disasters Specialty Group.*

Harterter, J., Palace, M., **Ryan, S.J.**, Diem, J., and C.A. Chapman. 2013. Forest Loss, Agricultural Intensification, and the Islandization of Protected Areas in the African Albertine Rift. Association of American Geographers (AAG) Annual Meeting. April 9-13, 2013. Los Angeles, CA.

**Ryan, S.J.** and J. Hartter. 2012. Population, Environment, and Climate in the Albertine Rift: Local Impacts of Regional Change. American Anthropological Association (AAA) Annual Meeting. November 14-18, 2012. San Francisco, CA.

**Ryan, S.J.** and J. Hartter. 2012. Assessing Conservation Success: People, Wildlife, and Parks in the Albertine Rift. Society of Conservation Biology. North American Congress for Conservation Biology (NACCB). July 15-18, 2012. Oakland, CA.

**Ryan, S.J.** and Tildesley, M. 2012. Disease prevention or data privacy? Research and Policy for Infectious Disease Dynamics (RAPIDD) “Foot and Mouth Disease” Meeting. September 19-21, 2012. Washington, D.C. *Supported by Fogarty Institute, NIH and the Department of Homeland Security (DHS) RAPIDD program*

**Posters**

Johnson, L.R., Ben-Horin, T., Mordecai, E., Paaijmans, K.P., Pawar, S., **Ryan, S.J.**, McNally, A., Lafferty, K.D. Effects of uncertainty in temperature dependencies in physiological responses on predictions of R0 for malaria: a Bayesian approach. Ecology and Evolution of Infectious Disease (EEID), 11<sup>th</sup> Annual Workshop and Conference. May 20-23, 2013. Penn State University, PA.

Breytenbach, E., Diem, J.E., Hartter, J., **Ryan, S.J.**, and C.A. Chapman. 2013. Following the rains: Perceptions of climate change around Kibale National Park, Uganda. Association of American Geographers (AAG) Annual Meeting. April 9-13, 2013. Los Angeles, CA.

Diem, J.E., Hartter, J., Palace, M.W., and **S.J. Ryan**. 2013. Validation of Satellite-Based Rainfall Products for Western Uganda. Association of American Geographers (AAG) Annual Meeting. April 9-13, 2013. Los Angeles, CA.

Harterter, J., **Ryan, S.J.**, Palace, M., Diem, J., and C.A. Chapman. 2012. Population, Environment, and Climate in the Albertine Rift: Understanding Local Impacts of Regional Change. American Geophysical Union (AGU) Fall Meeting. December 3-7, 2012. San Francisco, CA.

Ibarra Stewart, A.M., **Ryan, S.J.**, Beltran, E., Meija, R., Silva, M. Dengue Vector Dynamics Influenced by Interacting Climatic and Social Factors in Ecuador: Implications for Targeted Control. American Society for Tropical Medicine and Hygiene (ASTMH) 61<sup>st</sup> Annual Meeting, November 11-15, 2012. Atlanta, GA

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

#### *Invited Seminars*

Ryan, S.J. **Clash of the Titans: People, Environment, and Climate in the Albertine Rift region of Africa**. April 18<sup>th</sup>, 2013. Department of Evolution, Ecology and Organismal Biology, The Ohio State University.

Ryan, S.J. **Clash of the Titans: People, Environment, and Climate in the Albertine Rift**. February 21<sup>st</sup>, 2013. Ecology & Evolution Graduate Program Seminar Series, Rutgers University.

Ryan, S.J. **Climate change and malaria: a hot topic that is cooler than you think**. January 25<sup>th</sup>, 2013. Conversations in Global Health, SUNY Upstate Medical University.

Ryan, S.J. **Extreme Conservation: The Consequences of Non-Intervention for Infectious Disease in Great Apes**. October 5<sup>th</sup>, 2012. Fall Environmental Sciences Seminar Series, University of New Hampshire. *Sponsored by the NRESS Ph.D. Program, the Earth Systems Research Center (ESRC), the Department of Natural Resources and the Environment, and the Department of Earth Sciences.*

#### *Invited Workshop Lectures/Teaching*

IV Curso Internacional de Primatología de Campo: **Ecología, Comportamiento y Conservación en la Interfase humano – ambiente**

(IV International Primatology Field Course: **Ecology, Behavior and Conservation at the Human – Environment Interface**), April 21<sup>st</sup> – May 3<sup>rd</sup>, 2013 Estación de Investigación Primatológica y Vida Silvestre, INECOL, Balancán, Tabasco, México

#### *Teaching:*

**Ryan, S.J.** Emerging Diseases, Climate change and how we (could) approach them together

Session 1: EIDs, Epidemiology, Disease Ecology; contexts and complications

Session 2: Climate Change and Ecology of EIDs; climate models, multiscalar anthropogenic impacts

Session 3: Spatial methods for ID management; top down and bottom up modeling

#### *Lectures:*

**Ryan, S.J.** Malaria and Climate Change

**Ryan, S.J.** Too few primates, too many primates, and disease

UKZN Siyababanga Workshop: **Complexity and Biology: Tick-borne disease dynamics for wildlife, livestock and humans** 12 - 14 March 2013: University of KwaZulu Natal, Pietermaritzburg, Republic of South Africa  
(*Workshop co-coordinator*)

**Ryan, S.J.** Coupled natural-human systems research and disease ecology on landscapes, March 12<sup>th</sup>

DIMACS/MBI **Workshop in Quantitative Landscape Ecology and Environmental Sustainability** 2 - 7 July 2012  
University of KwaZulu Natal, Durban, Republic of South Africa.  
(*Workshop co-coordinator*)

**Ryan, S.J.** Didactic Talk: If we know what sustainability is (theory), how do we take the next step (applied)? Local Living in the Larger Landscape: Population, Environment, and Climate in the Albertine Rift, July 3<sup>rd</sup>

**Ryan, S.J.** Home range and habitat selection: ArcGIS Morning Hands-on Workshop, July 4<sup>th</sup>

Ryan, S.J. Thinking in Systems: Morning Hands-on Workshop, July 7<sup>th</sup>

## V. PUBLIC SERVICE

- A. Funded Service (include consulting activities)
  - 1. Government Agencies (Federal, State, Local):
  - 2. Industrial and Commercial Groups, etc.
- B. Unfunded Service to Governmental Agencies, Public Interest Groups, etc.

## VI. PROFESSIONAL DEVELOPMENT

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

### CHANS-NET Fellowship 2013 - \$1,000

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

Society for Conservation Biology (SCB), Member, Board of Governors, and Chair, Education and Student Affairs

- 2. Professional Society Membership

Society for Conservation Biology (SCB)  
The Wildlife Society (TWS)  
American Association of Geographers (AAG)  
Ecological Society of America (ESA)  
Society for Mathematical Biology (SMB)

- 3. Other Professional Activities

- a. Editorial activity

	<u>Journal (s)</u>	<u>Responsibility</u>
Animal Conservation		Associate Editor (5 ms/year handled)
PLOS ONE		Associate Editor (7 ms handled since December)

Other (books, symposia, etc.)

- b. Reviewer

	<u>Journal(s)</u>	<u>No. of manuscripts</u>
	<i>J Appl Geog</i>	1
	<i>J. Af Ecol</i>	2
	<i>PLOS ONE</i>	2
	<i>J Appl Ecol</i>	2
	<i>Af J Health Sci</i>	2
	<i>Ecology</i>	1



<u>Agency</u>	<u>No. of proposals</u>
American Association of University Women (AAUW)	30

Other

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
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C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

C. Foreign Travel (Where, When, Purpose)

***Uganda***

June 8<sup>th</sup> - July 1<sup>st</sup>, 2012; Kampala, Kibale National Park, Queen Elizabeth National Park, Murchison Falls National Park - Fieldwork

***South Africa***

July 2-8<sup>th</sup>, 2012; DIMACS/MBI Workshop: **Quantitative Landscape Ecology and Environmental Sustainability (QLEES)**, University of KwaZulu Natal, Durban Campus – lecturing and workshopping  
March 11-15<sup>th</sup>, Siyabanga Workshop **Complexity and Biology: Tick-borne disease dynamics for wildlife, livestock and humans** 12 - 14 March 2013: University of KwaZulu Natal, Pietermaritzburg Campus – lecturing and workshopping

***Mexico***

April 27<sup>th</sup> – May 3<sup>rd</sup>, 2012; IV Curso Internacional de Primatología de Campo: **Ecología, Comportamiento y Conservación en la Interfase humano – ambiente**  
(IV International Primatology Field Course: **Ecology, Behavior and Conservation at the Human – Environment Interface**), April 21<sup>st</sup> – May 3<sup>rd</sup>, 2013 Estación de Investigación Primatológica y Vida Silvestre, INECOL, Balancán, Tabasco – teaching and fieldwork

**VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)**

A. Department-level

Graduate Program Advisory Committee, member  
Toxicology Position Search Committee, member  
Phyllis Roskins Award Committee, member  
Chun Wang Award Committee, member

B. College-level

CGMA – Committee on Geospatial Modeling and Analysis, member  
IACUC – Institutional Animal Care and Use Committee, member  
Faculty member, Graduate Program in Environmental Science (GPES), CNH group  
Program Coordinator, Health and Environment focus, Division of Environmental Science  
Program coordinator, Environmental Health (EH) major  
Faculty Advisor, Conservation Biology Club

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.**

**One** paragraph on each of the following (**i.e., three paragraphs total**) would be most helpful: this past year, what have you done for our students, department/college, and self professionally? NOTE: The information in this section (along with the supporting specific information elsewhere in this report) should be your strongest case for being considered for a discretionary raise (when available), which I'll continue to award based on your contributions to the department and college this reporting period.

Students: This year was the second time around for my two main courses, offered as part of new Environmental Health curriculum at ESF; in some cases I applied lessons learned, and in other ways I had to adapt, for example to increased enrollment. This year in the Fall I offered Emerging Infectious Diseases (EFB 496/796), for the second time, but with a graduate section added; the class size more than doubled, and the addition of graduate students apparently made the discussions more complex and in-depth. I also co-instructed the graduate-level Adaptive Peaks seminar (EFB 797), which allowed us to bring in a series of interesting speakers and have graduate student led discussions, often examining methods and motivations more closely than peer reviewers – which was a lot of fun. In the Spring I offered EFB 360, Introduction to Epidemiology, also for the second time, which had increased enrollment also, which changed the dynamic of the classroom considerably; based on feedback from last year, I increased the number of in-class exercises, in which students dissect current health information, either articles, reports, editorials, and take on group activities shared with the class, to further critical thinking about communication of health concepts. The students had two major creative projects, one of which is to produce a piece of health communication – a pamphlet or poster that one might find in a health center, at the doctor, clinic, or another publicly accessible place. This project again resulted in some amazing products, the most exciting of which I will display in one of our display cases in Illick. In addition to this class, I also co-instructed the Adaptive Peaks seminar (EFB 797) again, instructed a seminar for the Cons Bio club called Conservation in Ecuador (EFB 496), comprising presentations and article critique, for which I also oversaw my first undergraduate teaching assistant (EFB 495), which was both an interesting experience, and very successful. In addition, I co-instructed the Parameter Estimation and Population Modeling (EFB 496/796) course with Dr Cohen, which we expanded this year to include an additional computer lab period, and which we opened up to upper-level undergraduates. In addition to teaching, I oversaw three undergraduates in my lab group doing work at the lab experience and internship levels, plus a senior synthesis student for Environmental Science, and co-advised with Dr Folta and Dr Whipps an undergraduate project on media impacts on perceptions of Lyme and West Nile diseases. One of my undergraduate's projects was a joint internship at Upstate Medical University, expanding my realm of experience and offering much more hands-on work. My current graduate students (3) are all completing their first year of coursework well; one student has a manuscript in final stages for submission, and 2 others are doing full field seasons this summer. Both thesis-track students have had abstracts accepted for a fall conference, and are applying for fellowships and research funding for future work. In the fall, the lab will add another 2.5 students; a former undergraduate researcher will be starting a MS, another MS student will be working on a DEC project (with Dr Whipps and Dr Cohen), and a PhD student will be co-advised with Dr Fierke to work on our Mc-Intire Stennis funded project. Two students whose committees I served on graduated, one PhD (Anna Stewart-Ibarra), one MS (Sarah Wilkinson). One co-authored manuscript is currently in the final stages, and ongoing projects with Dr Anna Stewart-Ibarra, and the Center for Global Health and Translational Science (CGHATS) at SUNY UMU, including grant-writing and bringing in a PhD student at SUNY UMU, have stemmed from this committee-mentoring experience.

Department/College: This year, I worked intensively on paperwork in aid of starting the new Environmental Health major at ESF. We were approved at the SUNY level in December, 2012, and, after revisions including the development of eight new course syllabi, the major was approved by the State Education Department (SED). The webpage now reflects the anticipated start date of Fall 2014 for the major, and we are looking forward to this new venture. I will serve as program coordinator for the major, which will reside within the Division of Environmental Sciences. I also joined EFB's Graduate Program Advisory Committee (GPAC), largely with the agenda of reviewing our MPS offerings and helping to ease communication about their requirements and expectations. I reported this to the faculty in the Spring, and will continue to work on this, and explore both faculty and students expectations in the

coming years. I also serve on both the college's Institutional Animal Care and Use Committee (IACUC), and the Council for Geospatial Modeling and Analysis (CGMA), for which I donated my relevant research posters for GIS Day. I also served on a search committee for EFB, the first such experience as a faculty member.

Self: This year I focused significant time on primary and collaborative research outputs. I reanalyzed data and entirely rewrote and published the last chapter of my dissertation, which gained the cover of *Journal of Wildlife Management*, and was featured in the winter issue of *The Wildlife Professional*; this has been cited 3 times (Google Scholar) so far, plus multiple email inquiries to apply the methods in other ecosystems. I was a coauthor on an *Issues in Ecology* piece with a large number of conservation professionals, which arose from an ESA symposium a few years ago; this garnered considerable press in the blogosphere and several press releases. I also led an invited piece for a special issue of *Ecological Restoration*, which highlighted issues of sustainability of conservation corridors when humans are not taken into account; this also received several blog write ups, and has inspired interesting interdisciplinary discussions at conferences and provides a nice base for ongoing research in Uganda. I co-authored two papers in higher-impact journals (*PLOS Computational Biology*, 5.2; *Ecology Letters* 17.56), both involving modeling of disease; these received considerable press as well (*New Scientist*, *ScienceDaily*, *Atlantic Wire*, *e.g.*). The malaria work, now a distributed collaborative group, which grew out of a working group in Santa Barbara (at NCEAS), continues, with a book chapter, 2 papers in review, 2 talks, and a co-authored poster. This collaboration shows no signs of slowing, despite a notable lack of funding. With 6 manuscripts submitted, all collaborative work, and focusing in on issues of landscape change and disease ecology, I have been refining my statistical capacities, my modeling skills, and attempting to rely only on R software and packages; which I carry over to my teaching, so that students can take code with them wherever they will apply the knowledge. My work continues to accrue citations (Scopus H-index=9, Google Scholar H-index=12), and being invited onto a book chapter on my dissertation study subject (African buffalo), and invited to write a paper on conservation corridor issues, helps me continue to refine my role in the larger academic world. In addition to research and teaching, I also took on editorial roles at two journals, as an Associate Editor (*Animal Conservation* and *PLOS ONE*), which has been an interesting experience, and further insight into the reviewing and publication process. I have also been serving on the Board of Governors of the Society for Conservation Biology, as the Chair of Education and Student Affairs; understanding the inner workings of one of my own professional societies has been rewarding, and coordinating a merged standing committee has been interesting. In terms of my own skill development, I finally learned how to shoot a dart gun; this has been something I have wanted to train in for several years, and I was able to practice with a veterinarian while teaching in Mexico, as part of the INECOL/ESF funded seed project looking at diseases in black howler monkeys (*Alouatta nigra*). I learned how to make extremely low-cost hair-snare darts for use in blow-guns to collect DNA samples, and did practice shots at toy monkeys in trees; we then calibrated the dart gun for our project, using water in place of tranquilizers, and shooting at old cable spools. This experience was invaluable for understanding how this works, what components are necessary, and thus being able to write the methods sensibly into future grants.

## **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)**

### **B. PROJECTED ACTIVITIES FOR NEXT YEAR**

#### 1. Summer 2013

##### a. Course(s) to be offered

n/a

##### b. Proposed research activity

Continued research in Uganda – fieldwork on climate stations, setting up camera sites, groundtruthing village and park border locations

##### c. University, professional society, and public service

Continuing administrative work on upcoming Environmental Health major: web information, college catalog reconciliation, faculty and facilities planning, student enrollment accommodation, communications and outreach.

## 2. Fall Semester 2013

### a. Course(s) to be offered

EFB 496/796\* Emerging Infectious Diseases

### b. Proposed research activity

Land use change, climate change, perceptions, and management in African parks landscapes  
Ongoing work in Uganda and the Albertine Rift, Africa – 20% research time

Land use and climate change impacts on dengue epidemiology in Ecuador – spatial modeling  
Collaborative work with CGHATS, SUNY Upstate – 10 % research time

Modeling temperature responses and climate impacts on vector borne diseases (entirely theory and synthesis) – 30%

Lab work to identify ranavirus in vernal pools at Heiberg forest, and model metapopulation disease processes  
MS student led project, collaborative in EFB – 5% research time

Lab work to identify parasites and plant forage species in fecal samples of New England and Eastern Cottontail rabbits  
MS student led project, collaborative in EFB – 5% research time

### c. University, Professional society, and public service

Continuing administrative work on upcoming Environmental Health major: web information, college catalog reconciliation, faculty and facilities planning, student enrollment accommodation, communications and outreach.

## 3. Spring Semester 2014

### a. Course(s) to be offered

EFB 360: Introduction to Epidemiology

EFB 496: Conservation Biology in Ecuador

### b. Proposed research activity

Land use change, climate change, perceptions, and management in African parks landscapes  
Ongoing work in Uganda and the Albertine Rift, Africa – 20% research time

Land use and climate change impacts on dengue epidemiology in Ecuador – spatial modeling  
Collaborative work with CGHATS, SUNY Upstate – 10 % research time

Modeling temperature responses and climate impacts on vector borne diseases (entirely theory and synthesis) – 30%

Lab work to identify ranavirus in vernal pools at Heiberg forest, and model metapopulation disease processes  
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Lab work to identify parasites and plant forage species in fecal samples of New England and Eastern Cottontail rabbits  
MS student led project, collaborative in EFB – 5% research time

### c. University, professional society, and public service

Continuing administrative work on upcoming Environmental Health major: web information, college catalog reconciliation, faculty and facilities planning, student enrollment accommodation, communications and outreach.