

**ANNUAL REPORT: June 1, 2013 – May 31, 2014**  
**(i.e., Summer 2013, AY 2013-2014)**  
**DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY**  
**SUNY-ESF**

**NAME:** Sadie J. Ryan

**I. INSTRUCTIONAL ACTIVITIES**

1. Regular Course Offerings

	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs.</u>	<u>No. Students</u>	<u>No. of Lab. Sections</u>
SUMMER:	n/a				
FALL:	EFB 496/796:	Emerging Infectious Diseases	3	17/4	0
SPRING:	EFB 360:	Introduction to Epidemiology	3	28	0

**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)

	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs.</u>	<u>No. Students</u>
FALL:	EFB 298	Research Internship/Environ Bio	2	1
	EFB 798	Research Prob/EFB	1/2	3
	EFB 899	Masters Thesis Research	1/3	2
	EFB 999	Doctoral Thesis Research	1	1
SPRING:	EFB 298	Research Internship/Environ Bio	2	1
	EFB 798	Research Prob/EFB	1	1
	EFB 899	Masters Thesis Research	9/5/4	3
	EFB 999	Doctoral Thesis Research	3	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>
Palace, M., J. Harter, S. Ryan, J. Diem (2013),	Developed and presented a panel discussion as a teaching tool for a tropical ecology class at UNH.	

## II. STUDENT ADVISING

- A. Number of undergraduates for whom you are the student's official advisor   20   and unofficial advisor   2
- 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  
Tess Youker, MS, August 2013  
Emily Gavard, MS, August 2013

Lindsay Scales, MPS, August 2012 (Completed May, 2014)

### CO-MAJOR PROFESSOR

Mike Jones, PhD, August 2013 (co-advised with M. Fierke)

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

Amanda Cheeseman, PhD, August 2013 (J. Cohen, MP)  
Arturo Barbanchano-Guerrero, PhD, Department of Microbiology and Immunology, SUNY Upstate  
Nicholas Dowhaniuk, MS, Department of Geography, UNH  
Lilly Morrison, PhD, Emerging Pathogens Institute and Department of Geography, University of Florida

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

## 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 (20%)
- Multilevel analysis of land use and land cover change in Latin America and Caribbean (LAC) (10%)
- Primate social systems, ecology, phylogeny, community structure, and disease ecology (10%)
- Land use change, perceptions of climate, and human-wildlife interactions in Uganda (20%)

- 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)

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))

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)

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)  
*Funding for one postdoc at USF, co-supervised*

Department of Defense (DOD), Global Emerging Infectious Surveillance (GEIS), **“Evaluating the potential use of oceanographic information and remotely sensed algal blooms to predict risk of cholera and other climate and water-sensitive diseases.”** PI: Polhemus, M., SUNY UMU Co-PIs: **Ryan, S.J.**, SUNY ESF, Stewart-Ibarra, A., SUNY UMU, Finkelstein, J., Cornell. \$294K/year - 2013-2014  
*Funding for one postdoc at SUNY UMU, co-supervised*

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/year – 2013-2014

***Termed during this period:***

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)

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

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

NIH, **“Understanding the Dynamics of Rickettsia Infections and other Tick-Borne Zoonotic Pathogens in Selected Communities in Eastern and Southern Africa”** Gaff, H. (PI), **Ryan, S.J.** (co-PI), Mukaratirwa, S. UKZN (co-PI), Chitanga, S. UKZN (co-PI), Hynes, W., ODU (co-PI), Brinkerhoff, J. U Richmond (co-PI), \$2,489,140

Safari Club International **“Response of Large Carnivores to Anthropogenic Disturbances in Murchison Falls Conservation Areas, Uganda”**, **Ryan, S.J.** (PI), \$29,548

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

SUNY RF 4E, **“An Integrated Assessment of the Role of Sylvatic Dengue in Ecuador”**, **Ryan, S.J.** (PI), Endy, T. SUNY UMU (co-PI), Stewart-Ibarra, A.M. SUNY UMU (co-PI), \$130,286

NSF Coupled Natural Human Systems (CNH), **“Fire in the Rift: Biomass Burning, Land Use, and Climate in**

**Africa's Albertine Rift**, Diem, J.E. GSU (PI), Ryan, S.J. SUNY ESF (co-PI), Hartter, J. CU (co-PI), Palace, M., UNH (co-PI), Grandy, S., UNH (co-PI), \$1,499,968

NSF Ecology and Evolution of Infectious Diseases (EEID), “**Predicting local dengue vulnerability in Ecuador: integrating climate-ocean, socio-ecological, and sylvatic strain emergence dynamics**”- **Ryan, S.J., SUNY ESF (PI)**, Endy, T. SUNY UMU (co-PI), Tildesley, M. Exeter U (co-PI), Boots, M. Exeter, (co-PI), Leon, R, USFQ (co-PI), Lopez-Carr, D., UCSB (co-PI), \$2,499,998

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 2015-2019

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)

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

**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

Dowhaniuk, N., Hartter, J., **Ryan, S.J.** *accepted*. Discrepancies in geographic data cause challenges for managing protected areas. *Environmental Management*

Hartter, J., Solomon, J., **Ryan, S.J.**, Jacobson, S.K., Goldman, A. 2014. Contrasting perceptions of ecosystem services of an African forest park. *Environmental Conservation. Early View*.

**Ryan, S.J.**, Jones, J.H., Dobson, A.P. 2013. Interactions between social structure, demography, and transmission determine disease persistence in primates. *PLOS ONE* 8(10): e7686

Stewart Ibarra, A.M., **Ryan, S.J.**, Beltran, E. Mejía, R., Silva, M., Muñoz, A. 2013. Dengue vector dynamics (*Aedes aegypti*) influenced by climatic and social factors in Ecuador: implications for targeted control. *PLOS ONE* 8(11): e78263

Hartter, J.\*, **Ryan, S.J.\***, MacKenzie, C.A., Parker, J.N., Strasser, C. 2013. Spatially explicit data: stewardship and ethical challenges in science. *PLOS Biology* 11(9): e1001364

**Submitted**

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

Hartter, J., **Ryan, S.J.**, MacKenzie, C.A., Goldman, A., Dowhaniuk, N., Palace, M.W., Diem, J.E., and C.A. Chapman. *in review*. Now there is no land: a story of ethnic migration in a protected area landscape in western Uganda.

Stewart-Ibarra, A.M., Luzadis, V.A., Borbor Cordova, M.J., Silver, M., Ordoñez, R., Beltran Ayala, E., **Ryan, S. J.** *in review*. Community perceptions of dengue fever and *Aedes aegypti* in central and peripheral urban areas in Machala, Ecuador.

Scales, L.N. and **Ryan, S.J.** *in review*. Exploring the influence of migration temperature thresholds on captive migratory birds: a study of turkey vulture behavior.

Johnson, L.R., Ben-Horin, T., Lafferty, K.D., McNally, A., Mordecai, E., Paaijmans, K.P., Pawar, S., **Ryan, S.J.** *in review*. Understanding uncertainty in temperature effects on vector-borne disease: a Bayesian approach.

Jeremy Diem, J.E. Hartter, J., **Ryan, S.J.**, Palace, M. *in review*. Validation of satellite rainfall products for central equatorial Africa

Jeremy Diem, J.E. Hartter, J., **Ryan, S.J.**, Palace, M. *in review*. A drying trend in central equatorial Africa over the past three decades

## B. Non-refereed Publications

### Book Chapters

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.

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

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

#### *Talks*

**Ryan, S.J.**, McNally, A., Johnson, L.R., Ben-Horin, T., Mordecai, E., Paaijmans, K.P., Lafferty, K.D. 2014. "Rising suitability, declining severity: climate change and shifting malaria transmissibility in Africa." Association of American Geographers (AAG) Annual Meeting, April 8-12<sup>th</sup>, 2014, Tampa, FL

**Ryan, S.J.**, Hartter, J. 2013 "Beyond Ecological Success of Corridors: Integrating Land Use History and Demographic Change to Provide a Whole Landscape Perspective". Ecological Society of America (ESA) Annual Meeting. August 4-9<sup>th</sup>, 2013. Minneapolis, MN. *Supported by NSF CHANS-net fellowship*.

López-Carr, D., **Ryan, S.J.**, Clark, M.J. 2013. Population, Health, and Land Transitions at Multiple Scales: Evidence from Latin America. *National Academies of Science*, Kavli Frontiers of Science symposium. June 15-19, 2013. Irvine, CA.

#### *Posters*

Youker, T.E.\* & **Ryan, S.J.** 2014. Environmental factors affecting ranavirus prevalence among aquatic-breeding amphibians in natural and constructed ponds. SUNY-ESF Spotlight on Student Research and Outreach, April 15, 2014, Syracuse, NY

Brubaker R.\*\*, Thomen A.P.\*, **Ryan, S.J.** 2014. A quantitative research synthesis of human-avian conflict in agriculture systems. SUNY-ESF Spotlight on Student Research and Outreach, April 16, 2014, Syracuse, NY

Scales L.N.\*, **Ryan S.J.** 2014. Exploring the influence of migration temperature thresholds on captive migratory bird behavior. SUNY-ESF Spotlight on Student Research and Outreach, April 15, 2014, Syracuse, NY

Gavard, E.G.\*, Cohen, J., **Ryan, S.J.**, and Whipps, C.M. 2014 *Exploring the Potential for Parasite-mediated Competition: New England and Eastern Cottontails, Invasive Vegetation and Parasites in the Hudson Valley, NY*. SUNY-ESF Spotlight on Student Research and Outreach, April 15, 2014, Syracuse, NY. *3<sup>rd</sup> place prize award: \$75*

Youker, T.E.\* & **Ryan, S.J.** 2014. Environmental factors affecting ranavirus prevalence among aquatic-breeding amphibians in natural and constructed ponds. Northeast Fish & Wildlife Association Conference, April 10, Portland, ME

- Youker, T.E.\* & **Ryan, S.J.** 2014. Environmental factors affecting ranavirus prevalence among aquatic-breeding amphibians in natural and constructed ponds. SUNY CID: From Lab to Landscape: Integrated Infectious Disease Research Symposium, January 24, 2014, Syracuse, NY. **1<sup>st</sup> place prize winner**
- Jones, M.I.\*, M.K. Fierke, and **S.J. Ryan**. Understanding the emerging emerald ash borer infestation in New York. Poster Presentation. New York Society of American Foresters Annual Meeting, Syracuse, NY. January 2014.
- Jones, M.I.\*, M.K. Fierke, and **S.J. Ryan**. Detecting superspreader trees in the emerging emerald ash borer infestation in New York. Poster Presentation. SUNY CID: From Lab to Landscape: Integrated Infectious Disease Research Symposium, January 24, 2014, Syracuse, NY. **3<sup>rd</sup> place prize winner**
- Ibarra Stewart, A.M., Luzadis, V.A., Borbor Cordova, M.J., Silva, M., Ordoñez, T., Beltran, E., **Ryan, S.J.** 2013. Community perceptions of emerging dengue in urban areas in southern coastal Ecuador. Society for Tropical Medicine and Hygiene (ASTMH) 62<sup>st</sup> Annual Meeting, November 13-17, Washington, D.C.
- Thomen, A.P.\* and **Ryan, S.J.** Evaluating avian communities in Dominican cacao farms: Management and Conservation. Student Conference on Conservation Science-New York. October 8-11, 2013. New York, NY.
- Fuda, B.\*, **Ryan, S.J.**, Hartter, J. and C.A. MacKenzie. 2013. Carnivore Conservation in Northwest Uganda: Assessing Human Impacts and Attitudes. Student Conference on Conservation Science-New York. October 8-11, 2013. New York, NY.

\*Graduate student presenter      \*\*Undergraduate student presenter

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

Cohen, J.B., Cheeseman, A., Gavard, E., **Ryan, S.J.**, Whipps, C.M. 2014. New England cottontail. New York Fish and Wildlife Advisory Board meeting, Pulaski, NY. 20 attendees

Cohen, J.B., Cheeseman, A., Gavard, E., **Ryan, S.J.**, Whipps, C.M. 2014. New England cottontail. New York Forest Owner's Association meeting, Syracuse, NY. 40 attendees

**Ryan, S.J.** 2013. "Shifting ecologies of vector-borne diseases: novel emergence, recent resurgence, and the usual suspects." Tipping Points for Action: 5<sup>th</sup> annual invasive species workshop. Alverna Heights, Fayetteville, NY. 40 attendees

Palace, M., J. Harter, **S. Ryan**, J. Diem, 2013, Remote sensing and tropical ecology in Africa. A talk given to visiting Rotary Group from Niger, at UNH 2013. 20 attendees

## 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.)

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)
PLOS ONE		Associate Editor (~12 ms/year)

Other (books, symposia, etc.)

b. Reviewer

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

	<u>Agency</u>	<u>No. of proposals</u>
American Association of University Women (AAUW)		30
NSRC		20
National Geographic		1

Other

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
-------------------------------	-------------	--------------

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

D. Foreign Travel (Where, When, Purpose)

July 14<sup>th</sup>- August 11<sup>th</sup>, 2013 – Uganda – Field research

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

A. Department-level

Graduate Program Advisory Committee, member

Environmental Chemistry Position Search 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 (*prior to March, 2014*)

## 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:**

**Teaching:** I was hired to create and teach courses in aid of the newly developed Environmental Health Program (EH), and contribute to EFB teaching needs. I have developed and taught two courses novel to SUNY ESF: Emerging Infectious Diseases EFB 496/796 (3 cr, Fall), and Introduction to Epidemiology, EFB 360 (3 cr, Spring). The former evolved as an extended version of a 10 week course I taught at Stanford in 2008, and has been updated each year to reflect ongoing emergent disease trends. The latter is usually taught as part of MPH programs, so I made the material accessible to upper level undergraduates without the prior training that MPH students would have. In the third year of teaching both these courses, I now understand that I use “active learning” approaches, and have been “flipping the classroom” since I started. Students respond well to a variety of teaching and learning modes, which are essential for interdisciplinary approaches such as those embraced by EH. I engage the students heavily in demystifying the health literature, from agency reports to journal articles, to popular magazine articles and documentaries, to doctor's pamphlets and web-based fact sheets. To ensure that I am communicating disease dynamic concepts effectively, I have taken an 8 week MOOC on Coursera: *The Dynamics of Infectious Diseases*, for which I got a certificate of distinction.

**Scholarship and Research:** This year I have been prioritizing focusing on my students and their research, by not travelling excessively, and encouraging planning progress, through a combination of regular meetings and explicit goals. Within my lab group this year, 6 graduate students and 2 undergraduates conducted research. Seven of these students presented at least one poster within this 2013-2014 period, some more than once, 3 won awards for them, and 3 have garnered external research funding awards. All five thesis track grad students prepared thesis proposals which were approved by their committees. Andrea Thomen (MS track), works in the Dominican Republic, examining the role of cacao agroforestry in avian conservation. Using a combination of observational data collection, GIS analyses of land use, and stakeholder interviews, she is examining both the role of cacao plantations as habitat, the degree of differentiation from forest structure in the plantations, and how the perception of birds and conservation affects the landowner management actions. She has conducted two seasons of fieldwork, presented a poster at a regional conference, overseen an undergraduate research project, and obtained full IRB approval to conduct her interview work. She has garnered external funding to support the upcoming field season, and has successfully gained committee approval on her full proposal. Becky Fuda (PhD track) joined the Uganda project, and has designed her own study of the impact of oil exploration on carnivore communities in Murchison Falls Conservation Area. A pilot season of non-invasive camera trapping went very well last summer. Becky has also participated in local interviews with villages and managers, with colleagues in the NSF funded project. Becky has presented a poster at a regional conference, has submitted multiple applications for external funding, and is helping rework a couple of analyses for manuscripts within



the project. She is currently in the field, in Uganda, conducting her second season of field research. Tess Youker (MS track) is looking at ranavirus outbreaks at Heiberg Forest, NY, in the vernal pool array constructed by James Gibbs and colleagues. She has been collecting field data with the project for a few years, and has been overseeing an undergraduate working within my lab, to prepare samples for genetic confirmation and analyses. Her goal is to explore this metapopulation disease process in the vernal pools, combining modeling and data-driven approaches. This summer, she has two undergraduate assistants, and has garnered several small research awards through external funding to support her research, including their waders. Andrea, Becky, and Tess are all supported on EFB TA-ships, but have each been successful in raising research funding from outside sources, in addition to creative uses of existing lab supplies and resources. Lindsey Scales (MPS) completed her degree this Spring (2014), and through one-on-one meetings with myself, and the coursework she has taken at ESF, has re-analyzed data she collected prior to matriculation, to answer an interesting management question about captive migratory birds; she presented this as a poster, and we have submitted this manuscript for publication.

I co-advise Mike Jones (PhD track), through a McIntire-Stennis funded project to look at Emerald Ash Borer (EAB) invasions as an epidemic superspreading process. This project builds on co-MP Fierke's ongoing research into EAB, supporting a student to conduct dendroentomological fieldwork, to reconstruct dispersal and establishment histories, validate existing indices of EAB density and impact, and to fit those data, to understand the influence of differing dispersal patterns and shapes. The ultimate model will be fully agent-based and spatial, allowing us to explore uncertainty more fully, including demographic shifts that may occur at high densities. Mike has presented his work as a poster (3<sup>rd</sup> prize in the Lab to Landscape symposium this January) at several regional meetings, and is progressing well with data acquisition.

Through a 5-year, grant from DEC (J. Cohen, PI, Ryan, Whipps, co-PIs), Emily Gavard (MS track) is conducting research on factors limiting New England Cottontail rabbit (NEC) populations in the presence or absence of Eastern Cottontails. Emily has conducted urine sampling to look at nutritional plane differences, fecal parasite analyses to understand different loads and patterns between and among the two rabbit species, vegetation use (are they consuming invasive), hematocrit analyses (condition index), and condition scoring, in conjunction with a telemetry and habitat selection study conducted by J. Cohen's PhD student Amanda Cheeseman.

### **Department/College**

***Establishing a new major in Environmental Health:*** Part of my hiring agreement involved becoming the curriculum coordinator for the new Environmental Health Program, currently operating through the Division of Environmental Science, whose undergraduate major is launching in 2014.

In late 2012, the major was approved by SUNY, and in 2013, after revisions, the program was approved by the NY State Board of Education. These efforts were lead by myself, Provost Bongarten and Dean Shannon. Simultaneously with these approvals, we submitted a proposal for high-risk funding from SUNY to assist with start up and resource expenses for two new hires for EH, and received the funding, although at a slightly lower rate than proposed. In addition, I participated in a large proposal to bring \$20 million into an Environmental Health Institute across several SUNY campuses, of which, ESF is one, slated to spend \$4.5 million; part of this is lab equipment to pursue EH research on vector-borne diseases, leveraging ESF expertise in entomology and new faculty interest in health issues.

In addition to programmatic support from the state, we have been working with the development office on creating fundraising materials and other promotional efforts to garner support for EH. Don Leopold has been essential to moving this forward, and I am excited to see this come to fruition. I have presented the new major and program at several admissions events over the past couple of years: firstly presenting both the Health and Environment option of Environmental Science (of which I am currently the option area coordinator), and the Environmental Health major *to* admissions; secondly, at open houses, representing the EH major in a one-hour informational session and slide show for families and prospective students. As part of this latter effort, I created a tri-fold pamphlet describing the major, and this kickstarted the discussion about how to present our information appropriately on the web. The result of this discussion is that course descriptions created as part of approved paperwork are able to exist in the catalog and on the web as temporary placeholders – a first for ESF.

***Leading a cross-campus symposium:*** In January, using funding from a SUNY Conversations in the Disciplines grant, I hosted a collaborative symposium “From Lab to Landscape: Integrated Infectious Disease Research”, which brought together SUNY ESF and SUNY Upstate students, faculty, researchers, and leaders, drawing in regional interest (Onondaga Public Health, e.g.), to address growing training needs, identifying urgent problems in NY State, and showcasing ongoing collaborative research. We held this in the Gateway Building, and it was a very successful and

enjoyable day.

**Campus Committee Participation:** I have been a part of the Council for Geospatial Modeling and Analysis (CGMA), the group that handles GIS/GIT needs and information for the campus, since arriving here. I am a member of the IACUC (Institutional Animal Care and Use Committee), and I am a member of EFB's GPAC. In 2012 I conducted a comprehensive review of our MPS offerings, and the current web and catalog descriptions. I have since presented this both in EFB faculty meeting, and to the Graduate Council for ESF. I have contributed to discussions to understand MPS roles in all ESF programs that offer them, and have created a list of no-cost options for improving visibility and transparency.

### **Self**

The Uganda project continues to be productive, despite a lack of continued funding. We currently have household interviews being conducted around Murchison as part of this larger project. A UNH MS student (whose committee I am on) is supported by a NASA space grant to UNH to conduct remote sensing and demographic analyses. We will continue to apply for funding; we have a large backlog of data and many papers to write.

I also still collaborate with the malaria working group project; we have published one paper, one book chapter, and submitted 3 papers. We are working on a large data project across multiple institutions, to garner pilot data and analyses to submit an NSF EEID in the coming cycle. I also collaborate with SUNY Upstate Center for Global Health and Translational Science (CGHATS). I have been a consultant on two years of funded work on dengue in Ecuador, through DoD's GEIS program, and led the submission of an NSF EEID grant (\$2.5 million) in November to understand the intersection of climate, urbanization, and potential sylvatic reservoir spillover in dengue dynamics in Ecuador. I am particularly interested in how this intersection of land use and land cover change will influence the socio-ecological environment as climate changes, for vector-borne diseases.

With colleagues here in the U.S. and in South Africa at University of KwaZulu Natal (UKZN), we submitted another NSF EEID this fall (co-PI), and an NIH grant this spring (co-PI, pending), to combine sampling for tick-borne diseases with GIS analyses of potential spillover hotspots. Tick-borne diseases are largely unknown commodities. The human-livestock-wildlife interface is particularly important to the human emergence of tick-borne febrile diseases, and as such, the park landscape relationship is particularly germane.

**Productivity Metrics:** According to Google Scholar, my h-index is 16 (770 total citations on 40 citable sources), Scopus, h-index of 11 (882 citations on 30 citable sources). I am first or co-author on another 7 papers in review. My third year review was largely positive, so I will aim to keep being productive.

**Scientific Community:** I serve as Associate Editor for Animal Conservation, and as an Academic Editor for PLOS ONE, handling 10-12 manuscripts a year. I review for other journals (see CV), under the premise that one should review 2-3 times the number of submissions, to balance the reviewer pool. I reviewed grants for the Association of American University Women (AAUW), NSRC, and National Geographic. In my professional societies, I have participated in annual conferences (AAG, ESA), and I currently serve on the Board of Governors as the Chair of Education and Student Affairs for Society for Conservation Biology (SCB).

## **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)**

n/a