

**ANNUAL REPORT: June 1, 2010 – May 31, 2011**  
**(i.e., Summer 2010, AY 2010-2011)**  
**DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY**  
**SUNY-ESF**

**NAME:** Sadie 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>
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SUMMER: n/a

FALL: n/a

SPRING: n/a

**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. EFB courses currently listed with service-learning components include: 416/6/1, 486, 518, 521, 532, 446/646.

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>
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n/a

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

n/a

4. Guest Lecture Activities

<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
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ESM 232 (Environmental Modelling, USCB) “Individual and Agent Based Modeling: an Introduction” 1

US-Africa initiative on Conservation Biology at the South African Wildlife College (SAWC), July-August 2010  
*Funded through NSF, Society for Mathematical Biology, DIMACS at Rutgers*

Introduction to GIS for Wildlife	(1)
Global Change and GIS	(1)

Introduction to Agent-based Models (1)  
Harvesting Models for Conservation (1)

US-Africa initiative on Conservation Biology at the Naivasha Research Institute, Kenya, January 2011  
*Funded through NSF, Society for Mathematical Biology, DIMACS at Rutgers*

Introduction to GIS for Wildlife (1)  
Global Change and GIS (1)  
Introduction to Agent-based Models (1)  
Reserve Design (1)

## **II. STUDENT ADVISING**

- A. Number of undergraduates for whom you are the student's official advisor \_\_\_\_\_ and unofficial advisor \_\_\_\_\_
- 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

James "Jimmy" MacCarthy, PhD, August 2011

### CO-MAJOR PROFESSOR

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

Sarah Wilkinson  
Kelly Fitzsimmons

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

## **III. RESEARCH COMPLETED OR UNDERWAY**

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

n/a

- 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)

n/a

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

Pending: 2011-2013, *Hotter Hotspots: Land use intensification and protected area vulnerability in Africa's Albertine Rift*, NSF Coupled-Human Natural Systems (\$250,000)

Pending: Pre-application in review "Parks, People, and Climate Change: Assessing Household Vulnerability in Equatorial Africa". National Geographic Committee for Research and Exploration.

Pending: Proposal for Short-term visit to NIMBioS "Can we build Foot-and-Mouth disease (FMD) management models for the US, and would they be used?"

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

2011-2015, *Shifting needs and niches: The persistence of parks in equatorial Africa under climate change*, NASA Climate and Biological Response: Research and Applications (\$974,605)

**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**

Harterter, J.\*, **Ryan, S.J.\***, Southworth, J., and Chapman, C.A. *in press*. Landscapes as continuous entities: forest disturbance and recovery in the Albertine Rift Landscape. *Landscape Ecology*

**Ryan, S.J.** 2011. Invited Book Review: Governing Africa's Forests in a Globalized World. *Natural Resources Forum* 35(2): 146-147.

Stampone, M., Harterter, J., Chapman, C.A., **Ryan, S.J.** 2011. Localized precipitation trends in and around a forest park in east equatorial Africa. *Research Journal of Environmental and Earth Sciences* 3(1):14-23

Petorelli, N., **Ryan, S.J.**, Mueller, T., Bunnefeld, N., Jedrzejewska, B., Lima, M., Kausrud, K. 2011. The Normalized Difference Vegetation Index (NDVI) in ecology: a decade of unforeseen successes. *Climate Research* 46:15-27

**In Review**

**Ryan, S.J.**, Cross, P.C., Winnie, J, Jr, Hay, C., Bowers, J., Getz, W.M. *in review*. The utility of NDVI as a proxy for forage quality in a savanna landscape. *J. Wild. Mgmt.*

Tildesley, M.J. and **Ryan, S.J.** *in review*. The utility of land cover maps to inform spatial epidemic models of disease transmission in the UK livestock industry. *J. Roy Soc. Proc. B*

Wolf, A., Anderegg, W., **Ryan, S.J.**, Christensen, J. *in review*. Robust detection of plant species range shifts under biased sampling regimes. *PLoS ONE*

**Ryan, S.J.**, Brashares, J.S., Chapman, C.A., Milbers, K., Walsh, C., Kilroy, C. *in review*. Gastrointestinal parasites of olive baboons (*Papio anubis*) in human-use areas of Mole National Park, Ghana. *J. Wild. Dis.*

**Ryan, S.J.**, Dobson, A.P. and Jones, J.H. *in review*. The effects of contact structure, demography and movement on disease transmission within a structured primate metapopulation. *Nature*

## B. Non-refereed Publications

**Hartter, J., Ryan, S.J., Southworth, J., and C.A. Chapman.** 2010. Fortresses and Fragments: Impacts of Fragmentation in a Forest Park Landscape. *In* Proceedings of the IUFRO Landscape Ecology International Conference. September 21-27, 2010. Bragança, Portugal.

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

**Ryan, S.J.** and J. Hartter. 2010. Politics to parasites: health in African park landscapes. Student Conference on Conservation Science New York 2010. American Museum of Natural History. November 3-5, 2010. New York City, NY.

Hartter, J., **Ryan, S.J.**, Southworth, J., Goldman, A.C., Binford, M.W., and C.A. Chapman. 2010. Fortresses and Fragments: Impacts of Fragmentation in a Forest Park Landscape. IUFRO Landscape Ecology International Conference. September 21-27, 2010. Bragança, Portugal.

**Ryan, S.J.** 2010. *Invited*. “The consequences of non-intervention for infectious disease in African great apes.” DIMACS/MBI US – African BioMathematics Initiative: Workshop on Conservation Biology. August 11-13, 2010. South African Wildlife College, Limpopo, South Africa.

Hartter, J. and **S.J. Ryan.** *Invited*. 2010. A Social and Ecological Landscape Analysis for Africa’s Albertine Rift Region. DIMACS/MBI US – African BioMathematics Initiative: Workshop on Conservation Biology. August 11-13, 2010. South African Wildlife College, Limpopo, South Africa.

## 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):
2. Industrial and Commercial Groups, etc.
3. Other

Steering Committee Member, NSF iRCN-URE (Incubator Resource Coordination Network for Undergraduate Biology Education). “Research Coordination Network: Interdisciplinary Communication Laboratory for Undergraduate Biology (iCLUB)”

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

## VI. PROFESSIONAL DEVELOPMENT

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

NIMBioS short-term visitor award: “Using GIS to inform spatial epidemic models”, June 2010

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

Society for Conservation Biology:

Chapters Committee, member

Student Affairs Committee, member

“Liaison”, Chapters Committee and Student Affairs

SCB2012 <http://www.scbnacongress.org/>: N. American Conference Committee, member

2. Professional Society Membership

Society for Conservation Biology;

Society for Mathematical Biology;

The Wildlife Society;

Sigma Xi;

Association of American Geographers;

Ecological Society of America

3. Other Professional Activities

a. Editorial activity

n/a

Journal (s)

Responsibility

Other (books, symposia, etc.)

b. Reviewer

Journal(s)

No. of manuscripts

*Journal of Applied Geography*

1

*PLoS ONE*

2

*Biological Conservation*

1

*African Journal of Ecology*

3

*Journal of Tropical Ecology*

1

*Biological Journal of the Linnean Society*

1

*Proceedings of the Royal Society B*

1

Agency

No. of proposals

Environmental Protection Agency (EPA) Science to Achieve Results (STAR)

28

ESEI Consortia grants (UK MRC)

1

Other

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
NIMBioS Short term visit "Using GIS to inform spatial epidemic models",	June 2010,	NIMBioS, TN.
Structural Equation Modeling	June 2011	NCEAS

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

D. Foreign Travel (Where, When, Purpose)

Limpopo, South Africa July-August 2010, Teaching Conservation Institute

Naivasha, Kenya, January, 2011, Teaching Conservation Institute

Krakow, Poland, July 2011, Presenting at Society for Mathematical Biology Annual Conference

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

A. Department-level

B. College-level

EH Curriculum Committee – committee to design and implement new Environmental Health (EH) major

Achievements:

curriculum developed and approved by the faculty

curriculum in review by SUNY

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 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, which I'll continue to award based on your contributions to the department and college this reporting period.

*My appointment with SUNY-ESF's EFB department began January 1<sup>st</sup>, 2011, at 25% time appointment. During this period, my significant achievements were primarily to publish two co-authored papers (plus one in press) and an invited book review, and submit another 5 papers for review. I also co-developed an entirely new undergraduate curriculum and major in Environmental Health, with a committee at ESF. This has been approved by the faculty and is in review at the SUNY level. In addition, I taught two NSF-funded advanced study institutes, the first in South Africa and the second in Kenya, for graduate students and postdoctoral students, in quantitative approaches to conservation biology. These institutes yielded several successful student led projects, four of which are to be presented at a mini-symposium as part of the Annual Meeting for the Society for Mathematical Biology, which I will co-host in June 2011*

in Krakow, Poland. I also participated in two multi-institutional major grant proposals, one of which is still in review at NSF.

**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 2009 ?

- a. Course(s) to be offered
  
- b. Proposed research activity
  
- c. University, professional society, and public service

2. Fall Semester 2011

a. Course(s) to be offered  
EFB XXX: Emerging Infectious Diseases (3 credits)

- b. Proposed research activity
- Continue to work on *The Kibale Climate and Landscape Change Project*, quantifying long term climate and land use signals from remotely sensed imagery and remote monitoring.
  - Continue work on issues related to *baboons, trophic disruption and human-park relationships* (including disease impacts) in Mole National Park, Ghana. I hope to submit proposals to fund this work further, in collaboration with colleagues at UC Berkeley and UNH.
  - Continue pursuing projects *examining livestock epidemics informed by GIS* with Mike Tildesley, Warwick, UK
  - Pursue collaborative research with Professors Frair and Diemont on *Biosphere Reserve Design*

- c. University, Professional society, and public service
- Continue involvement with the environmental health curriculum committee in establishing the major, and preparing paperwork for accreditation
  - Present an invited symposium talk at the Society for Conservation Biology meeting in New Zealand, December 2011
  - Continue working with the executive committee for the 2012 North American Conference for SCB
  - Review papers and grants for subject journals and agencies, as requested, within reason.

3. Spring Semester 2011

a. Course(s) to be offered  
EFB XXX: Epidemiology (3 credits)

b. Proposed research activity

- Continue to work on *The Kibale Climate and Landscape Change Project*, quantifying long term climate and land use signals from remotely sensed imagery and remote monitoring.
- Continue work on issues related to *baboons, trophic disruption and human-park relationships* (including disease impacts) in Mole National Park, Ghana.  
Submit proposals to fund this work further, in collaboration with colleagues at UC Berkeley and UNH.
- Continue pursuing projects *examining livestock epidemics informed by GIS* with Mike Tildesley, Warwick, UK

b. University, professional society, and public service

- Continue involvement with the environmental health curriculum committee in establishing the major, and preparing paperwork for accreditation
- Continue working with the executive committee for the 2012 North American Conference for SCB
- Review papers and grants for subject journals and agencies, as requested, within reason.