

ANNUAL REPORT: June 1, 2009 – May 31, 2010
(i.e., Summer 2009, AY 2009-2010)
DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY
SUNY-ESF

NAME: Dylan Parry

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:	EFB-202	Ecological Monitoring -CLBS (Entomology Section)	3	~80	
FALL:	EFB-502	Ecol. And Mgmt. of Invasive Species	3	33	
	EFB-420	Internship	5	01	
	EFB-796	Forensic Entomology	3	02	1
	EFB-496	Forensic Entomology	3	01	1
	(FSC 440/640)	Forensic Entomology (SU)	3	11	1
SPRING:	EFB-496/796	Plant-Herbivore Interactions	3	13	
	EFB-796	Advances in Insect Ecology	1	10	

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>
EFB-899	Master's Research		5	3
EFB-999	PhD Research		5	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>
EFB-796	Grad Core Course		1

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 24 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

Brian Hoven (MS) (08/06) Effect of Fire Interval in a Managed Pine Barrens Ecosystem on Host Plant Quality and Natural Enemies of the Barrens Buck Moth, *Hemileuca maia*. Completed 12/2009

Monica Phillips (MS) (08/07)

Phil Barber (MS) (08/06)

Nicole Werner (MPS) (01/08) Course based. Completed 12/2009

Robert Smith (PhD) (01/09)

CO-MAJOR PROFESSOR

Chris Standley (MS) (01/10)

MEMBER, STEERING COMMITTEE (other than those listed above)

Jacob Wickham (PhD) (EFB) Completed 2010

Paul Bryant (MS) (EFB) Completed 2010

Alison Halpern (PhD) (EFB) – not sure if she is still in the program, Don??

Patrick Eager (MS) (EFB) Completed 2010

Peter Rockermann (MS) (EFB)

Ben Robidee (MS) (EFB)

Yazmin Rivera (PhD) (EFB)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

III. RESEARCH COMPLETED OR UNDERWAY

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

Forest tent caterpillar population dynamics. This research has been partially supported in some years, and bootlegged in other years. I am developing a long-term monitoring grid so as to better understand the temporal changes in abundance of this insect. Since its population cycles are approximately decadal, this represents a very long time commitment, far longer than any grant will support, and thus will continue to be bootlegged, perhaps for the duration of my career. I spend approximately 10% of my annual research time on this project.

Adaptive evolution in gypsy moth. I am extending some of the gypsy moth research that was originally funded by Macintire-Stennis while developing proposals to further support this research. In the mean time, I will spend about 15% of my research time on this project.

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)

2009-2012. Fierke, M., D. Parry and D. Allen. Evaluating Impacts of Native Parasitoids on *Sirex noctilio* in New York (provides support for Chris Standley) \$75,000

2008-2011. W. Powell, C. Maynard, D. Leopold, T. Horton, **D. Parry**. USDA Biotechnology Risk Assessment Grants (BRAG) program. Evaluating Environmental Impacts Of Transgenic American Chestnut Trees To Chestnut Trees Produced By Conventional Breeding \$399,985.

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

D. Parry and R. Yanai. Northern States Research Cooperative (NSRC). Predicting Forest Tent Caterpillar Defoliation: Mechanisms Behind the Effect of Forest Fragmentation on Length of Outbreaks in Northern Hardwoods. \$80,466

D. Parry and M. Fierke. Quantifying Phenology and Performance of *Sirex noctilio* and its Parasitoid Complex on Different Pine Hosts. USDA- Technology and Methods Development.. \$87,622

M.K. Fierke., and D. Parry. USDA Forest Service. Assessment of Pinus Defenses Against The Exotic *Sirex noctilio* and its symbiotic fungus, *Amylostereum areolatum*. \$75,000

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

Fierke, M. and **D. Parry**. Entomopathogens as an important Mortality Factor of the Exotic *European Woodwasp*, *Sirex noctilio*? USDA Forest Service Joint Northeastern Area, Southern Region, Southern Research Station, and Northern Research Station. \$75000

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

Post, K.H. and **D. Parry**. Effects of genetically-modified, pathogen-resistant American Elm (Urticales: Ulmaceae) on phytophagous insects. *Journal of Economic Entomology*. *In Review*.

Post, K.H. and **D. Parry**. 2010. Non-Target Effects of Transgenic Blight-Resistant American Chestnut (Fagales: Fagaceae) on Insect Herbivores. *Environmental Entomology*. *In Review*

Woods, D.M., **D. Parry**, R. D. Yanai and N. Pitel. 2010. Forest fragmentation and duration of forest tent caterpillar (*Malacosoma disstria* Hübner) outbreaks in northern hardwood forests. *Forest Ecology and Management*. *In press*.

B. Non-refereed Publications

D. Parry, Ch. 5. Invasive Species. 74 manuscript pages. In *Forest Health*, eds. J. Castello and S.A. Teale, submitted to Cambridge Academic Press.

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

-Rockerman, P.J., M.K. Fierke and **D. Parry**. Diversity of riparian and green ash feeding moths in central New York. Entomological Society of America Annual Meeting. Indianapolis, IN. 12/13/09-12/17/09

-Phillips, M.L. and **D. Parry**. Adaptive variation in gypsy moth populations along a latitudinal gradient. Entomological Society of America Annual Meeting. Indianapolis, IN. 12/13/09-12/17/09.

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.

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

Member, New York State Invasive Species Advisory Council

Albany Pine Bush Preserve. I have continued a long-standing relationship with the Albany Pine Bush preserve. The director, Neil Gifford, and I have collaborated on numerous projects, and I provide consultation on the effects of management on insect species that are of conservation concern. Although there is no direct compensation, we benefit through free labor from preserve staff and occasional housing for graduate students. Brian Hoven, in particular, was availed a significant amount of Pine Bush resources during the implementation of his project.

NY DEC. I share ecological information on insect defoliators and exotic forest pests with Jerry Carlson, head of Forest Protection for NY-DEC. In addition, I have been running a pilot study on the use of forest tent caterpillar pheromone as a monitoring tool and coordinating sites with the DEC so that we can compare their traditional sampling methods with this new tool. The DEC will fund trapping costs (fuel, pheromone, traps, etc.). Jerry has been providing a state vehicle and gas, which given the thousands of miles of driving this project entails, is a real important contribution.

Project Advance – Syracuse University Forensics for High School teachers. I continue to run a two-day workshop each summer for the best and brightest high school science teachers in the state. I run a forensic entomology lab for them and teach them how to introduce this material into their own teaching programs. As forensic science is a great way to gain and keep student interest in biology, this program is in high demand. Although I get a token honorarium, the time investment is significant and thus is functionally un-compensated.

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)

Member, New York State Invasive Species Advisory Council (Not sure whether this should be listed here or as unfunded governmental service (or in both). It does have a designated legislative charter and is composed of professionals.

Instructor – Syracuse University Project Advance (see above under “unfunded service”).

2. Professional Society Membership

Society for Conservation Biology
Entomological Society of America

3. Other Professional Activities

a. Editorial activity

<u>Journal (s)</u>	<u>Responsibility</u>
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Other (books, symposia, etc.)

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
Environmental Entomology	1
Ecological Entomology	1
Agriculture and forest Entomology	1

<u>Agency</u>	<u>No. of proposals</u>
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Other

SUNY-ESF SEED GRANT	1
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c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
USDA Invasive Species Research Forum	Jan. 13-15, 10	Annapolis, MD
NY Forest Health Meeting	April 6, 10	Syracuse, NY

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

D. Foreign Travel (Where, When, Purpose)

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

Chair, EFB Course and Curriculum and Assessment Committee (CCAC)

B. College-level

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.

Students: I again taught my Ecology and Management of Invasive Species course in the fall. This marked the second year of the expanded class size in this course and I continued to add new components to this course to keep it fresh and current in this rapidly developing field. Once again, it received high scores on student evaluations. I undertook a tremendous challenge in the fall as I developed a completely new course (Forensic Entomology) that has huge potential and offers an innovative way to teach ecology to very non-traditional students in biology-based course. Although the course was originally developed to be a core component of the new Forensic Science degree program at Syracuse University, I opened ESF sections and will offer the course jointly (cross-listed) in the future. The course was primarily field (and lab) based and despite the challenges involved in implementing a hands-on course like this (while juggling my other course and a new baby), it got excellent evaluations from the inaugural students. In the spring, I continued to tweak my course in Plant-Herbivore Interactions, which I will switch to every other year beginning in 2011. My Insect Ecology seminar course had ten graduate students enrolled this year, which really prompted engagement and lively discussion among the students. As I have done in all but one year since I started at ESF, I contributed to the teaching program at Cranberry Lake through EFB-202 where I instructed the entomology component of the diversity field course (EFB-202).

Among my graduate students, Brian Hoven completed a very nice, comprehensive masters thesis and successfully defended in December. I have seen several revisions of Phil Barber's MS thesis and expect that he will defend in September. Nicole Werner finished her MPS and graduated this spring. I welcomed a new MS student (Chris Standley) this spring, whom I will share with Melissa Fierke.

Department and College: In the third year of my tenure as Chair of EFB's Curriculum and Course Assessment Committee (CCAC, we had a significantly slower year after two frenetic years dealing with the implementation of assessment and all of the associate changes to our course offerings. As usual, we shepherded course changes and new course proposals through our department and COI, maintaining our 100% success rate at COI on adoption. We developed frameworks for two Minors in EFB, proposals that should be presented to our faculty in the fall.

Self: This was an incredible year on a personal level as my daughter (and first child) was born in September. Of course, there is a large learning curve with such an event, and many aspects that no amount of reading can prepare one for, not the least being a major reallocation of time. Nonetheless, I was still able to get three manuscripts completed and submitted, two with my former student Keith Post (MS 2009). I will be an invited symposium presenter at the Society for Conservation Biology's meeting in Canada next month, where I will talk about my ongoing research in the

Albany Pine Bush and the effects of restoration efforts on several different threatened insects. I am looking forward to my sabbatical this fall as an opportunity to complete several projects and initiate some new research.

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 am going to reorganize my course offerings that (hopefully) will improve availability, especially for undergraduates. By moving Invasive Species to the Spring, it should match up better with many Conservation Biology students. This also will allow me alternate Plant-Herbivore Interactions and Forensic Entomology in the falls when weather is a bit more consistent making field based labs a little easier to implement.

I'll use the fall to finish up several partially completed manuscripts as well as an NSF proposal and several smaller grant proposals, all dealing with invasive species. I also will be presenting at the Entomological Society meeting in San Diego in December.

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2009

a. Course(s) to be offered
EFB-202 CLBS

b. Proposed research activity
- forest tent caterpillar dynamics
- adaptation in gypsy moth
-phenology of *Sirex noctilio* and its parasitoids

c. University, professional society, and public service
Syracuse University Project Advance – Forensics for High School Teachers. I will again teach this two day workshop.

2. Fall Semester 2009

a. Course(s) to be offered
None – On sabbatical

b. Proposed research activity I will be on sabbatical so will focus on publishing papers from several projects that are winding down. The proposed papers and the topics are below.

Bioscience – Ghost's of Invasions Past, Trouvelot's Legacy and the Biological Diversity of North American Giant Silk Moths. This paper encompasses a multi-state, long-term data set looking at the non-target impacts of biological control agents primarily aimed at gypsy moth. Specifically, I (and collaborators) have been looking at non-target effects on some of the most spectacular large moths in North America. Their decline has been a century in the making and is a consequence of several different anthropogenic forces aligning in a negative way. I have been working on this system for nearly a decade and feel that Bioscience would be a good venue for a pretty compelling story. Presentations on this topic have already garnered ESF international exposure and the mainstream media often covers BioScience papers.

Ecology – The feedback of rapid and delayed induced-responses of trees to herbivore outbreak on a defoliator and its

competitors. This paper has sat on my desk for the better part of 5 years, getting edited occasionally, but never quite getting finished. It is essentially complete but needs some minor work. Ecology has a high acceptance bar but the venue is appropriate and I have had recent success in publishing there (two papers in 3 years)

Oecologia – Inability to fine tune phenological synchrony with host trees has fitness consequences for an insect herbivore. This paper has direct implications for understanding insect outbreaks in general, and may provide a window into understanding the effects of climate change on plant herbivore interactions.

Ecology Letters – Evidence for maternal effects and delayed-density dependent host plant effects lacking in an insect defoliator system.

c. University, Professional society, and public service
NY Invasive Species Advisory council

3. Spring Semester 2010

a. Course(s) to be offered

EFB-502 (Ecology and Management of Invasive Species)

b. Proposed research activity

This will depend on whether some of my pending grants are funded or not. I'd like to develop some new research ideas and will actively be recruiting a few new graduate students

c. University, professional society, and public service
NY Invasive Species Advisory council