

ANNUAL REPORT: June 1, 2014 – May 31, 2015
(i.e., Summer 2014, AY 2014-2015)
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 | 3 | 80 | (Entomology – 4 sections) |
| FALL: | EFB-504 | Plant Herbivore Interactions | 3 | 14 | |
| | EFB-797 | Conservation of invertebrates | 1 | 8 | |
| SPRING: | EFB-502 | Ecol. And Mgmt. of Invasive Species | 3 | 48 | |
| | EFB-797 | Conservation and Invasions | 1 | 20 | |

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> |
|---------|-------------------|----------------------|--------------------|---------------------|
| EFB-298 | | Res/Internship | 2 | 1 |
| EFB 496 | | Study Abroad | 24 | 2 |
| EFB 498 | | Independent Research | 3 | 1 |
| EFB 498 | | Independent Research | 4 | 1 |
| EFB 420 | | Internship | 9 | 3 |
| EFB 899 | | MS Research | 20 | 4 |

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

Syracuse University Project Advance – Forensic Science for High School Teachers – I taught a two-day class and field course on forensic entomology as part of a comprehensive week-long program in forensic science. This is the 10th year that I have contributed to this highly regarded workshop.

4. Guest Lecture Activities

| | <u>Course No.</u> | <u>Title</u> | <u>No. of Lectures</u> |
|----------|-------------------|----------------------|------------------------|
| EFB -132 | | Freshman Core Course | 1 |

II. STUDENT ADVISING

- A. Number of undergraduates for whom you are the student's official advisor 28 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

Dave Nesbitt (MPS, May, 2014)

Neil Schoppmann (MS, August 2013)

Georgia Keene, (MS, August 2011-Dec. 2014). Spatial Ecology and Phenology of the Inland Barrens Buck Moth, *Hemileuca maia* (Drury) at the Albany Pine Bush Preserve

Wendy Leuenberger (MS May 2014)

Aaron Brown (MS May 2014)

Rea Mandarino (PhD Fall 2015)

Chelsea Jahant-Miller (Phd Fall 2015)

CO-MAJOR PROFESSOR

Kara Phelps (MS), Jan. 2014 w/Ruth Yanai (GPES)

MEMBER, STEERING COMMITTEE (other than those listed above)

Jennifer Potrikus (MS)

Lindsey Denhoff (MS)

Chris Foelker (PhD)

Elizabeth Carpenter (PhD Syracuse University)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

III. RESEARCH COMPLETED OR UNDERWAY

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

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

Forest tent caterpillar dynamics and long-term effects on forests. This research has been partially supported in some years, and bootlegged in other years. I have developed 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. This will be the 10th consecutive year of monitoring; I spend approximately 5% of my annual research time on this project. Other researchers are beginning to recognize the potential utility of this long-term data (e.g., I am currently collaborating on a pilot project with Kyle Haynes, University of Virginia).

Adaptive change in gypsy moth and range expansion. I am extending some of the gypsy moth research that was originally funded by McIntire-Stennis while developing proposals to further support this research. Partial support has

come from the USDA-Forest Service gypsy moth project and some new McIntire-Stennis funding. I have scaled this up and have engaged in a multi-investigator, multi-institutional (8 universities/colleges) continent wide effort to incorporate climate and land use into understanding the dynamics of this invasive species, certainly the best studied invasion on Earth. We submitted a major grant proposal to NSF (Macrosystems Biology)- \$4.1 Million which was unfortunately not funded this cycle despite very good reviews and very encouraging comments from the program director.

Developing sampling methodology for Barrens Buck Moth (with Brian Underwood and Neil Gifford (Albany pine Bush). This research was the heart of graduate student Georgia Keene's thesis. Barrens buck moth is one of the best indicator organisms for quality scrub-oak / pitch pines barrens but has proven difficult to census effectively. (10% of annual research time). Georgia Keene's research has led to the APB adopting a new sampling method that will be used annually, replacing the APB's traditional approach.

Comprehensive Survey of Macro-Lepidoptera at Montezuma National Wildlife Refuge. I have engaged in an effort to inventory the Lepidoptera in Montezuma's riparian ash forests as these will soon be threatened by emerald ash borer. (10% of research time).

- 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)

2015-2017. D. Parry Respite From A Rogue: Northern Hardwood Forests As A Refuge For Giant Silk Moths Threatened By Non-Target Biological Control. Northeast States Research Cooperative. 122,496. (*Will support PhD Rea Mandarin*)

2015-2017. D. Parry, P.C. Tobin and B.A. Aukema. Rapid, Recent Poleward Expansion at Northern Range Limits of a Major Invasive Species. \$56,400. (*Will partially support PhD Chelsea Jahant-Miller*).

2015-2016 D. Parry and N. Schoppmann. Initial Inventory of the Moths of Plum Island. NY NHP \$6400 (*Summer support for N. Schoppmann*)

2015 D. Parry and K. Wallin. Quantifying the Response of Forest Insect Communities and Their Natural Enemies to Simulated Ice Storm Damage. ESF Seed Grant \$7750. (*Summer Support W. Leuenberger*)

2013-2015. Grayson, K., D.M. Johnson, **D. Parry**, P.C. Tobin. Population Persistence At An Invasion Front: Climatic Limitations On The Spread Of The Gypsy Moth. USDA-AFRI. \$157,000 (2013-2015).

2013-2015. Whipps, C.R., M.K. Fierke, **D. Parry**. Development of Molecular Techniques to Inform Management of *Sirex noctilio*, an Introduced Woodwasp. McIntire-Stennis. \$52,000 (*Supports C. Foelker*)

2012-2015. Powell, W., C.A. Maynard, **D. Parry**, et al. Evaluating Environmental Impact of Maturing Transgenic Blight-Resistant American Chestnut. USDA BRAG \$500,000. (*Supports Aaron Brown*)

2012-2015. **D. Parry** and P.C. Tobin. Climate Controlled Reproductive Asynchrony and Mating Success in Gypsy Moth Populations. USDA Forest Service. \$38,000 (*Partially supported Georgia Keene*)

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

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

Johnson, D. **Parry**, P. Tobin, K. Grayson, A. Eckert, and eight other PI's. National Science Foundation (Macrosystems Ecology). **Multiscale Drivers of Invasion: Connecting Local Ecological Processes and the Human Landscape to Geographical Spread.** \$4.19 million (\$500 K to ESF). 2015-2020.

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

Grayson, K.L., **D. Parry**, T.Faske, A. Hamilton, P.C. Tobin, S. J. Agosta, D.M. Johnson. 2015. Performance of wild and laboratory-reared gypsy moth (Lepidoptera: Erebidae) populations: A comparison between artificial diet and foliage. *Environ. Entomology* (Early Online)

Foelker CJ, Standley CR, **Parry D**, Fierke MK, Whipps CM (2015) Host tissue identification for cryptic hymenopteran parasitoids associated with *Sirex noctilio*. *Agricultural and Forest Entomology* (In Review) * Foelker and Standley are current and former EFB graduate students, respectively)

B. Non-refereed Publications

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

Invited Oral

Introduced tachinids explain decline of browntail moth in North America. Elkinton, J., **D. Parry**, G. Boettner, XXIV IUFRO World Congress 2014 – Salt Lake City, UT, United States, 5-11 October 2014

Climate, adaptation, and the northward range expansion of gypsy moth. **Parry, D.**, K. Dattelbaum, D. Johnson. XXIV IUFRO World Congress 2014 – Salt Lake City, UT, United States, 5-11 October 2014

Other Submissions

Grayson, K., **D. Parry**, P. Tobin, S. Agosta, and D. Johnson. 2014. Critical Thermal Limits for the Southern Spread of the Gypsy Moth. Invited Oral Presentation. The Annual Review of the National Gypsy Moth Management Board. Louisville, KY.

Critical thermal limits for the southern spread of the gypsy moth. Dattelbaum, K., **D. Parry**, P.C.Tobin, S. Agosta, D. Johnson. XXIV IUFRO World Congress 2014 – Salt Lake City, UT, United States, 5-11 October 2014

Genetic architecture of developmental traits in populations of male gypsy moths. Friedline,C., K. Grayson, E. Hobson, B. Lind R. Dyer, **D. Parry**. *Evolution 2014 / Society for the Study of Evolution*. Raleigh, NC. June 20-24, 2014

Graduate Student Posters and Talks

Schoppmann, N., **D. Parry** and N. Gifford. Effects of Habitat Restoration on Pine Barren Lepidoptera in a Relic Inland Pine Barren. Northeast Natural History Conference, March 18-20 2015. Springfield, MA.

Foelker CJ, Fierke MK, **Parry D**, Whipps CM. Molecular analysis of parasitoid linkages associated with *Sirex noctilio* (Hymenoptera: Siricidae). Northeastern Forest Pest Council annual meeting. Hanover, VT. March 2015. (Oral)

Foelker CJ, Fierke MK, **Parry D**, Whipps CM. Establishing host-parasitoid linkages among *S. noctilio*, *S. nigricornis*, and native parasitoids through molecular techniques. 2015 USDA Interagency Research Forum on Invasive Species. Annapolis, MD. January 2015. (Invited Oral)

Foelker CJ, **Parry D**, Whipps CM, Fierke MK. Spatial co-colonization of the European woodwasp (*Sirex noctilio*) and native mortality agents at a pine plantation in the Adirondacks. ESA annual meeting. Portland, OR. November 2014. (Oral)

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.

NY State Invasive Species Advisory Council

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.

Member, New York Forest Health Advisory Group. Share information, collaborate and coordinate activities of academic and government agencies involving major threats to the health of New York’s forests.

2. Professional Society Membership

Entomological Society of America
Entomological Society of Canada
Ecological Society of America

3. Other Professional Activities

a. Editorial activity

| <u>Journal (s)</u> | <u>Responsibility</u> |
|---|---|
| The Canadian Entomologist | Subject Editor (Forest Entomology / Insect Ecology) |
| <u>Other (books, symposia, etc.)</u> | |
| Encyclopedia of the World’s Pest Insects Commonwealth Agricultural Bureau International (CABI) | Subject Editor (Lymantriidae – Tussock moths) |

b. Reviewer

| <u>Journal(s)</u> | <u>No. of manuscripts</u> |
|--------------------------------------|---------------------------|
| Proceedings of the Royal Society (B) | 1 |
| Biological Invasions | 1 |
| Ecological Entomology | 1 |
| Journal of Forestry | 1 |

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|-------------------------------------|---------------|
| Canadian Entomologist | 4 (as editor) |
| Canadian Journal of Forest Research | 1 |
| Agricultural and Forest Entomology | 1 |

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|---------------|-------------------------|
| <u>Agency</u> | <u>No. of proposals</u> |
|---------------|-------------------------|

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)

Quebec and Ontario, Canada – August 2014: research collections

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

Coordinator - Conservation Biology Major (165 students)

CCAC – committee member

GPAC – committee member

Leroy C. Stegeman Award in Invertebrate Ecology – Chair and award presenter

Outstanding PhD Award committee - member

B. College-level

C. University-wide, including Research Foundation

D. Post-doctoral Research Associate Mentoring (list name(s) of post-docs and period of employment)

Dr. Kristine Grayson based at Virginia Commonwealth University; funded by USDA post-doctoral fellowship for two years for \$157,000; D. Parry co-mentor (with D.M. Johnson VCU)

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:

Undergraduate. I am the coordinator of the undergraduate major in Conservation Biology (currently 165 students). I teach demanding rigorous classes and refuse to use multiple-choice despite the significant time spent grading written answers. In spring 2015, I again taught EFB-502, continuing to add new components to this course to keep it fresh and current in this rapidly developing field and I turned over more than 20% of the lecture material this year.

Although the FTE's are low, these are the kinds of courses that set ESF apart from competing institutions and give students value for their dollar and are one of our best marketing tools for getting students to come here. As I have done for 11 yrs, I taught the Entomology component of EFB-202 at Cranberry Lake. I am one of only a handful of EFB faculty that consistently instruct at our flagship undergraduate experience.

(Graduate. I taught two graduate seminars in 2014-2015 (27 students) and consistently rank among the top faculty in graduate FTE's. I also served on GPAC and oversaw the Stegeman Award, again providing a well-deserving student with an award and some supplemental funds for research..

Department and College:). As Coordinator, I drafted (with G. McGee and J. Gibbs) the Middle States Assessment report and took the lead in implementing some long discussed curricular changes to the program. The completion of the report was critical to maintain accreditation of the major and ultimately the department and college. In addition to the myriads of petitions and assessment requirements, I promoted the College and the Conservation Biology Major at accepted student recognition events and open houses, fielded questions from prospective students and parents, and wrote letters to top potential recruits. I represent the College's interests and perspective as a member on the NY State Invasive Species Advisory Committee, an assemblage of governmental, non-profit, private sector, and academic organizations who function to advise NY State on invasive species issues and help to craft legislation that effectively combats targeted species or pathways. Although budget cuts have taken a toll on the organization, we were still able to play a large role in developing and changing the forth-coming 'clean-boat' bill that the governor signed into law this year, the inaugural state wide Invasive Species Awareness Week, and the forthcoming invasive species list of prohibited and restricted species.

Self: I have begun collaboration with multiple investigators (particularly Derek Johnson and Kristine Grayson at VCU and Patrick Tobin with the University of Washington) looking at the effects of climatic shifts on invasive insects. I have recently partnered with Kimberly Wallin (UVM) and initiated research at Hubbard Brook Experimental Forest. We are cooperators on a large NSF funded project that seeks to emulate ice storms in northern hardwood forests. By mechanically applying water to the forest canopy in winter, we have been able to realistically mimic the accretion of ice and subsequent damage. Our role is to examine the trophic response of insects and their natural enemies. My graduate program has grown and with 2 new PhD's coming aboard in the fall, I'll have a nice mix of students at various points in their academic development. I was able to recruit two of our top ten graduate applicants (W. Leuenberger in 2014) and Chelsea Jahant-Miller (2015) to my program.

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)

My biggest focus over the next year will be a continued effort to broaden and my program at ESF. Our climate change / invasive insect work is beginning to bear some fruit – our research group (VCU, ESF, Forest Service) will have 2 presentations at the National Entomological meeting in Austin, Texas in November and two more at the USDA Annapolis meeting. In addition, I will be giving invited symposia talk at the IUFRO world congress in Salt Lake (October) – this is a big deal as there are relatively few speaking slots at this meeting.

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2015

a. Course(s) to be offered

EFB-202, Entomology Section, July 15-18

b. Proposed research activity

- USDA BRAG – large scale bioassays of the experimental chestnuts with several insect species.
- Initiate “Project Ice Storm”, a multi partner collaboration at Hubbard Brook Experimental Forest to look at the short and long term effects of ice storms on forest structure and function.

c. University, professional society, and public service

NY Invasive Species Advisory Council (two Albany meetings, 2 teleconference, and a joint meeting with the ISC in July)

2. Fall Semester 2015

a. Course(s) to be offered

- EB-132 Freshman Seminar for Conservation Biology Students
- EFB 50x Forensic Entomology
- EFB 797 Insects and Climate Change

b. Proposed research activity

- Gypsy moth / climate change

c. University, Professional society, and public service

- Coordinator, Conservation Biology Major
- CCAC
- GPAC
- NY Invasive Species Advisory Council
- Subject Editor The Canadian Entomologist

3. Spring Semester 2016

a. Course(s) to be offered

- EFB 502 Ecology and Management of Invasive Species

b. Proposed research activity

- USDA BRAG proposal

c. University, professional society, and public service

- Coordinator Conservation Biology
- CCAC
- GPAC
- NY Invasive Species Advisory Council