

**ANNUAL REPORT: June 1, 2016 – May 31, 2017**  
**(i.e., Summer 2015, AY 2015-2016)**  
**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                  | 72                  | (Entomology – 4 sections)   |
| FALL:   | EFB-132           | Freshman Seminar (Cons. Bio)        | 1                  | 34                  |                             |
|         | EFB-504           | Plant Herbivore Interactions        | 3                  | 8                   |                             |
| SPRING: | EFB-502           | Ecol. And Mgmt. of Invasive Species | 3                  | 44                  |                             |
|         | EFB-797           | Elton / Invasion Ecology            | 1                  | 7                   |                             |

**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 | 1                  | 1                   |
| EFB 420 |                   | Internship     | 18                 | 6                   |
| EFB 899 |                   | MS Research    | 9                  | 4                   |
| EFB-999 |                   | PhD Research   | 9                  | 2                   |

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 -132          | Freshman Core Course | 1 (Con Bio Overview)   |

**II. STUDENT ADVISING**

A. Number of undergraduates for whom you are the student's official advisor   24   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) (currently medical deferment)

Neil Schoppmann (MS, August 2013). Historic and Contemporary Distributions of Pine Barrens Specialist Lepidoptera in Northeastern North America. 12/2016

Wendy Leuenberger (MS May 2014). Response of Larval Lepidoptera and Their Avian Predators to Experimental Ice Storms in a Northeastern Forest. 5/2017

Aaron Brown (MS May 2014). Comparative Efficacy of Entomopathogens and Parasitoids of Lepidopteran Larvae Among Transgenic Blight Resistant American Chestnut and Conventionally Bred Cultivars. 5/2017.

Rea Mandarino (PhD Fall 2015)

Chelsea Jahant-Miller (PhD Fall 2015)

### CO-MAJOR PROFESSOR

Kara Phelps (MS), Jan. 2014 w/Ruth Yanai (GPES). Effects of Calcium, Nitrogen, and Phosphorus Fertilization on Foliar Nutrient Dynamics of Three Northern Hardwood Tree Species. 5/2017

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

Nicole Henger (MS – FNRM and Maxwell School). Defended and Graduated 12/16

Alison Halpern (PhD). Graduated 4/17

Michael Jones (PhD)

Mariano Arias (PhD)

Geoff Griffiths (PhD)

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

Jamie Regula (MS – FNRM/R. Germain)

## 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 11<sup>th</sup> 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 a USDA-Forest Service grant to myself and to collaborator K.L. Grayson (University of Richmond) and a new NSF award will support continued research in this area.

**Developing sampling methodology for Barrens Buck Moth** (with Brian Underwood and Neil Gifford (Albany pine Bush). This research was the heart of former 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.

- 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)

2017-2019. KL. Grayson, S. Agosta. **D. Parry**. Collaborative Research: Linking thermal tolerance to invasion dynamics: Climate and physiological capacity as regulators of geographical spread. National Science Foundation. Macroystem Biology. \$299,988. (Not sure if this grant – awarded 5/17 with August 2017 start date- goes here or in pending)

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. (*Supports PhD Rea Mandarino*)

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. USDA McIntire-Stennis (*Partially supports PhD Chelsea Jahant-Miller*).

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

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

2017-2020. D. Parry, L. Rieske-Kinney, W.A. Powell. Multitrophic Interactions Among Non-target Insect Herbivores, Their Natural Enemies, and Transgenic Blight Resistant American Chestnut Trees. National Science Foundation. Plant-Biotic Interactions. \$588,121

2017-2020. W.A. Powell, C. Beier, E. Folta, T. Horton, D. Parry. Environmental impacts of Genetically Engineered and Conventionally Produced American Chestnut. USDA BRAG. \$1,000,000

**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

Leuenberger, W, E. Larsen, J. Leuenberger, and D. Parry: Predation on Plasticine Caterpillars: Engaging High School Students using Field-Based Experiential Learning and the Scientific Process. American Biology Teacher. Submitted.

Thompson, L.M., Faske, T.M., Banahene, N., Grim, D., Agosta, S.J., Parry, D., Tobin, P.C., Johnson, D.M. and Grayson, K.L., 2017. Variation in growth and developmental responses to supraoptimal temperatures near latitudinal range limits of gypsy moth *Lymantria dispar* (L.), an expanding invasive species. *Physiological Entomology* 42: 181-190.

Tobin, P.C., Cremers, K.T., Hunt, L. and Parry, D., 2016. All quiet on the western front? Using phenological inference to detect the presence of a latent gypsy moth invasion in Northern Minnesota. *Biological Invasions*, 18: 3561-3573.

B. Non-refereed Publications

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

**Invited Oral**

- D. Parry, K.L. Grayson and P.C. Tobin. Climatically driven range expansion and contraction along the 2000 km gypsy moth invasion front. Entomological Society of America, Eastern Branch. Symposium II: Individual, Population, and Community Responses of Insects to Climate Change. Newport, RI. March 17-20, 2017.
- D. Parry, C. Jahant-Miller, P.C. Tobin. More than a number: Spatiotemporal drivers of variation in trap captured male gypsy moth wing morphology. 28th USDA Interagency Research Forum on Invasive Species January 10-13, 2017. Annapolis, Maryland.
- D. Parry, C. Robinet, and P. Tobin. Forest insect invasion in a changing climate: An overview. XXV International Congress of Entomology. Orlando, FL. September 25-30, 2016.
- D. Parry, C. Jahant-Miller, P.C. Tobin. More than a number: Biotic drivers of temporal and spatial change in the wing length of trap captured male gypsy moths. Annual Gypsy Moth Review National Meeting. Columbus, OH Oct. 24-27, 2016.
- D. Parry. Defoliating Insects and Anthropogenic Forest Change. Seminar, The Rubenstein School of Environment and Natural Resources. University of Vermont, Burlington, VT. April 6, 2017.

### Other Submissions

The opening and closing of climatic envelopes in the gypsy moth invasion of North America. Grayson, K., L. Thompson, T. Faske, P. Tobin, C. Friedline, A. Eckert, D. Parry, and D. Johnson. XXV International Congress of Entomology. Orlando, FL. September 25-30, 2016.

### Graduate Student Posters and Talks

- Brown, A., W.A. Powell, D. Parry Unintended impacts of the transgenic American chestnut (Fagales: Fagaceae) on lepidopteran biopesticide efficacy and parasitoid success. XXV International Congress of Entomology. Orlando, FL. September 25-30, 2016.
- Jahant-Miller, C., P.C. Tobin and D. Parry. Evaluating morphological characteristics of pheromone-trapped male gypsy moth (*Lymantria dispar* L.) as an index of habitat quality. XXV International Congress of Entomology. Orlando, FL. September 25-30, 2016.
- Leuenberger, W., S. Hollister (REU co-presenter), K. Wallin, and D. Parry. 2016. Ice storm experiment: response of Lepidoptera and their predators. Hubbard Brook Ecosystem Study 53rd Annual Cooperator's Meeting. North Woodstock, NH. July 13-14, 2016.
- Leuenberger, W., S. Hollister, K. Wallin, and D. Parry. 2016. Response of forest insects and their natural enemies to experimental ice storms in a northern hardwood forest. International Congress of Entomology. Orlando, FL. September 25-30, 2016.
- Leuenberger, W., J. Wilson, E. Larsen, J. Leuenberger, and D. Parry. 2016. Predation on plasticine caterpillars: Engaging high school students using scientific research methods. Ecological Society of America Annual Meeting 2016. Ft. Lauderdale, FL. August 7-12, 2016.
- Leuenberger, W., S. Hollister, K. Wallin, and D. Parry. 2016. Invited presentation. Responses of functional community assemblages to experimental ice storms in a northeastern forest. Ecological Society of America Annual Meeting 2016. Ft. Lauderdale, FL. August 7-12, 2016.
- Manderino, R. P.C. Tobin, and D. Parry. Parasitism of silk moths by the tachinid *Compsilura concinnata* along forest compositional gradients. International Congress of Entomology. Orlando, FL. September 25-30, 2016.

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

WCNY Public Television. Guest Appearance on "Insight" as one of 3 panelists discussing biological invasions in forests. 6/22/2016.

## 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.

National Gypsy Moth Management Board. Member, Program Committee for Annual Meeting.

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) |

Other (books, symposia, etc.)

Lead organizer (with Christelle Robinet, France, and Patrick Tobin, USA) of an invited Symposia at the 2016 International Congress of Entomology (largest entomological meeting on Earth, held every four years). Title: Climate Change and Invasion in Temperate and Boreal Forests. I invited international speakers (USA, Canada, France, Great Britain, Chile, Australia, NZ, Belgium), drafted the symposia overview, solicited, organized, and edited abstracts. Moderated the meeting and gave the overview talk.

b. Reviewer

| <u>Journal(s)</u>                        | <u>No. of manuscripts</u> |
|--|---------------------------|
| Canadian Entomologist                    | 5 (as editor)             |
| International Journal of Pest Management | 1                         |
| Forestry                                 | 1                         |
| Oecologia                                | 1                         |

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

Other

c. Participation (workshops, symposia, etc.)

Name of workshop, etc.

Date

Place

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

Director – Graduate Program in Environmental Science (January 2016 – to date)

GPAC – committee member

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

Burgess Outstanding PhD Award – Chair and award presenter.

B. College-level

Director – Graduate Program in Environmental Science (January 2016 to date)

Search Committee Member, Tree Physiologist (FNRM)

Reviewer, P. Hersch tenure package

C. University-wide, including Research Foundation

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

**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 teach demanding rigorous classes and refuse to use multiple-choice despite the significant time spent grading written answers. In spring 2017, 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 relatively low (44 students), 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 13 yrs., I taught the Entomology component of EFB-202, our flagship field experience course, at Cranberry Lake.

Graduate. I taught one graduate seminar in 2016-2017 (7 students). 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. I rewrote and restructured the Outstanding PhD award by homogenizing it with the Burgess Award (now the Robert L. Burgess Outstanding Doctoral Scholar Award) as well as chaired the award committee. Four of my students finished and defended their MS degrees this year (Schoppmann, Brown, Leuenberger, Phelps).

**Department and College:** 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 stakeholders who function to advise NY State on invasive species issues and help to craft legislation that effectively combats targeted species or pathways. We played a significant role in developing and changing the 'clean-boat' bill that the governor signed into law, the development of the Invasive Species Awareness Week, and the 'Three-Tier List' of prohibited and restricted species. I served the 2<sup>nd</sup> year of my term as Director of the Graduate Program in Environmental Science, a significant leadership responsibility.

**Self:** I am collaborating with multiple investigators (particularly Kristine Grayson, University of Richmond, Derek Johnson and Sal Agosta at VCU & Patrick Tobin with the University of Washington) looking at the effects of climatic shifts on invasive insects. We (Gryason, Agosta, myself) just got NSF funding to conduct some of this research. 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 with Lindsey Rustad and John Campbell (US Forest Service), Peter Groffman (Carey Institute) and Charlie Driscoll (Syracuse University) 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. My role is to examine the trophic response of insects and their natural enemies to this disturbance. As lead organizer, I convened a major symposium for the world's largest international entomological meeting (see above).

#### **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, UR) just got NSF funding for one aspect). With collaborators, I have three manuscripts near submission – I'd like to get these out for review this summer.

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

##### 1. Summer 2017

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

EFB-202, Entomology Section, June 19-22

###### b. Proposed research activity

-USDA BRAG – large scale bioassays of the experimental chestnuts with several insect species.

-Continue "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.

Re-submit NSF Proposal (Plant-Biotic Interactions) (for 09-01-17 deadline)

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

Editorial work Entomological Society of Canada

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

2. Fall Semester 2017

- a. Course(s) to be offered
  - EFB-132 Freshman Seminar for Conservation Biology Students
  - EFB 504 Plant Herbivore Interactions (19 enrolled)
  
- b. Proposed research activity
  - Gypsy moth / climate change
  
- c. University, Professional society, and public service
  - Director, GPES
  - GPAC
  - NY Invasive Species Advisory Council
  - Subject Editor The Canadian Entomologist

3. Spring Semester 2017

- a. Course(s) to be offered
  - EFB 502 Ecology and Management of Invasive Species
  - EFB-797 (Conservation of Invertebrates)
  
- b. Proposed research activity
  - USDA BRAG proposal (revise and resubmit)
  
- c. University, professional society, and public service
  - Director GPES
  - GPAC
  - NY Invasive Species Advisory Council