

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

**NAME: Gregory McGee**

**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:	EFB202	Ecol. Monitoring & Biodiv. Assess (organized, administered, and taught during 23 of 36 instructional days)	3	143	2
FALL:	EFB102	Gen Bio I Lab	1	253	14
	EFB132	Freshman Orientation Seminar	1	99	2
SPRING:	EFB104	Gen Bio II Lab	1	133	9

**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>
SUMMER:	EFB420	Professional Experience	3	2
FALL:	ESF296	Integrated Chemistry/Biology Lab I (w/ Neal Abrams)	2	22
	EFB420	Professional Experience	2-5	7
	EFB495	Ugraduate Experience/College Teaching	3	12
	EFB498	Independent Research	3	1
	ESF296	Leadership & Civic Engagement Seminar (w/ Kelley Donaghy)	1	21
SPRING:	EFB420	Professional Experience	1-3	7
	EFB495	Ugraduate Experience/College Teaching	3	10
	EFB498	Independent Research	3	1
	ESF296	Integrated Chemistry/Biology Lab II (w/ Neal Abrams)	2	16
	ESF296	Communication in the Sciences Seminar (w/ Elizabeth Hogan and Neal Abrams)	1	16
	ESF296	Ldership & Civic Engagement Practicum (w/ Kelley Donaghy)	1	12

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

I continued to work this year with Rick Beal in ESF Outreach to deliver EFB102 and EFB104 to area high schools, including particularly Solvay High School and Syracuse Institute of Technology. I coordinated and led a field-trip this past May with the Solvay group and invited the section of ~30 ITS students to conduct one of the EFB104 laboratory experiments on campus. Last June, Neal Abrams and I participated in the Outreach Office's Professional Development day for the ESF in the High School program. We met ~25 teachers at Heiberg to conduct with them one of the integrated biology/chemistry laboratory activities that we developed through the SYNAPSE program.

4. Guest Lecture Activities

<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
EFB104	Gen Bio II Lecture (w/ M. Fierke)	1

**II. STUDENT ADVISING**

A. Number of undergraduates for whom you are the student's official advisor **34** and unofficial advisor **2**

CSTEP – Marian Vargas, Marcus Rosten

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

- Molly Hassett, MS, 8/13 start date
- Miguel Garmendia, MS, 8/13 start date

CO-MAJOR PROFESSOR

- Wiley, PhD, 8/09 start date (w/ C. Beier)
- Van Ness, MPS, 1/13 start date (w/ E. Folta)

MEMBER, STEERING COMMITTEE (other than those listed above)

- Monica Bibiana Berdugo-Moreno, PhD (Dovciak)
- Keith Bowman, PhD (Kimmerer – defended)
- James Costello, MS (Kimmerer - defended)
- Meredith Kane, MS (Kimmerer)
- Kyle Teufel, MPS (E. Folta)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

- Frances Delaney, MS (Leopold), examiner
- Whitney Forman-Cook, MS (Malmsheimer), defense chair

### III. RESEARCH COMPLETED OR UNDERWAY

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

Last year I expanded experimental trials to restore native forest understory herbaceous communities using using volunteer labor and undergraduate students. Last summer Tyler Knapp (Sr., Wildlife Science) initiated an independent study on private land in Tully to explore establishment success of several species in a secondary post-agricultural woodland through seed sowing and vegetative propagation. This past spring I worked with Emily Van Ness (MPS, Environmental Interpretation) to develop and test a citizen-science based approach to interact with volunteer groups and remotely guide their restoration and monitoring activities. 2%

#### 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)

McIntire-Stennis Cooperative Forestry Research Program. Nutrient resources associated with establishment and long-term maintenance of emerald ash borer biocontrol agents - **\$53,860 total**, \$0 current year, 7/14-6/16. Support for Molly Hassett, MS student. (PI, with M.K. Fierke).

National Science Foundation, "Integrated Knowledge-Based Experiences for First-Year Biology and Chemistry Laboratories," (with N. Abrams (PI), E. Hogan and V. Luzadis), **\$193,290 total**, \$64,430 current year, June '12 – May '15.

\*Grants obtained by my graduate students

Miguel Garmendia, Edna Bailey Sussman Foundation, **\$6370**

Miguel Garmendia, Grober Fellowship, **\$3000**.

Molly Hassett, Edna Bailey Sussman Foundation, **\$6370**

Molly Hassett, Edna Bailey Sussman Foundation Trustees Supplemental Award for Excellence, **\$2000**

Molly Hassett, American Wildlife Foundation, **\$2000**

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

Mianus River Gorge Preserve Graduate Research Assistant Program. Development of restoration protocols for native herbaceous plant species in post-agricultural second-growth forests. **\$15,000**, 6/15-5/18. Partial summer support for PhD student TBD.

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

Northeastern States Research Cooperative, Identifying Biodiversity Attributes of Mature, Late-Successional, and Old Growth Northern White-Cedar Stands to Facilitate Protected Area Management in the Northern Forest, **\$78,100**, co-PI with S. Fraver (PI), G. McGee, L. Kenefic, S. Selva, A. White and A. Whitman.

Northeastern States Research Cooperative, Nutritional resources enhancing establishment and growth of emerald ash borer parasitoid populations. **\$129,492**, PI, with M. Fierke, J. Gould and M. Cooperband.

McIntire-Stennis Cooperative Forestry Research Program. An holistic approach to educating forest ecosystem scientists: management of second-growth northern hardwood forests for sustainability and old-growth habitat. **\$53,802**, PI, with J. Castello and R. Davis.

**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

B. Non-refereed Publications

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

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

Rutgers University, Ecology and Evolution Graduate Program, invited presentation to E&E Graduate Program Seminar Series, November 7, 2013, ~40 in 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.

Board of Directors – Orenda Springs Charter School for Outdoor Education, Marcellus.

**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)

2. Professional Society Membership

Association for Biology Laboratory Education

3. Other Professional Activities

a. Editorial activity

Journal (s)

Responsibility

Other (books, symposia, etc.)

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
Northeastern Naturalist	1
Northern Journal Applied Forestry	1
<u>Agency</u>	<u>No. of proposals</u>
<u>Other</u>	

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
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C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

National Institutes and Howard Hughes Medical Institute, Summer Institute on Undergraduate Teaching, Stony Brook University, August 3-9.

D. Foreign Travel (Where, When, Purpose)

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

A. Department-level

EFB Undergraduate Curriculum Director  
ENB Curriculum Coordinator  
Efb CCAC member

B. College-level

- Faculty Governance Committee on Student Life
- ESF First-Year Learning Community Team
  - Helped to organize and participated in day-long (Saturday, 9/7/13) First-Year Retreat at Orenda Springs.
  - Participated in SU Dept. Education graduate student presentations on ESF learning community focus groups.
  - Facilitated (w/ Donaghy and Fierke) a freshman orientation session on Civility during fall orientation.
  - Assisted in ongoing development of First-Year Experience student outcomes.
- ESF Academic Standards Sub-Committee
- ESF New Graduate Student Colloquium – conducted two sessions on evaluating written work (8/13).
- ESF Faculty Mentoring Colloquium – facilitated two sessions on scientific teaching (w/ M. Fierkek, 1/8)

C. University-wide, including Research Foundation

-Served on SUNY Working Group for Transfer Plan in Biology.

## **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.

I served again this year as EFB's Undergraduate Curriculum Director and as the Curriculum Coordinator for the Environmental Biology major. In my capacity as UCD I worked with Admissions to organize two departmental open houses and five accepted student receptions and personally participated in four of these seven events; coordinated undergraduate advising for the department; provided departmental orientation to freshmen and August/January transfer cohorts; represented EFB at two end-of-semester Academic Standards meetings; served as ESF representative on the SUNY working group for the SUNY-wide Biology transfer pathway; maintained current information for EFB program catalog descriptions, plan sheets and directed elective offerings for all seven majors; and assisted the Provost and Registrar in initial steps to carry out the anticipated campus schedule reset for EFB. Apart from my own advisees, I advised numerous other EFB undergraduate students on a variety of curricular matters and facilitated numerous student petitions. I continued assisting the department's other curriculum coordinators in program assessment processes, and this spring began making preparations with Kim Schulz to facilitate the upcoming SUNY Department Program Review. I continued to be greatly involved in organizing and delivering two summer sessions of EFB202 at Cranberry Lake. In addition to time spent organizing instruction and coordinating evaluation of 143 students, I spent 23 days at CLBS this year teaching and guiding student research projects.

This past fall, Kelley Donaghy, Laura Crandall and I launched a two-year course sequence in Environmental Leadership and Civic Engagement. This initiative emerged from the results of the ESF 2011 National Survey of Student Engagement (compiled by the Student Affairs Committee) which suggested that, following compulsory community service in their freshman year, few ESF students continue to engage in community service. Further, we recognized that ESF does not provide any formal study or training in leadership, beyond the workshops offered by Laura Crandall through Student Affairs. Kelley, Laura and I believe an opportunity exists to launch a meaningful, structured program in Environmental Leadership at ESF that uniquely integrates aspects of civic engagement. Our first effort this year was to initiate a Sophomore-Junior year sequence consisting of an introductory seminar on leadership theory and skills, followed by a practicum in which students design high-impact, service-based professional or research projects that promote civic engagement by their fellow students. Finally, participants will implement their projects through independent research and internship experiences during subsequent semesters of their junior and/or senior years. Of the 21 students who started the program this fall, 11 continued through the practicum to develop 9 individual or team-based research and service project proposals, all of which involve leading teams of ESF and community volunteers to accomplish the objectives of the proposals. Kelley and I will be working with these students through their junior and senior years to carry out their projects as professional internships or independent research projects. Our overall goal for this program is to foster a greater level of student-centered community service on campus, especially among upper-division students, and to lay the groundwork for developing formal college programming (a certification, minor, or institute) in Environmental Leadership at ESF. Toward this end, Kelley and I will be submitting an NSF S-STEM proposal this August to develop a mechanism to sustain the leadership/civic engagement initiative through a sponsored scholarship program, and then will explore the institutional interest in establishing some formal college programming in Environmental Leadership.

This year I completed the second of a three-year, NSF-TUES-supported research initiative with Neal Abrams and Betsy Hogan aimed at exploring innovative approaches to improve first-year student learning gains and attitudes towards STEM disciplines through an integrated chemistry-biology-communications course sequence (Project SYNAPSE). Based on our experiences in the first year we adjusted our instruction and program assessment

protocols in the integrated laboratories and the communications seminar. We now have two years of student evaluations and survey information with which to begin analyzing the outcomes of the project. This year Neal and I also experimented with approaches to deploy laboratory course content digitally through tablet devices.

#### **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 priority for the coming year is to advance my research program. To allocate time to achieve this goal I have consolidated my EFB132 course into one section; will temporarily discontinue the special topics courses in leadership and civic engagement (but will follow-through with current student projects); and beginning this winter will redirect effort from either coordinating and instructing EFB202 next summer or serving as Curriculum Director. This year Neal Abrams, Betsy Hogan, Valerie Luzadis and I will be finalizing and publishing results of our three-year project SYNAPSE, and Neal and I will begin publishing our integrated laboratory activities. Two MS students (Hassett and Garmendia) will complete and publish their thesis research next spring, and one MPS student (Van Ness) will finalize and publish aspects of her synthesis project. Looking forward, I intend to continue developing a line of research with Melissa Fierke and other collaborators at USDA-APHIS to understand the ecological interactions that limit establishment of biological control agents on emerald ash borer; to continue exploring opportunities to engage citizen scientists in regional forest restoration efforts; and develop a research program with Dylan Parry at Brookhaven to explore community dynamics of plants and invertebrates in the oak/pine systems there. Following up on our experience with the National Academies Summer Institute last summer, Melissa Fierke and I plan to sustain some momentum in transferring best practices in scientific teaching and active learning to ESF faculty through informal lunch meetings and workshops and I will be taking the lead on publishing an active learning science module that we developed during the Summer Institute. Finally, I will be involved in facilitating this fall's SUNY Program Assessment of the department.

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

##### 1. Summer 2014

a. Course(s) to be offered  
EFB202

b. Proposed research activity

- NSF Program Review of Project SYNAPSE with STEM educators at nearby SUNY and private colleges, June 25-26.
- SUNY Conference on STEM Education, Alfred State University, July 13-15. Poster presentation (w/ N. Abrams and E. Hogan) on integrated general chemistry and biology laboratory, and writing instruction for first-year students.
- Stand-level production of sugar sources for emerald ash borer parasitoids (Molly Hassett).
- Distribution of late-successional forest bryophyte indicator species in central New York hardwood forests (Miguel Garmendia).
- Establishing and sustaining citizen-science efforts to restore regional forest understory communities (Emily Van Ness).
- Research proposal (w/ K. Donaghy) to NSF S-STEM program to establish ESF undergraduate scholarship program for leadership and civic engagement.

- Research proposal (w/ D. Parry) to DOE Brookhaven National Laboratory Visiting Scientist Program to investigate understory plant and phytophagous insect community responses to herbivory and prescribed fire.
- Publication of active learning module w/ M. Fierke and others, developed during 2013 Summer Institute.

c. University, professional society, and public service  
EFB Curriculum Director  
EFB program review

## 2. Fall Semester 2014

a. Course(s) to be offered  
EFB102  
EFB132  
ESF296 – Integrated Chemistry/Biology Laboratory (w/ N. Abrams)

b. Proposed research activity  
ongoing from summer.

c. University, Professional society, and public service  
EFB Curriculum Director  
EFB CCAC  
EFB program review  
Faculty Governance Committee for Student Affairs

## 3. Spring Semester 2015

a. Course(s) to be offered  
EFB104  
ESF296 – Integrated Chemistry/Biology Laboratory (w/ N. Abrams)  
ESF296 – Communications in Sciences Seminar (w/ E. Hogan and N. Abrams)

b. Proposed research activity  
ongoing

c. University, professional society, and public service  
EFB Curriculum Director  
EFB CCAC  
Faculty Governance Committee for Student Affairs