

**ANNUAL REPORT: June 1, 2015 – May 31, 2016**  
**(i.e., Summer 2015, AY 2015-2016)**  
**DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY**  
**SUNY-ESF**

**\*\*\*PLEASE DO NOT INSERT TABLES FOR ANY CATEGORIES\*\*\***

**NAME: Gregory G. 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 & Bio. Assess.			4 days
FALL:	EFB102	Gen Bio I Lab	1	280	15
	EFB132	Freshman Orientation Seminar	1	72	1
SPRING:	EFB104	Gen Bio II Lab	1	156	11

**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.

EFB102 included a voluntary component of service learning. On three occasions (Sept. 13, 19, 20) General Biology Laboratory students (~30 total) assisted in a forest wildflower restoration project at Bear Swamp State Forest, Cuyler Hill State Forest, and Heiberg Forest. Students included reference to this activity when writing the discussions of their first Gen Bio lab reports – the service work provided additional context for understanding limitations to native understory herbaceous diversity in post-agricultural forests.

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>
FALL:	EFB420	Professional Experience	4-5	4
	EFB495	Ugraduate Experience/College Teaching	3	16
	EFB498	Independent Research/Envrn Bio	3	2
SPRING:	EFB298	Resrch Internship/Envrn Biology	2	2
	EFB420	Professional Experience	4-5	2
	EFB495	Ugraduate Experience/College Teaching	3	11
	EFB498	Independent Research/Envrn Bio	3	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>
CSTEP Seminar	Workshop on Lab Report Writing	2- Sept. 16, Sept. 28.
Con Bio Capstone	Walkover of Management Plan Property	1 – March 27

## II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor **28** and unofficial advisor **2 CSTEP**

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

-Geoffrey Griffiths, PhD, start date 8/14

### CO-MAJOR PROFESSOR

-John Wiley, PhD, 8/09 start date (w/ C. Beier)

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

- Monica Bibiana Berdugo-Moreno, PhD (Dovciak)
- Brianna Rosamilia, MS (Folta)
- Mariano Arias, PhD (Dovciak)
- Robert Smith, MS (Leopold)
- Dana Brennan MS (Fierke)
- Harrison Goldspiel MS (Gibbs)

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

- Andrea Fortman, M.S. (ERE), Chair
- Liang Chen, PhD (Env. Chemistry), Chair

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

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

- Assessment of Strip Clear-Cutting and Beech Control on Herbaceous Adirondack Northern Hardwood Herbaceous Communities, 1%

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)

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, 6/12-5/15, extended to 5/16.

McIntire-Stennis Cooperative Forestry Research Program. (PI, with M.K. Fierke), “Nutrient resources associated with establishment and long-term maintenance of emerald ash borer biocontrol agents.” - **\$53,860 total**, \$23,301 current year, 10/15-9/16. Partial support for D. Brennan (MS, started on grant support 5/16).

McIntire-Stennis Cooperative Forestry Research Program, (CoPI with M.K. Fierke), “Restoration of Understory Vascular Plant and Pollinator Assemblages in Post-Agricultural Forests of Central New York.” **\$57,669 total**, 8/15-9/17, \$31,376 current year, support G. Griffiths, PhD student.

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 total**, \$5000 current year, 4/15-4/18. Partial summer support for G. Griffiths, PhD student.

\*Grants obtained by my graduate students:

Geoffrey Griffiths, Garden Club of America, Ecological Restoration Fellowship. Engaging citizen scientists in restoration of understory vascular plant and pollinator assemblages in post-agricultural forests of New York. **\$8000 total**, 3/15-3/16. Partial summer support for G. Griffiths, PhD student.

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

National Science Foundation, “Environmental Scholars: Developing Civically-Engaged Leaders for Environmental Problem Solving,” (PI, with coPIs K. Donaghy, E. Folta, R. French, P. Hai), **\$971,885**, 1/1/17-12/31/21.

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

National Science Foundation, “Environmental Scholars: Developing Civically-Engaged Leaders for Environmental Problem Solving,” (PI, with coPIs K. Donaghy, R. French, P. Hai, M. Lichtenstein), **\$650,000** 1/1/16-12/31/20.

Northeastern States Research Cooperative, “Determination of cost-effective mechanical methods for rehabilitating American-beech dominated forests,” (PI, with coPIs S. McNulty, A. D’Amato, R. Germain, R. Nyland), **\$141,419**, 9/16-12/18.

**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

Hassett, M.R., G.G. McGee, J.R. Gould and M.K. Fierke. In revision. Habitat characteristics and sugar resources at New York state emerald ash borer parasitoid release sites. *Biological Control*.

Hassett, M.R. and G.G. McGee. In review. Allometric equations for three native and invasive northeastern shrub taxa I: biomass and age. *Forest Science*.

Hassett, M.R. and G.G. McGee. In review. Allometric equations for six native and invasive northeastern shrub taxa II: flower production. *Forest Science*.

Griffiths, G.R., G.G. McGee and M.Hough. In revision. Herbaceous layer community recovery in post-agricultural forests of New York. *Journal of the Torrey Botanical Society*.

B. Non-refereed Publications

McGee, G. and N. Abrams. 2016. Integrating STEM Laboratory Instruction at the Introductory Level – Opportunities and Challenges. Article 52 in *Tested Studies for Laboratory Teaching*, Volume 37 (K. McMahon, Editor). Proceedings of the 37th Conference of the Association for Biology Laboratory Education (ABLE).

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

Abrams, N.M, E.S. Hogan and G.G. McGee. 2015. Making Connections Between Chemistry and Biology through Communications at the Introductory Level. American Chemical Society, Northeast Regional Meeting, Ithaca, NY. (Oral presentation 6/11/15).

McGee, G.G. and N.M. Abrams. Integrating STEM Laboratory Instruction at the Introductory Level – Opportunities and Challenges. Association of Biology Laboratory Educators Annual Conference. Boston, MA (Workshop presentation 6/26/15).

Hogan, E.S., G.G. McGee and N. Abrams. Beyond the Lab Report: Using Non-scientific Genres to Facilitate and Assess First-Year Student Learning. Association of Biology Laboratory Educators Annual Conference. Boston, MA (Workshop presentation 6/26/15).

Abrams, N.M., E.S. Hogan and G.G. McGee. Deconstructing Academic Silos through an Integrated First-Year Laboratory Curriculum. SUNY STEM Conference. Albany, NY (Symposium presentation 10/2/15).

Griffiths, G.R., G.G. McGee and M.K. Fierke. Vascular plant and pollinator abundance and diversity relationships across the post-agricultural landscape. New York Chapter Society of American Foresters Annual Meeting, Syracuse, NY (Poster presentation 1/28/16).

Dillon-Zuppelli, Z., G. Griffiths, G. McGee. Dynamic model for white trillium (*Trillium grandiflorum* Mich.) restoration. Spotlight on Student Research. SUNY-ESF, Syracuse, NY (Poster presentation 4/19/16).

Cardon, M.E., G.G. McGee and D. Kiernan. Variation in sugar maple (*Acer saccharum* Marshall) bark characteristics: implications for epiphytic bryophyte communities. Spotlight on Student Research. SUNY-ESF, Syracuse, NY (Poster presentation 4/19/16).

Rozanski, C.A., S.A. McNulty and G. McGee. Beavers as ecosystem engineers: influence of wetland class and vegetation structure on avian species richness. Spotlight on Student Research. SUNY-ESF, Syracuse, NY (Poster presentation 4/19/16).

Savage, R. and G.G. McGee. Northern hardwood forest impacts fifty-five years following American beech treatment with sodium arsonite. Spotlight on Student Research. SUNY-ESF, Syracuse, NY. (Poster presentation 4/19/16).

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

Led Bioblitz group at April 23 event at Skaneateles Conservation Area, as part of Conservation Biology capstone project, ~10 in plant group.

**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.

- Experiential Learning Charter School at Orenda Springs, Board of Trustees
- NY DEC Statewide Riparian Assessment, Steering Committee
- The Nature Conservancy, Central & Northern NY Chapter, Tug Hill Forest Properties Management Advisory Committee.

**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  
Society of American Foresters  
Association of Biology Laboratory Education  
American Bryological and Lichenological Society

3. Other Professional Activities

a. Editorial activity

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

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
<i>Forest Science</i>	1
<i>Canadian Journal of Forest Research</i>	2
<i>Forest Ecology and Management</i>	1

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

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.

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 Curriculum Coordination and Assessment Committee  
CLBS Advisory Committee

B. College-level

- ESF Academic Standards Sub-Committee
- CSTEP Advisory Board
  - Led CSTEP pre-orientation forest walk at Green Lakes State Park (8/24)
- First-Year Orientation Programming
  - College 101 (Academic Success) co-facilitator w/ Scott Blair 8/26
  - College 102 (Diversity) co-facilitator w/ Scott Blair 8/27
- Transfer Orientation Programming
  - Led two service-based trips to AEC (~12 students each, Sept. 25-27, Oct. 9-11) to provide community-building experiences and opportunities for follow-up advising to transfer (primarily) and first-year students.
- ESF Writing Center - Technical Writing Workshop for Tutors (11/2)
- ESF in the Classroom
  - Coordinate and provide instructional support to local high school sections of General Biology I & II Laboratory.
  - Led discussion on careers in Biology/Environmental Science for Syracuse Institute of Science & Technology biology class (~26 in attendance) (1/15)

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 (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 Curriculum Coordinator for the Environmental Biology major. My ongoing responsibilities as UCD included coordination of undergraduate advising for the department; providing departmental orientation to freshmen and August/January transfer cohorts; pre-registration of all transfer students; representation EFB at two end-of-semester Academic Standards meetings; organization of two departmental open houses and five accepted student receptions, and personal participation in five of these seven events; and maintenance of EFB program catalog descriptions, plan sheets and directed elective offerings for all seven majors. Apart from my own 28 undergrad advisees, I advised numerous other EFB undergraduate students on a variety of curricular matters, provided initial advising for several internal transfer students, and facilitated numerous student petitions. In addition to regular duties associated with this appointment,

this year I was also involved in resolving numerous course schedule conflicts that emerged during the campus-wide schedule reset process, and worked with the Admissions office and several EFB colleagues to formalize articulation guidelines for Ranger School students transferring into the ENB, Conservation Biology, Wildlife Science and Forest Health majors. Also this year, I followed-up on the completion of the department's 2015 Middle States Accreditation Undergraduate Program Assessment Report by preparing a database for departmental faculty to submit assessment data for EFB's seven majors. I then worked with Allison Devlin to develop the database functions that automatically search the archived data and populate different spreadsheets with the data necessary to conduct assessment analyses for our seven majors. In the coming year I will assist in the preparation of the EFB Self Study in advance of the SUNY Program Evaluation. This past year I attempted to improve upon the orientation experience of our transfer students by offering two service-based weekend retreats to Huntington Forest. These retreats were organized with the logistical assistance of Laura Crandall (Student Affairs) and programming assistance of Stacy McNulty and Paul Hai at the AEC. We developed a program to build community through common living arrangements, service and recreation activities, and that also introduced students to college resources, and to research and work opportunities at the AEC. Further, Laura and I were able to enlist the participation of ESF's student chapter of the Society of Conservation Biology, which organized a third retreat without our direct involvement. I believe these retreats were successful in providing new students the opportunity to meet one another and make friends, introducing early to opportunities at the AEC, and offering me opportunity to provide early academic guidance. It is my intent to continue developing these service retreats with Laura and more ESF student organizations. This past year I made a concerted effort to incorporate best practices in scientific teaching and active learning in my General Biology laboratory modules and to make more explicit linkages to these techniques with my graduate and undergraduate teaching assistants. I believe I made good progress in modifying my instructional approach in several laboratories, and in promoting understanding among the graduate teaching assistants in the value and benefit of these teaching methods.

Two years ago ('13-14) Kelley Donaghy and I attempted to initiate a two-year course sequence in Environmental Leadership and Civic Engagement. Our intention was to begin developing a purposeful, structured academic track in leadership studies that integrates aspects of community service. In this first attempt we initiated a Sophomore-Junior year experience consisting of an introductory seminar on leadership theory and skills, followed by a practicum in which students designed high-impact, service-based professional or research projects that promoted community service by their fellow students. We carried about a dozen students through two semesters of the leadership training and project development during their sophomore year, but none of these students opted to implement their proposed service projects, due in large part to lack of resources. Using the approach we piloted in '13-14, Kelley and I submitted an NSF S-STEM proposal to further develop this leadership track and populate the program with two four-year scholarship cohorts. We received very good reviews on our last submission and were encouraged to resubmit the proposal this past spring. In addition to the S-STEM funding, Kelley and I are moving forward with a proposal to establish a Community Engagement and Environmental Leadership Institute at ESF that will eventually sponsor an academic program (certificate or minor) in Environmental Leadership. In our background research, we have learned that leadership training at the university level is typically sponsored by business, education and political science/international studies programs - STEM programs rarely offer formal leadership training. Furthermore, there are only two leadership training programs in the environmental sciences in the US - one is offered only to mid-career professionals and the other is limited to graduate students. Therefore, Kelley and I recognize an opportunity for ESF to help fill the nationwide void in undergraduate leadership training in STEM disciplines, and to occupy a very unique niche in leadership training in the environmental sciences.

This year I continued to advance my research programs in undergraduate STEM education and forest ecosystem management. Neal Abrams, Betsy Hogan and I began to extend research findings from our NSF-TUES research initiative that integrated our introductory chemistry, biology and communications courses (Project SYNAPSE). During the year, we presented our findings through four presentations and workshops at the American Chemical Society Northeast Regional Meeting, Association of Biology Laboratory Educators Annual Conference, and the SUNY STEM Conference. Neal and I will soon be submitting for peer review several teaching modules for integrated laboratory activities, and along with Betsy we will submit a manuscript describing the outcomes of our overall integrated teaching experience. In collaboration with Stacy McNulty, Ralph Nyland, Bob Davis and Bruce Breitmeyer, I initiated a study at the AEC to investigate the effectiveness of using mechanical means to control



beech sprouting during commercial harvests in even- and uneven-aged stands, and have recruited an MS student (Colin Mettey) to conduct the initial post-harvest assessments. I worked with Central/Western NY Chapter of The Nature Conservancy to submit a successful pre-proposal to the Wildlife Conservation Society Climate Adaptation Fund to conduct restoration forestry on TNC's Tug Hill properties (full proposal due in July). Geoff Griffiths continues his dissertation research on interactions between pollinator and forest herbaceous communities in post-agricultural secondary forests, and Geoff and I have been successful in integrating three undergraduate students into this research project. During the year I continued to work with past graduate students to submit four manuscripts for peer review (two are in revision), with three more to be submitted soon. I have also engaged two other undergraduate students in publication-quality research projects related to long-term effectiveness of herbicide treatment for beech control and bryophyte – bark chemistry relationships, and will move these efforts forward to publication this summer and fall.

**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 research program continues to be my priority for the coming year. Neal Abrams, Betsy Hogan and I will continue to finalize and publish the research findings from our first-year laboratory and communication curriculum. Further, I will continue working with my recent MS student (Garmendia) to publish three manuscripts from his thesis, and with Melissa Fierke and other collaborators at USDA-APHIS to report research findings on the ecological interactions that limit establishment of biological control agents on emerald ash borer. I will continue working with Geoff Griffiths to restore forest herbaceous communities using citizen science-based efforts; establish field sampling and monitoring program to assess impacts of mechanical beech controls at AEC strip clear-cuts and selection system cuts; and develop a research proposal in collaboration with The Nature Conservancy to deploy restoration forestry treatments on the Tug Hill. I intend to continue refining active learning techniques in my General Biology laboratories and promoting understanding of these methods among the graduate teaching assistants. Finally, much of the upcoming academic year will be dedicated to preparing for EFB's SUNY Program Evaluation.

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

### 1. Summer 2016

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

- Will contribute to EFB202 coordination and instruction (7 days), and will continue advising new instructor of record (Fierke).

#### b. Proposed research activity

- Facilitate parasitoid behavioral study and floral nectar chemistry study w/ D. Brennan and M. Fierke
- Revise a manuscript with grad student G. Griffiths and past grad student M. Hough.
- Finalize and submit a manuscript with undergrad M. Cardon on relationships between sugar maple bark chemistry and epiphyte communities.
- Finalize and submit three manuscripts from M. Garmendia thesis.
- Submit full proposal to WCS Climate Adaptation Fund to support restoration forestry on TNC Tug Hill properties.
- Develop cutting guide for “Electric Fence” compartment at AEC, which will be the subject of experimental mechanical beech control methods and serve as the basis for MS thesis for incoming graduate student C. Mettey.
- Analyze stand composition/structure assessment at EAB parasitoid release sites in MI and MD w/ USDA.
- Develop manuscripts and teaching modules from SYNAPSE project w/ N. Abrams and E. Hogan.

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

### 2. Fall Semester 2016

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

- EFB 102 (15 sections)
- EFB 132 (1 section)

#### b. Proposed research activity – ongoing from summer

- Develop manuscripts and teaching modules from SYNAPSE project w/ N. Abrams and E. Hogan.
- Develop manuscript w/ undergrad R. Hazard and R. Nyland reporting 50-yr outcomes of chemical beech control trials.

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

- EFB Curriculum Director
- ENB Curriculum Coordinator
- EFB CCAC
- Develop self-study for EFB SUNY Program Review

### 3. Spring Semester 2017

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

- EFB 104 (11 sections)

#### b. Proposed research activity – ongoing from fall

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

- EFB Curriculum Director

-ENB Curriculum Coordinator  
-EFB CCAC