ANNUAL REPORT: June 1, 2014 – May 31, 2015
(i.e., Summer 2014, AY 2014-2015)
DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY
SUNY-ESF

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

NAME: Stewart Diemont

I. INSTRUCTIONAL ACTIVITIES
1. Regular Course Offerings

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
<th>Credit</th>
<th>No.</th>
<th>No. of Lab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMER:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FALL:</td>
<td>EFB 496 Restoring Ecosystems: Princ. &amp; Prac.</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>FALL:</td>
<td>EFB 496 Princ. of Restoring Ecosystems</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>SPRING:</td>
<td>EFB 120 Global Env/Evol. Human Soc.</td>
<td>3</td>
<td>119</td>
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</tbody>
</table>

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 496 and EFB 796, Restoring Ecosystems, included several service learning components. Students worked with the community members from the village of Lacanja Chansayab, Mexico on a biocultural restoration project; they created a Lacandon Maya field guide that has been adopted used in local school to help incorporate Lacandon Maya TEK into the standard education. With a faculty member at El Colegio de La Frontera in San Cristobal de Las Casas, they worked on siting neighborhood-level natural wastewater treatment systems for the city of San Cristobal de Las Casas, Mexico, a community that currently does not have wastewater treatment. This project also included design of a rainwater capture system and wetland restoration design.

2. Non-Scheduled Course Offerings (e.g., 496, 899, 999)

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
<th>Credit</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FALL:</td>
<td>EFB 495 Undergraduate Teaching</td>
<td>1</td>
<td>1</td>
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<tr>
<td>FALL:</td>
<td>ENS 899 Master’s Thesis Research</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>FALL:</td>
<td>EFB 899 Master’s Thesis Research</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
3. Continuing Education and Extension (short courses, workshops, etc.)


Ecosystem Health and Restoration in Mayan Communities and Syracuse. In ESF in the High School Webinar on Ecological Engineering, SUNY ESF, February 19, 2019

4. Guest Lecture Activities

<table>
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<tr>
<th>Course No.</th>
<th>Title</th>
<th>No. of Lectures</th>
</tr>
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<tbody>
<tr>
<td>EFB 202</td>
<td>Ecological Monitoring and Biodiversity Assessment</td>
<td>1 (assisted with project evaluations)</td>
</tr>
</tbody>
</table>

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student’s official advisor __14__ and unofficial advisor _1_ (Honor’s Thesis).

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

Tomasz Falkowski, PhD, EFB-Ecology, May 2014
Isaías Martínez, PhD, GPES-Environmental and Community and Land Planning, August 2012
Eli Arnow, MS, GPES-Ecosystem Restoration, August 2012
Shruti Mokashi, PhD, GPES-Environmental and Community and Land Planning, August 2012
Eugene Law, MS, GPES-Ecosystem Restoration, August 2012
Samantha Steele, MS, GPES-Ecosystem Restoration, and MS, Maxwell School, Public Administration, August 2014
Hayley Kopelson, MPS, GPES-Environmental and Community Land Planning, completed May 2015


CO-MAJOR PROFESSOR

Mariana Nava Lopez (with Myrna Hall), PhD, GPES-Water and Wetland Resource Studies, January 2010
Austin Arrington (with Robin Kimmerer), MS, GPES-Ecosystem Restoration, January 2015
III. RESEARCH COMPLETED OR UNDERWAY

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

Itza Maya and Mopan Maya agroforestry fire use and ecosystem health (1%)

Social, ecological, and religious dimensions of sacred groves in Maharashtra, India (1%) with Shruti Mokashi, PhD advisee
Fire, field restoration, and traditional ecological knowledge in New York: Ecosystem services from four edible herbaceous species (2%) with Eugene Law and Eli Arnow, MS advisees

Zapotec agroforestry and ecosystem health in Oaxaca, Mexico (1%) with Isaias Martinez, Ph.D advisee

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)

Diemont, S.A.W. and L. Quackenbush. EAGER: Understanding the potential role of Mayan traditional ecological knowledge for ecological engineering of forest restoration in Mexico. National Science Foundation. $100,000 (current year $5,000), 5/1/12-12/31/15. Supports Tomasz Falkowski.

Klossner, R. (PI), S.A.W. Diemont S.A.W. City of Syracuse creekwalk landscaping design. Spanfelter Fund/Central New York Community Foundation, $50,000, 12/1/12-12/1/16. Senior personnel.


Advisees working with me who have received research support directly:


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


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


Baines, S. (PI), K. Limburg (Co-PI), McElroy (Co-PI), S.A.W. Diemont, Cohen, J., Beier, C. 4E Network: Ecosystem
services in Jamaica Bay – a model ecosystem in an urban context, SUNY 4E Network of Excellence, $100,000. Senior personnel.


Diemont, S.A.W., R. Briggs. Soil black carbon sequestration from prescribed forest burning (Pre-proposal). USDA – McIntire-Stennis Program.

Potteiger, M., S.A.W. Diemont, Emergy, M. Provisioning Ecosystems: linking culture practices, urban forests, and public health (Pre-proposal). USDA – McIntire-Stennis Program.

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)


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.

Municipality of San Cristobal de Las Casas, Chiapas, Mexico. Natural wastewater treatment plant system design and siting, rain water capture, and wetland restoration.

Village of Lacanja Chansayab, Chiapas, Mexico. Biocultural restoration project: Creating a Lacandon Maya field guide for educating children about their own traditional ecological knowledge.

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)

Executive Committee, Past-President, American Ecological Engineering Society

2. Professional Society Membership

American Ecological Engineering Society (since 2001)

3. Other Professional Activities

a. Editorial activity

<table>
<thead>
<tr>
<th>Journal (s)</th>
<th>Responsibility</th>
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<tbody>
<tr>
<td>Ecological Engineering</td>
<td>Guest Editor, Special Issue, with Marc Beutel</td>
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</table>

Other (books, symposia, etc.)
b. Reviewer

<table>
<thead>
<tr>
<th>Journal(s)</th>
<th>No. of manuscripts</th>
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<tbody>
<tr>
<td>Geofoorum</td>
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<tr>
<td>Restoration Ecology</td>
<td>1</td>
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<tr>
<td>Biological Conservation</td>
<td>1</td>
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<tr>
<td>Ecological Engineering</td>
<td>1</td>
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<table>
<thead>
<tr>
<th>Agency</th>
<th>No. of proposals</th>
</tr>
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<tbody>
<tr>
<td>National Science Foundation</td>
<td>1</td>
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Other

Proceedings of the 8th Biennial Emergy Conference 1

c. Participation (workshops, symposia, etc.)

<table>
<thead>
<tr>
<th>Name of workshop, etc.</th>
<th>Date</th>
<th>Place</th>
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<tbody>
<tr>
<td>Assessing Ecosystem Services</td>
<td>January 16 and 17, 2015</td>
<td>SUNY – Stony Brook</td>
</tr>
<tr>
<td>in Jamaica Bay</td>
<td></td>
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<tr>
<td>Facilitative Leadership for</td>
<td>February 6 and 7, 2015</td>
<td>SUNY – ESF</td>
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<tr>
<td>Collaborative Team Research</td>
<td></td>
<td></td>
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<tr>
<td>Workshop</td>
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C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

D. Foreign Travel (Where, When, Purpose)

Chiapas and Oaxaca states in Mexico, various locations, June 29 – August 24, 2014. NSF-supported research on traditional ecological knowledge (TEK) of the Maya, working with doctoral students Tomek Falkowski and Isaias Martinez and undergraduate student Wyatt Wesner. Worked with Martinez on Zapotec TEK in Oaxaca. Taught ESF course EFB 496/796 Restoring Ecosystems: Principles and Practice August 14 – 24, 2014/14 (9 undergraduate students and 2 graduate students), Chiapas, Mexico.

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

Assessment Committee, Environmental Biology Undergraduate Program

B. College-level

Graduate Program in Environmental Science, Ecosystem Restoration, Area Leader
Center for Native People and the Environment, Advisory Board
Faculty Governance Awards Committee
Faculty Governance Library Committee
Strategic Planning Committee, Relationships between Humans and the Environment
Adviser, Society for Ecological Restoration Club

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.

Our Students

I worked considerably this year on course development and modifications for all three of my major courses, and I advised 12 graduate students; they disseminated their work, won awards, worked internationally, and 4 completed their studies. I offered EFB 518 Systems Ecology for the first time, a course with a 25-year history at ESF. I developed a new syllabus with updated readings and software, added a new field component at Cranberry Lake Biological Station, and experimented with many new teaching techniques during both lecture and laboratory, including systems ecology in the field near ESF, in-class design exercises, and modeling races. EFB 120 Global Environment I was teaching for the second year. Based on student feedback, this year I decided to un-“flip” the classroom. I still incorporated non-traditional classroom experiences. 120 students visited the South Side urban ecosystem, and they examined soils at Oakwood Cemetery. Every class I tried to include classroom activities, such as creating a human systems diagram and a poster session of the global environment as they understood it. I also added a design component to the course. I wanted students to think about not only the problems, but how they can solve the problems. I changed course deliverables to make them more consistent throughout the semester to keep student involvement consistent. Feedback about these changes was generally positive. Although I have taught ecosystem restoration for seven years, I changed the textbook and revised course content to enhance learning in restoration techniques beyond ecological engineering. For example, in the field component of the course in Mexico, we conducted wildlife restoration through protected sea turtle egg collection and nest creation. This year 11 ESF students accompanied me to Chiapas, Mexico for the 10-day field component of Restoring Ecosystems: Principles and Practice. My graduate students were very successful this year. Of the graduate students who studied with me as adviser or co-adviser, four students graduated (two MS, two MPS). Two Ph.D. students passed their Candidacy Exam. Two graduate students had peer-reviewed papers published with me. One other student submitted her first manuscript for peer-review. Currently, five students are preparing with me additional manuscripts for submission. Four students presented their work at international conferences, and one student presented his work at a regional conference. One student received a National Geographic Young Explorers Award. Four graduate students working with me conducted research internationally (three in Mexico and one in India). Another MS student completed his Peace Corps service in Jamaica. One undergraduate student also worked with me in Mexico this summer.

Department/College

I worked toward maintaining and improving ESF in a number of ways. I began working with the committee on assessment for the Environmental Biology major. We considered current assessment methods and revised places in the curriculum where assessment would take place. At the college level, I continue to serve as the Area Leader for the Ecosystem Restoration area for the Graduate Program in Environmental Science (GPES), a position for which I make decisions on applications, help determine funding, and serve on the GPES leadership committee. I am also a member of three other college committees, the Faculty Governance Awards Committee, Faculty Governance Library Committee, and the Advisory Board for the Center for Native People and the Environment (CNPE). As a member of the Awards Committee I helped make recommendations about Chancellor’s Awards, Distinguished Professorships, and Honorary Degrees/Commencement Speakers. With the Library Committee I helped make recommendations about the library resources allocations and faculty communication. As a member of the Advisory Board for the CNPE I helped advise
Self Professionally

I continue to move forward with my research into indigenous ecosystem management and restoration. This work is taking place in New York, where I have an active research experiment looking at fire and restoration of field using native edibles, and internationally, where I have two experimental sites in Mexico (one in Oaxaca and one in Chiapas). I submitted proposals related to both traditional prescribed burning and Native American student education to the USDA. I submitted other proposals related to traditional ecological knowledge in Mexico (TEK) to NSF and with students to National Geographic and to CONACYT (Mexican NSF). I wrote several papers this year related to this topic. One paper published in Ecological Modelling that compares TEK education to scientific education, finding that natural field education could improve the sustainability of our education without sacrificing embodied energy; I submitted another paper that details soil fertility related to indigenous agroforestry system trees in Mexico. These papers come from work funded by NSF to look at TEK and ecological engineering in Mexico; we are preparing three other papers that detail nematode populations in these systems, compare bird populations to other non-TEK systems, and that describe the results of an experiment comparing government to TEK restoration, respectively. I also published two papers in Ecological Engineering that consider how natural systems could be incorporated into sustainable designs. This summer I will continue the work I began a few years back looking at Itza Maya (in Guatemala) and Mopan Maya (in Belize) ecosystem management. I am working toward a framework of sustainable ecosystem design and restoration that is based on knowledge and perspectives from indigenous systems. This work requires transcending typical disciplinary boundaries. In part to better learn how to work across disciplines, I participated in two SUNY workshops which transcended disciplines, one related to Jamaica Bay and one specifically looking at collaborative team research. Both these workshops led to further collaboration and grant applications, the latter to NSF.

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 will continue to improve my courses so that students learn about the problems of the world, how to analyze them, and how to restore ecosystem health. I see my three courses (Global Environment – the problems, Systems Ecology – analyzing in detail, and Restoring Ecosystems – restoring ecosystem health) as doing these things; each course includes some of each, but is naturally weighted in this way. Specifically, this year I will evaluate and update the final projects in these courses so that students clearly gain this knowledge and these skills from the final projects. I will also evaluate the grading and rubrics for Global Environment to regulate grading among different graders.

As part of my service and for service learning I will continue to work with communities in Mexico for ecosystem restoration through the Mayan field guide and will continue to work with San Cristobal de Las Casas, Mexico to restore rivers though natural wastewater treatment. At the college I look forward to how the strategic planning will develop ESF and will participate in that planning; I will also continue my work on several college committees and as Area Leader of Ecosystem Restoration in GPES.

I will continue research in southern Mexico, Guatemala, and Belize. This summer we will continue sampling the long-term restoration experiment in Chiapas, Mexico and will set up another agroforestry experiment in Oaxaca, Mexico. I will talk with Itza Maya community members in San Jose, Guatemala and Mopan Maya community members in Santa Elena, Belize, and visit agroforestry systems, to consider next steps for restoration research in these communities. We
will continue work in the native plants and prescribed burn experiment in Elizaville, New York. This year we will set up educational gardens. We will conduct deep soil samples looking at black carbon in Mayan systems in southern Mexico to better understand carbon sequestration. Throughout the year I will analyze data, prepare manuscripts, and write proposals to fund this work.

**B. PROJECTED ACTIVITIES FOR NEXT YEAR**

1. Summer 2015
   a. Course(s) to be offered
   b. Proposed research activity

Work with Mayan communities in southern Mexico, Guatemala, and Belize looking at TEK and restoration. Set up long-term agroforestry research site with Zapotec in Oaxaca, Mexico. Sample experimental plots in Chiapas, Mexico and Elizaville, New York.

c. University, professional society, and public service

Municipality of San Cristóbal de Las Casas, Chiapas, Mexico. Natural wastewater treatment plant system design and siting.

Village of Lacanja Chansayab, Chiapas, Mexico. Biocultural restoration project: Creating a Lacandon Maya field guide for educating children about their own traditional ecological knowledge.

2. Fall Semester 2015
   a. Course(s) to be offered

*EFB 496/796 Restoring Ecosystems: Principles and Practice (4 credits, 12 students)
*EFB 496/796 Principles of Ecosystem Restoration (3 credits, ~10 students)
EFB 518 Systems Ecology (4 credits, ~15 students)
*Taught together

b. Proposed research activity


c. University, Professional society, and public service

Graduate Program in Environmental Science, Ecosystem Restoration, Area Leader
Center for Native People and the Environment, Advisory Board
Faculty Governance Awards Committee
Faculty Governance Library Committee
Strategic Planning Committee, Relationships between Humans and the Environment
Adviser, Society for Ecological Restoration Club
3. Spring Semester 2016

a. Course(s) to be offered

EFB 120 Global Environment (3 credits, ~120 students)

b. Proposed research activity

Analyze data and soil from Mesoamerica research. Analyze data and biomass from NY agroecological restoration research. Write manuscripts and proposals.

c. University, professional society, and public service

Graduate Program in Environmental Science, Ecosystem Restoration, Area Leader
Center for Native People and the Environment, Advisory Board
Faculty Governance Awards Committee
Faculty Governance Library Committee
Strategic Planning Committee, Relationships between Humans and the Environment
Adviser, Society for Ecological Restoration Club