

ANNUAL REPORT: June 1, 2016 – May 31, 2017
(i.e., Summer 2016, AY 2016-2017)
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

	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs.</u>	<u>No. Students</u>	<u>No. of Lab. Sections</u>
SUMMER:	EFB/LA 496 (w/Carter)	Urban Ecosystem Design	1	6	
	EFB/LA 796 (w/Carter)	Urban Ecosystem. Design	1	3	
FALL:	EFB 434	Ecosystem Restoration Design	4	14	
	EFB 634	Ecosystem Restoration Design	4	1	
	EFB 120	Global Environment	3	53	

SPRING:

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.

In EFB 434/634 Ecosystem Restoration Design students worked with an elementary school in San Cristobal de Las Casas, Chiapas, Mexico and a faculty member at El Colegio de La Frontera in San Cristobal de Las Casas in the restoration design for a stream and wetland; these were coupled with composting and agroforestry production systems within the school grounds. The goal of the school was to create connections with the environment for the students that would serve as a sustainable school model for other public schools in the city. The designs developed by the students are now being developed further by the school to meet school education goals.

Service learning is central to the group projects for EFB 120 Global Environment. Each group of 3-4 students proposes and develops a project that is related to course topics and that in some way serves the sustainability of the campus, Syracuse, or regionally. EFB 120 presents what sometimes appear to be the insurmountable problems of our world, such as climate change, poverty, population pressures, and water, soil, and pollution. This project encourages students as they develop tangible designs, processes, or products, to begin to take necessary steps to meeting these challenges, and to consider how their education at ESF, and even a small project, will address the needs of the world.

Emanuel Carter and I taught a field course in Vitoria-Gasteiz, Spain for which we collaborated with researchers and designers at the Centro para Estudios Ambientales (CEA) (Center for Environmental Studies) of Vitoria-Gasteiz in designing green infrastructure strategies to restore biological connectivity and to develop tangible relationships between people and nature in a new neighborhood of Vitoria-Gasteiz. Students worked on teams with research interns of CEA, who came from throughout Spain and France.

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:	EFB 298	Rsrch Internship/Envrn Biology	2	1
	EFB 498	Independent Research/Envrn Bio	3	3
	EFB 498	Independent Research/Envrn Bio	2	1
	EFB 498	Independent Research/Envrn Bio	1	1
	EFB 798	Resrch Prob/Env&For Bio	9	1
	EFB 899	Masters Thesis Research	9	1
	EFB 999	Doctoral Thesis Research	9	1
	ENS 898	Professional Experience	1	1
	ENS 999	Doctoral Thesis Research	3	1
	ENS 999	Doctoral Thesis Research	1	2
SPRING:	EFB 420	Prof Internship/Envrn Biology	3	1
	EFB 498	Independent Research/Envrn Bio	3	1
	EFB 899	Masters Thesis Research	6	1
	EFB 999	Doctoral Thesis Research	1	1
	ENS 898	Professional Experience	1	1
	ENS 999	Doctoral Thesis Research	1	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>
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II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 21 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

Eli Arnow, MPS, GPES Ecosystem Restoration, August 2012

Arnow, E., 2016. Native Wild Edible Productivity and Soil Characteristics across Three Field Treatments. MPS Report, Graduate Program in Environmental Science, Ecosystem Restoration, SUNY ESF.

Austin Arrington, MS, GPES Ecosystem Restoration, January 2015

Arrington, A., 2016. Where the Fruit Falls: Utilizing a Web and Mobile Community Monitoring Application to Study Geo-Demographic and Landscape Level Urban Foraging Trends across the United States. MS Thesis, Graduate Program in Environmental Science, Ecosystem Restoration, SUNY ESF.

Avalon Bunge, MS, GPES Ecosystem Restoration, August 2015

Bunge, A., 2017. Urban Foraging for Food Security and Food Sovereignty: Quantifying Edible Forest Yield in Syracuse, New York Using Five Common Fruit- and Nut-Producing Street Trees. MS Thesis, Graduate Program in Environmental Science, Ecosystem Restoration, SUNY ESF.

Jose Jorge Garcia Polo, PhD, GPES Ecosystem Restoration, August 2016

Tomasz Falkowski, PhD, EFB Ecology, May 2014

Adam Fix, PhD, GPES Coupled Natural and Human Systems, August 2014

Isaias Martinez, PhD, GPES Environmental and Community and Land Planning, August 2012

Shruti Mokashi, PhD, GPES Environmental and Community and Land Planning, August 2012

CO-MAJOR PROFESSOR

MEMBER, STEERING COMMITTEE (other than those listed above)

Lorena Ninel Estrada Chinchilla (Hirsch), PhD, Graduate Program in Environmental Science, August 2011

Estrada Chinchilla, L.N., 2017. Simplifying complexity: Assessing the construction and use of composite indices of climate change adaptation, with an application to northern and western Guatemala. PhD Dissertation, Graduate Program in Environmental Science, Environmental and Natural Resources Policy, SUNY ESF.

Chelby Kilheffer (Underwood), PhD, EFB Fish and Wildlife Management, August 2014

Juliana Quaresma (Luzadis), MPS, GPES Environmental and Natural Resources Policy, August 2013

Quaresma, J. 2016. Environmental Program Implementation Experience: Civic Ecology in Watershed Restoration in Onondaga County. MPS Report, Graduate Program in Environmental Science, Environmental and Natural Resources Policy, SUNY ESF.

Catherine Landis (Leopold and Kimmerer), PhD, EFB Ecology, August 2009

Joanna Isadora Lumbsden-Pinto (Gibbs), MPS, EFB Conservation Biology, January 2017

Anayo Ukwuani, PhD, ERE Ecological Engineering, August 2013

Ukwuani, A., 2017. Developing a Vacuum Thermal-Stripping Acid Absorption Process for Ammonia Recovery from Anaerobic Digestion Wastewater, ERE Ecological Engineering, SUNY ESF

Molly Welsh (P. Vidon), PhD, GPES Water and Wetland Resources Studies, August 2015

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

Sara Smith (Kimmerer), MS, EFB Ecology, August 2012, Thesis Examiner

Smith, S., 2016. Looking through Two Lenses: an Ecological Study on the Succession of Ectomycorrhizal Communities in Regenerating White Pine Stands in A Tribal Forest and an Investigation of the Ethnomycological Knowledge of the Menominee Nation, Environmental and Forest Biology, Ecology, SUNY ESF.

Jill Carncross (Wagner), MS, FRM Natural Resources Management, Thesis Defense Chair

Carncross, J., 2017. A Portfolio Analysis of the SUNY ESF College Foundation Land Holdings, MS Thesis, FRM Natural Resources Management, SUNY ESF.

III. RESEARCH COMPLETED OR UNDERWAY

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

Climate change adaptation and traditional ecological knowledge in Mexico, Guatemala, and Belize (2%)

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 (1%) with Eli Arnov, MPS advisee

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

Food security and urban edible wilds (2%) with Avalon Bunge and Austin Arrington, MS advisees

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)

Klossner, R. (PI), S.A.W. Diemont S.A.W. City of Syracuse creekwalk landscaping design. Spanfelner Fund/Central New York Community Foundation, \$50,000, 12/1/12-12/31/16.

Kimmerer, R., S.A.W. Diemont, C. Beier, E. Folta, J. Manno. Sowing synergy: A graduate program to integrate indigenous and scientific knowledge for sustainability. US Department of Agriculture National Institute of Food and Agriculture, \$642,811, 3/1/16 - 2/28/19.

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

Diemont, S.A.W., SCC-Planning: A workshop series exploring the nexus of food, water, people, and technology in urban agriculture communities across three U.S. cities, National Science Foundation, \$99,997, 1/1/18-12/31/19.

Diemont, S.A.W., Meeting conservation and educational goals with a Lacandon Maya traditional ecological knowledge field guide, National Geographic Conservation Trust, \$20,000, 12/1/17-12/1/18, submitted and pre-proposal accepted, final proposal in revision.

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

Diemont, S.A.W., Measuring impact of urban agriculture in New York's Great Lakes Basin through citizen science and sensor-based monitoring of surface runoff, Great Lakes Research Consortium, \$25,000, 3/2/17-12/31/19.

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

*Law, E.P., S.A.W. Diemont, T. Toland, 2017. A sustainability comparison of green infrastructure interventions using energy evaluation. *Journal of Cleaner Production* 145: 374–385.

*Hamberg, L.J., S. Findlay, K.E. Limburg, S.A.W. Diemont, 2017. Herbivory and post-storm sediment burial as mechanisms of loss for *Vallisneria americana* in the Hudson River. *Restoration Ecology* doi:10.1111/rec.12477.

*Arrington, A., S.A.W. Diemont, C. Phillips, E. Welty, 2017. Demographic and landscape-level urban foraging trends in the United States derived from web and mobile app usage, *Urban Ecology*, *accepted with minor revision, revised manuscript in review*.

*advisee

B. Non-refereed Publications

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

Diemont, S.A.W., E. Arnow, A.B. Arrington, A. Bunge, T.B. Falkowski, E.P. Law, I. Martinez, 2016. Ecological engineering for food: Succession and wild edibles. American Ecological Engineering Society 16th Annual Meeting, Knoxville, Tennessee, June 7.

Bunge, A., S.A.W. Diemont, 2016. Urban foraging for food security: Quantifying edible forest yield in Syracuse, New York using five native fruit and nut tree species, Syracuse Food Justice Symposium, Syracuse, New York, November 16.

Bunge, A., S.A.W. Diemont, 2017. Quantifying edible forest yield in Syracuse, New York using four common fruit and nut producing street tree species. Tufts Future of Food and Nutrition, Tufts University, Boston, Massachusetts, April 7.

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):

City of Syracuse and MLK Elementary School. With graduate and undergraduate students from ESF, educated elementary school students on green infrastructure through experimental and display rain gardens along the Creek Walk near the Inner Harbor of Syracuse.

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, stream and wetland restoration; consulting to first festival of water

Municipality of Vitoria Gasteiz, Spain. Green infrastructure design and socio-biological flows: biocultural restoration in the neighborhood of Zabalgana, Vitoria Gasteiz, Spain.

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)

2. Professional Society Membership

American Ecological Engineering Society

Society for Ecological Restoration

3. Other Professional Activities

a. Editorial activity

Journal (s)

Responsibility

Other (books, symposia, etc.)

b. Reviewer

Journal(s)

No. of manuscripts

Ecological Modelling

1

Ecological Engineering

1

Agency

No. of proposals

Other

c. Participation (workshops, symposia, etc.)

Name of workshop, etc.

Date

Place

Green Lab Urban Ecosystem Design Workshop, May 15-28, 2017, Center for Environmental Studies, Vitoria Gasteiz, Spain

A Biocultural Restoration Program for ESF, Center for Native Peoples and the Environment, Hopa Mountain and Salish Kootenai College, November 3-6, 2016, SUNY ESF

C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

Social and Behavioral Research Basic Course, CITI Program, May 2017, Syracuse, New York

D. Foreign Travel (Where, When, Purpose)

Southern Mexico, Belize and Guatemala, July 5 – August 29, 2016

Research on traditional ecological knowledge (TEK) of the Maya, working with doctoral student Tomek Falkowski; taught ESF course EFB 434/634 Ecosystem Restoration Design August 17 – 27, 2016 with 15 ESF students (14 undergraduate students and one graduate students), Chiapas, Mexico; conducted interviews with Mayan farmers in Chiapas, Mexico and Belize to determine local adaptation to climate change in traditional agroforestry systems; visited field site learn about Mayan channel design and rehabilitation and advise on natural bank stabilization for National Geographic-funded project.

Vitoria Gasteiz and Madrid, Spain, May 15-31, 2017

Taught nine students (six undergraduate and three graduate) in an ESF field course (EFB/LA 496/796) in Vitoria-Gasteiz, Spain, the 2012 European Union Green City, and Madrid, Spain, with Emanuel Carter (LA); participated in a sponsored workshop through the Center for Environmental Studies (CEA) GreenLab to design green infrastructure, ecological and social connectivity for a neighborhood in Vitoria-Gasteiz; collaborated with CEA biologists, engineers, architects, and landscape designers in green design for Vitoria-Gasteiz.

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

Assessment Committee, Environmental Biology Undergraduate Program

B. College-level

Hiring Committee for Director of College Libraries

Hiring Committee for Assistant Professor, Landscape Architecture Department, External Committee Member

Graduate Program in Environmental Science, Ecosystem Restoration, Area Leader

Center for Native People and the Environment, Advisory Board

Academic Governance Awards Committee

Academic Governance Library Committee, Chair

Academic Governance Executive Committee

Society for Ecological Restoration, ESF Student Chapter, Adviser

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.

Students

I work closely with students on their research and explore new ways to teach. This year I advised eight graduate students and served on the committee or examiner of seven other students. I developed two courses and modified one of my courses, seeking to provide enriching and diverse education. I am mentoring my advisees in the investigation traditional ecological knowledge (TEK) and environmental restoration in the northeastern US, southern Mexico, and western India. They are researching the ecological and society needs, mechanisms, and implications of TEK. This work spans from rural to urban contexts, but all of these projects are at the critical intersection of nature and culture, where they consider ecosystem services, paying special attention to the provisioning of food. Three of my advisees graduated this year, two with MS degrees and one with an MPS. Writing with me, three advisees submitted their graduate work to peer-reviewed international journals this year, two are already published, one accepted with minor revision. Recognizing an interest and need for urban ecosystem design instruction, Emanuel Carter (Landscape Architecture) and I developed a field course that brings students to Spain to work with urban design professionals from Vitoria-Gasteiz, Spain. In this course we are looking at biocultural restoration, designing biological and social connectivity in cities. With Robin Kimmerer, Colin Beier (FNRM) and Elizabeth Vidon (Environment Studies), I worked this year on both a biocultural restoration course and a technical skills course. These courses are central to a new biocultural restoration program for ESF, funded by USDA. We organized and conducted program development workshop with Hopa Mountain and Salish Kootenai College during the fall at ESF to begin the process of program development. We recruited our first cohort of five students into this program; students will in some cases explore the TEK of their own Native American tribes for their master's research. I submitted through the Committee on Curriculum major revisions to EFB 518 Systems Ecology, now Systems Ecology: Ecological Modeling and Design. In this revised course we will use ecological models as a means to better design ecological engineering, ecosystem restoration, and environmental design, with an eye toward turning theory into practice.

Department/ College

I served the college and department in a number of ways this year, from extensive committee work to club advising. Being on two hiring committees – for a new faculty member in Landscape Architecture and for Director of Libraries – was demanding; but, we were successful in our searches, and it was an excellent way to get to know faculty, staff, and students across campus. I wore several hats for Academic Governance: on the Executive Committee, where we facilitated the process for administration evaluation; the Library Committee; and on the Honors Committee, where we advised on honorary degree recipients and Chancellor's Awards for service, teaching, and research. I continued as the Area Leader of the Ecosystem Restoration area of the Graduate Program in Environmental Sciences (GPES), an area that I developed five years ago. The area continues to be strong and has one of the highest applicant pools in GPES. I also continued in my advisory role for the Center for Native Peoples and the Environment (CNPE) and the ESF student chapter of the Society for Ecological Restoration (ESF SER). The CNPE is entering an exciting new phase, as we develop our teaching and research partnerships with Salish Kootenai College and Hopa Mountain through our USDA Higher Education Challenge grant. ESF SER worked on a number of local and international restoration projects, and members attended the Mid-Atlantic regional conference of SER.

Self Professionally

I continue to explore the intersection of ecological resilience with traditional, local, or indigenous knowledge and design. During the past decade much of my work has been focused in Mesoamerica, in particular a few villages in Mexico. I have been expanding my focus, looking at other communities in southern US, northern Mexico, Guatemala, Belize, and the Iberian Peninsula in Europe. I conducted preliminary interviews this past summer in Belize and Mexico to begin to understand climate change recognition and adaptation in traditional food ecosystems. Results were surprising. Adaptation strategies appear to range from biological and physical indicators that allow groups to be nimble in the face of changing precipitation and temperature, to community re-adoption of and commitment to TEK, which allows them greater resilience. I have begun research with traditional agroforestry viticulture systems in Europe. I am considering how TEK permeates ecosystem design and management around the globe. I have reached out to scholars in Portugal, Spain, and Italy to better understand current and needed research into these viticulture agroforestry systems, systems which began over 2000 years ago and are in decline due to economic and social pressures. I am particularly interested in, like with systems from Mesoamerican, how these low-input and natural systems can be part of climate change adaptation. I remain committed to my work in New York and southern Mexico. I continued work on TEK and ecosystem restoration in Mexico. We are better understanding succession in these systems and how Lacandon Maya farmers contribute to ecosystem services that they use (e.g., food and raw materials) while accelerating soil nutrient regeneration. We have also determined how bird communities respond to TEK design. We continued monitoring a long-term study site that I evaluate with students (both graduate advisees and students in EFB 434/634) that looks into how TEK restoration compares to more conventional forms of forest restoration. We are completing the first article from this study now; our results appear to belie current understanding of diversity and annual production in these systems, indicating that perhaps these systems are considerably more productive than is currently believed. In New York I continued my work with food systems, advising three master's students in this area: two working in Syracuse with edible wilds and one working in rural New York with old field restoration. We had one article accepted in this area and presented this work at several conferences, including the American Ecological Engineering Society Annual Meeting, where I proposed that food can be part of ecological engineering design. I proposed work to funding agencies to, at its essence, examine the role of food in ecosystem restoration.

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 am welcoming two new master's students and plan to see three doctoral students graduate next year. With my incoming master's students we are planning to work on ecological restoration in the NE US and Latin America, respectively, through TEK and food systems. I will also co-advise up to five master's students through the new biocultural restoration program Sowing Synergy. I will team teach EFB 796 Biocultural Restoration with Robin Kimmerer, Colin Beier and Elizabeth Vidon. I will also teach a revamped EFB 518 Systems Ecology: Ecological Modeling and Design. I will continue service learning through EFB 434/634 Ecosystem Restoration Design in Mexico for which I plan to work with the city of San Cristobal de Las Casas, Mexico and the village of Lacanja Chansayab, Mexico. I will continue the May field course on urban ecosystem design in Spain with Emanuel Carter and formalize this course through the Committee on Curriculum. As part of our USDA grant, I will continue to work with Salish Kootenai College, Hopa Mountain, and others in the Center for Native Peoples and the Environment in developing a graduate program at ESF on the integrations of indigenous and scientific knowledge for sustainability.

I will continue my work with Academic Governance on the Honors, Library and Executive Committees and will continue as Area Leader in Ecosystem Restoration in the Graduate Program in Environmental Science. I will plan for a sabbatical year by working with faculty who could take over these positions while I am away. I will also continue to work with the community of Lacanja Chansayab, Mexico on TEK-based restoration and education and with San Cristobal de Las Casas on natural wastewater treatment and ecosystem restoration.

This year I am planning to submit for funding support for research in the areas of ecosystem restoration, TEK, food security, urban ecosystems, and climate change adaptation. I will continue developing research and teaching ideas for my sabbatical. This spring I will continue in new research and teaching areas in climate change adaptation, urban

ecosystems and agroforestry design through a sabbatical in northern Portugal. I will learn Portuguese that I could use in my future research. I will also continue my work within Latin America. I am particularly interested in how indigenous ecosystem management leads to climate change adaptation. I will continue interviews this summer. I will also work with my graduate students in submitting manuscripts for research we have completed on old field restoration, urban food systems, and Zapotec and Maya TEK management.

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2017

a. Course(s) to be offered

b. Proposed research activity

I will work on manuscripts related to past research, submit for funding, work with graduate students on thesis and dissertation research, continue conducting interviews on climate change adaptation in villages in Mexico, Guatemala, and Belize, conduct sampling of our long-term TEK ecosystem restoration experiment in Mexico. I will conduct initial field reconnaissance and meet with scientists in northern Portugal to develop field methodology for my sabbatical research in traditional agroforestry viticulture.

c. University, professional society, and public service

2. Fall Semester 2017

a. Course(s) to be offered

EFB 434/634 Ecosystem Restoration Design

EFB 796 Biocultural Restoration (with Robin Kimmerer, Colin Beier, and Elizabeth Vidon)

EFB 496/796 Systems Ecology: Ecological Modeling and Design

b. Proposed research activity

I will work on manuscripts related to past research, submit for funding, work with graduate students on thesis and dissertation research, analyze interviews on climate change adaptation in villages in Mexico, Guatemala, and Belize, and analyze data from our long-term TEK ecosystem restoration experiment in Mexico. I will continue research with others from CNPE, Salish Kootenai College, and Hopa Mountain on best ways forward for a program at ESF in the integration of indigenous and scientific knowledge for sustainability.

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

Academic Governance Awards Committee

Academic Governance Library Committee, Chair

Academic Governance Executive Committee

Society for Ecological Restoration Club, Adviser

3. Spring Semester 2018

a. Course(s) to be offered

I will be on sabbatical in Portugal. There I will design a field course in agroecosystem design to be offered to ESF students in order to meet increased student interest in sustainable agriculture. I will choose agroecosystem field sites in southwestern Europe that would be appropriate for introduction, sampling and analysis for a field course on agroecosystem design. I will continue working with a group of scholars and farmers who will be able to work with ESF students on agroecosystem design.

b. Proposed research activity

I will spend a sabbatical during Spring 2018 in northern Portugal. There I will conduct research, developing novel research directions in agroforestry, urban design, and climate change adaptation; develop research relationships; and expand upon my field sampling expertise. I will explore urban ecosystems throughout Portugal, Spain, France, and Italy, focusing on sites of urban agriculture and green infrastructure to begin to determine how the northeastern US could learn from and share with European colleagues. I will complete a comparative sustainability evaluation of these sites using emergy analysis that I will incorporate with sites in New York to better determine how system inputs relate to sustainability goals. In order to have a better understanding of traditional viticulture systems in Portugal and Italy that derive from the ancient agroforestry systems that stem from Etruscan and Greek viticulture, I will interview farmers and managers about coppicing, pollarding, and harvesting for managed microclimate. I will complete initial sampling of soil moisture, hydraulic potential, and temperature. To determine how European design could contribute to urban ecosystem design in the northeastern US, I will visit green infrastructure and urban agricultural sites throughout southwestern Europe.

c. University, professional society, and public service

I will be on sabbatical during this semester.