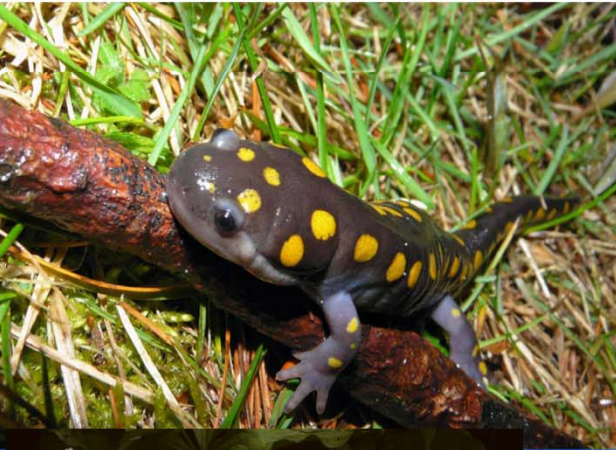


# Environmental and Forest Biology 2008-2009



*Front Cover: Collage created by James P. Gibbs from images provided by EFB faculty*

# **Department of Environmental and Forest Biology**

## **Annual Report**

**Summer 2008  
Academic Year 2008-2009**

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## **Introduction**

The topics and format of this annual report generally follow instructions from Provost Bongarten. Additional, brief material is included for readers external to ESF. Individual faculty annual reports, from which much of the information within the EFB Annual Report is directly taken, are available at: <http://www.esf.edu/efb/annualreports.htm>.

## **People**

Appendix A lists EFB faculty during the 2008-2009 Academic Year, including their rank, education, and scholarly interests. Numerous contributions by and highlights of the faculty follow throughout this report. Each faculty member's summary (unedited) of their most significant accomplishments this past year is in Appendix B.

Of the many faculty highlights this past year, only a few are included in this section. Besides the highlights below, Drs. Baldassarre, Horton, Shields, and Weir took sabbatical leaves to work on a variety of projects.

Dr. Guy Baldassarre has accepted an offer to revise the best-selling classic, *Ducks, Geese and Swans of North America*. Drs. Jesse Brunner and Martin Schlaepfer very successfully co-taught Principles of Evolution (EFB 311) to nearly 200 students. Drs. John Castello and Steve Teale are serving as editors of textbook on forest health for Cambridge University Press, a draft of which is due in August. Dr. Jacqui Frair was invited to and attended a workshop on GPS Telemetry in Trento, Italy. Dr. James Gibbs continued his activity as an adjunct scientist with the Charles Darwin Foundation and will spend a significant amount of time in the Galapagos this summer for further consultation. He also served on the National Park Service's "Blue Ribbon Panel" to evaluate science programs at Isle Royale National Park. Dr. Tom Horton has initiated a research project in Honduras with Operation Wallacea.

Dr. Robin Kimmerer founded and served as Director of The Center for Native Peoples and the Environment at ESF which has brought significant positive attention to ESF's leadership role in incorporating traditional ecological knowledge in environmental education and research. Dr. Don Leopold has agreed to serve as chair of the department for another three years beginning this August. Dr. Karin Limburg's research on the dramatic declines in North Atlantic diadromous fishes is receiving worldwide attention and has led to her involvement with a new effort to understand the ecology of threatened and endangered species in the Colorado River and its tributaries below the Glen Canyon Dam. Dr. Mark Lomolino delivered the keynote lecture for a conference in Leiden, Netherlands celebrating Darwin's 200th Birthday. Dr. Greg McGee, working with Annie Woods at the Adirondack Ecological Center, and Leah Flynn in the Office of Student Life, has developed a pre-orientation Adirondack Experience for twenty of this year's incoming EFB freshmen. Dr. Kathy McGrath has initiated her funded research to assess lake sturgeon stocking in the Oswego River basin.

Besides many activities that include managing about \$1.5 million in current grant funding for research in various locations, Dr. Myron Mitchell participated in the Summer Program on Ecosystem Ecology in Hokkaido, Japan. Dr. Jim Nakas was issued a European patent for his work with others on biodegradable polymers from wood-based feedstocks. Dr. Tsutomu Nakatsugawa is revising for Cornell University Press a draft of his book that summarizes much of his decades of work and writing about environmental toxicology. Dr. Roy Norton led department efforts in developing plans for academic assessment, in response to the mandate from the Middle States Commission on Higher Education for developing a student learning-outcome

approach. The results of this assessment will have many immediate and long-term positive effects on the seven majors in EFB. Dr. Dylan Parry's research on the decline of native moths in New England and the larger issue of the unintended consequences of biological control has been getting considerable national attention. Research on climate change and songbird communities by Dr. Bill Porter and one of his recently finished doctoral students (Dr. Ben Zuckerberg) resulted in two papers published or accepted for publication in top-caliber journals.

Dr. Bill Powell, while expanding his American chestnut research program, served as the Executive Chair of the ESF faculty governance. Dr. Neil Ringler continues to have a vibrant teaching and research program while also serving as ESF's Dean of Research. Professor Andy Saunders, with assistance from graduate student Ginny Collins, piloted the Master Naturalist program, *Naturally New York*, a program that extended into many CNY organizations and institutions by hand-picking participants from many professional venues who interact with youth, including scout leaders, teachers and others, e.g., from the medical professions. Dr. Kim Schulz recently initiated a study of the ecological stoichiometry of salt marshes along the eastern US coast, specifically ratios of silicon to nitrogen and phosphorus.

Dr. Bill Shields taught the freshman honors seminar class and it was so well received that this fall at the request of these students he will be convening this group of now sophomores, as well as the freshman honors class. Much of Dr. Larry Smart's efforts have strengthened his international reputation and stature in the field of bioenergy crop research. Dr. Don Stewart continues his studies of the giant arapaimas of the Amazon, an endangered group of mostly undescribed fish species. While his research in Namibia has expanded and is gaining international attention, Dr. Scott Turner will be making a significant contribution to EFB's undergraduate instruction by teaching Physics of Life for the first time this fall semester. One of Dr. Alex Weir's main foci has been to deliver overseas courses, organizing trips to Costa Rica, Ireland, and Russia for ESF students as well as facilitating the exchange of Moscow State University students both to Costa Rica, and the Cranberry Lake Biological Station. Dr. Chris Whipps received two grants to enhance his research program on animal disease and wildlife population genetics.

The only faculty personnel action this past year was the change in title for Dr. John Farrell, from Senior Research Associate to Associate Professor, to better reflect Dr. Farrell's broad contributions to EFB's teaching, research, and outreach programs. This past Academic Year, due to the departure of Drs. Annette Kretzer in August 2008 and Larry Smart in July 2009, we conducted a search for a molecular/cellular biologist. Our search resulted in hiring Dr. George Bachand, a member of the Center for Integrated Nanotechnologies & Physical, Chemical, and Nano Science Center at Sandia National Laboratory in Albuquerque. Dr. Bachand will be teaching Cell Physiology (EFB 325) beginning this fall '09 semester, and Molecular Techniques (BTC 401/EFB 601) next spring. His research is in the field of nanobiology.

Although Dr. Dudley Raynal left most of his EFB duties years ago to serve as Dean of Instruction and Graduate Studies, in December 2008 he retired from ESF. He will soon be moving with his wife, Georgia, to Alexandria, Virginia where they can be closer to their son, daughter, son-in-law, and grandchildren.

### **Building(s)**

After years of substantial improvements in Illick spaces there were generally few new improvements (besides the greenhouses; see below) this past year. We received a commitment



from the administration in February 2007 to develop substantial indoor and outdoor storage space for teaching and research needs, but there has been no progress on this much needed renovation. Construction for the new greenhouse to replace the one destroyed by the Labor Day storm of 1998 is still pending. The reconstructed greenhouse will be built for research on invasive insect species, so will meet specific quarantine requirements for this purpose. With the entomology faculty studying Asian longhorn beetle, emerald ash borer, and other very serious invasive insects, constructing this quarantine greenhouse is highly significant. We continue to examine all spaces throughout Illick to better serve a variety of pressing needs, which have become even more urgent with the arrival of eight new faculty the past three years. With a new process in place for doing capital projects on campus, we anticipate having much more to report next year.

With the hiring of the new Illick Hall greenhouses manager, Terry Ettinger, in the spring '08, we have begun to make numerous improvements in our greenhouse facilities to benefit our teaching and research collections. Terry initiated a greenhouse planting ID/labeling project; currently, more than 250 species have been identified and labeled. He has completed installation of intermittent mist system with bottom heat that has capability of propagating several thousand cuttings/seedlings per year. With faculty assistance, he initiated efforts to significantly enhance the permanent plant collection in support of courses offered each AY. Several structural aspects of the greenhouse complex were enhanced including: installation of a prototype hose gantry and repair of several nonfunctioning water bibs to which short hose pieces have been connected (has increased watering efficiency), installation of external hose bibs that will allow for more efficient use of the Illick Hall roof for growing space, replacement of wood slat benching with expanded metal panels that will result in reduced pest (cockroaches, mealybugs, etc.) populations, and replacement of non-functioning motorized ridge vents with (relatively) inexpensive manually operated gearboxes.

Field stations associated with EFB have had substantial improvements since last year. Dr. John Farrell, Director of the Thousand Islands Biological Station, led an effort to renovate the main lodge facility at TIBS. With assistance from ESF's Physical Plant the renovation of the kitchen, bathroom and main room are nearly complete. Fundraising continues for the proposed Multipurpose Building for TIBS. Dr. Alex Weir, Director of the Cranberry Lake Biological Station oversaw the construction of a new genetics lab at CLBS thanks to a very generous donation by Dr. Sam Groeber ('38) who passed away earlier this year. Under Dr. Bill Porter's directorship there have been many important changes recently at the Adirondack Ecological Center, including expansion of the kitchen at the Rich Lake Dining Center, renovation of the Huntington Lodge, installation of wireless internet at key locations, and initiation of renovations at the not-too-distant Masten House for workshop and conferences.

## **Teaching**

There were significant changes in EFB course offerings this past academic year. General Biology lecture and lab courses, which have replaced General Botany and Zoology, were very successful this past year. Dr. Melissa Fierke taught the lecture for the first semester (Organismal Biology and Ecology), Dr. Chris Whipps the lecture for the second semester (Cell Biology and Genetics), and Dr. Greg McGee taught the laboratory for both semesters. Drs. John Castello and Steve Teale offered a new General Education course, "Peoples, Plagues, and Pests" to over 100 students. Dr. Karin Limburg taught "Wine Appreciation: From Grapes to Glass" to nearly 40

undergraduate and graduate students. And Dr. Robin Kimmerer offered “Land & Culture: Indigenous Issues”. In early January, Dr. Alex Weir took a small group of students to ESF’s Costa Rica field station for field research then in mid May, Dr. Weir led a group of students to visit numerous field sites throughout Ireland.

**Summary of main courses taught by faculty and enrollment in each course**  
(as reported by each; does not include 420, 495, 498, 499, 798, 899, 999)

<u>Faculty</u>	<u>Course #</u>	<u>Course Name</u>	<u>Enrollment</u>
<b>Baldassarre</b>	482	Ornithology	20
<b>Brunner</b>	311 (0.5)	Principles of Evolution	177
	796	Infectious Disease in Wildlife Populations	4
	797 (0.5)	Wildlife Seminar: The Ecological Detective	10
	797	Adaptive Peaks	10
	797 (0.5)	Adaptive Peaks	10
<b>Castello</b>	217 (0.5)	Peoples, Plagues, & Pests	110
	303 (0.5)	Intro Environmental Microbiology	56
	340	Forest and Shade Tree Pathology	55
	345 (0.5)	Forest Health	10
<b>Dovciak</b>	445/645	Plant Ecology	39
	535	Systematic Botany	6
<b>Farrell</b>	797	Aquatic Ecology Seminar	6
<b>Fernando</b>	132	Orientation Seminar in Biotechnology	16
	326	Diversity of Plants	66
	427/627	Plant Developmental Biology	8
<b>Fierke</b>	101	General Biology Lecture I	309
	797 (0.5)	Adaptive Peaks Seminar	10
<b>Frair</b>	491	Wildlife Ecology & Manage. Prac.	33
	496	Wildlife Techniques	10
	500	Arctic Ecosystems	9
	796	Landscape Ecology	10
	797 (0.5)	Ecological Detective Seminar	14
<b>Gibbs</b>	384	Field Herpetology	16
	413	Intro to Conservation Biology	110
	419	Problem Solving in Cons. Biology	16
<b>Hall</b>	120	Global Environment	100
	(ESC) 325/525 (0.5)	Energy	22
	497/797	Tropical Development	11
	516	Ecosystems	26
	518	Systems Ecology	18

	522	Ecology, Resources & Develop.	15
<b>Horton</b>	428/628	Mycorrhizal Ecology	19
	797	Mycorrhizal Symbiosis	3
<b>Kimmerer</b>	296	USDA Seminar	14
	337	Field Ethnobotany	15
	446/646	Ecology of Mosses	28
	496	Plants and Culture	12
	496/696	Land & Culture: Indigenous Issues/Env't.	29
	497	UMEB Seminars	26
<b>Leopold</b>	327 (0.5)	Adirondack Flora	8
	336	Dendrology I	201
	542	Freshwater Wetland Ecosystems	66
<b>Limburg</b>	487/687	Fisheries Science and Management	19
	488	Fisheries Science Practicum	8
	496/796	Wine Appreciation from Grapes to Glass	37
	500	The Hudson River Watershed	9
	496/796	Watershed Ecology/Focus on Hudson River	26
<b>Lomolino</b>	444	Geography of Nature	43
	483	Mammal Diversity	56
	496	Mammal Conservation	45
	644	Biogeography	5
	796	Biodiversity of Mammals	1
	797	Conservation Biogeography	7
<b>McGee</b>	102	General Biology Lab I	307
	104	General Biology Lab II	192
	132	Orientation Seminar: EFB	120
	320	General Ecology	12
<b>McGrath</b>	497/797	Landscape Perspectives in Aquatic Ecology	6
<b>McNulty</b>	513 (0.5)	Adirondack Forest Ecology	13
	484/684 (0.5)	Winter Mammalian Ecology	20
<b>Mitchell</b>	415	Ecological Biogeochemistry	23
	497	Ecology Seminar	4
	610	Ecological Biogeochemistry	11
	797	Seminar	5
	797	Hydrology/Biogeochemistry Seminar	10
<b>Nakas</b>	301	Latin for Scientists	46
	303 (0.5)	Intro. Environmental Microbiology	61
	496/796	Microbiol. Diseases of Fish and Wildlife	10
	496/796	Microbial Ecology	21
<b>Nakatsugawa</b>	400/600	Toxic Health Hazards	39

<b>Norton</b>	355	Invertebrate Zoology	41
<b>Parry</b>	496/796	Plant-Herbivore Interactions	14
	502	Ecology & Mgt. Invasive Species	38
	796	Advances in Insect Ecology	7
<b>Porter</b>	484/684	Winter Mammalian Ecology	21
	493/693	Wildlife Habitats and Populations	48
	513 (0.5)	Adirondack Forest Ecology	10
<b>Powell</b>	307	Principles of Genetics	209
	308	Principles of Genetics Lab	205
(BTC)	425/625	Plant Biotechnology	19
	497	Research Design & Prof. Develop.	16
<b>Raynal</b>	327 (0.5)	Adirondack Flora	10
<b>Ringler</b>	385	Comparative Vertebrate Anatomy	53
	554	Aquatic Entomology	16
<b>Saunders</b>	215	Interpret. Science Through Art	83
	405	Literature of Natural History	16
	406	Great Naturalist Seminar	10
	416/616	Intro/Environ. Interpretation	35
	796	Adv. Perspectives of Interpretation I	3
	796	Adv. Perspectives of Interpretation II	3
	797	Readings/Field of Environ. Inter.	11
<b>Schlaepfer</b>	311 (0.5)	Principles of Evolution	177
	485	Herpetology	54
	496 (0.5)	Field Animal Behavior	7
<b>Schulz</b>	524	Limnology	37
	525	Limnology Lab	19
	796	Building Your Professional Skills Toolkit	7
<b>Shields</b>	(ESF) 109	Freshmen Honors Seminar	26
	496/796	Animal Behavior	4
<b>Smart</b>	325	Cell Physiology	82
(BTC)	499	Senior Project Synthesis	13
	530	Plant Physiology	17
	531	Plant Physiology Lab.	2
<b>Stewart</b>	486	Ichthyology	73
	523 (0.5)	Tropical Ecology	16
<b>Teale</b>	217 (0.5)	Peoples, Plaques, and Pests	110
	345 (0.5)	Forest Health	11
	351	Principles of Forest Entomology	65

	796	Forest Entomology	7
<b>Turner</b>	462/662	Animal Physiology: Environ. & Ecol.	73
<b>Weir</b>	202 (+ others) 500	Ecological Monitoring and Bio. Assess. Forest Biology Fieldtrip - Ireland	137 8
<b>Whipps</b>	103 401/601	General Biology Lecture II Molecular Biological Techniques	192 27

### **Courses by Instructional Support Specialists & Visiting Instructors**

<b>Ettinger</b>	496	Plant Propagation	5
<b>Giegerich</b>	381	Vertebrate Museum Techniques	10
<b>Hager</b>	496	Ecology Adirondack Insects	6
<b>Hocutt</b>	496	Issues in Mgt. & Conflict Resolut.	21
<b>Kirby</b>	320	General Ecology	193
<b>Klitgaard (0.5)</b>	522	Ecology, Resources, and Development	15
<b>Laundre</b>	390 480	Wildlife Management Principles of Animal Behavior	70 79
<b>Patinelli-Dubay</b>	496/796 496/796 496/796 797 797	Intro to the Philosophy of Science Ecophenomenology Wild Ideas: Ecophenomenology Environmental and Social Justice Environmental Impact/Dualistic World	1 8 12 6 3
<b>Scanga</b>	414	Senior Synthesis in Con. Biol.	24
<b>Shriver</b>	496	Field Ornithology	5

### **Workload (teaching) summary by faculty members**

The following data are from the Faculty Workload Report (5/09) by Dr. Maureen Fellows, and summarize the number of students multiplied by the number of credit hours for courses categorized as Research (e.g., EFB 498, 798, 899, 999), Problems/Seminars (e.g., EFB 420, 495, 797), and regular classes. The first number in each column is for undergraduate credit hours, the second for graduate. Co-taught courses yield the number of credit hours for that course divided by number of instructors. All courses are credited, regardless of departmental prefix.

Dr. Fierke had the highest teaching workload (937 total credit hours), followed by Drs. Leopold (907), Powell (794), McGee (688) and Whipps (673). EFB faculty were responsible for 12,488 credit hours of campus instruction, about 35% of the total number of credit hours

delivered by all ESF faculty (EFB faculty are about 27% of the total number of faculty at ESF). Another 1017 credit hours were delivered by Visiting Instructors and others.

### Workload (Teaching) Summary by Faculty Member

<u>Faculty</u>	<u>Research CH</u>	<u>Prob./Sem. CH</u>	<u>Class CH</u>	<u>Total (U/G)</u>
Abrahamson (38*)	-	-	-	<b>0</b>
Baldassarre <sup>a</sup> (31)	2/5	31/0	106/7	<b>151</b> (139/12)
Brunner (18)	0/0	0/20	264/12	<b>296</b> (264/32)
Castello (9)	0/3	2/0	460/4	<b>469</b> (462/7)
Dovciak (28)	4/24	0/0	87/48	<b>163</b> (91/72)
Farrell (34)	3/55	0/6	0/0	<b>64</b> (3/61)
Fernando (17)	14/36	18/4	232/6	<b>310</b> (264/46)
Fierke (1)	2/18	0/5	912/0	<b>937</b> (914/23)
Frair (23)	28/29	5/5	96/45	<b>208</b> (129/79)
Gibbs (6)	13/26	80/0	495/0	<b>614</b> (588/26)
Hall (7)	11/64	23/2	414/87	<b>601</b> (448/153)
Horton <sup>a</sup> (32)	25/50	6/3	48/3	<b>135</b> (79/56)
Kimmerer (20)	3/33	21/0	175/27	<b>259</b> (199/60)
Leopold (2)	6/52	21/14	751/63	<b>907</b> (778/129)
Limburg (25)	3/9	5/6	131/22	<b>176</b> (139/37)
Lomolino (13)	0/11	0/7	324/24	<b>366</b> (324/42)
McGee (4)	0/2	15/0	671/0	<b>688</b> (686/2)
McGrath (37)	-	2/4	-	<b>6</b> (2/4)
McNulty (36)	3/6	-	-	<b>9</b> (3/6)
Mitchell (30)	0/31	4/15	69/33	<b>152</b> (73/79)
Nakas (22)	3/29	3/0	200/2	<b>237</b> (206/31)
Nakatsugawa (29)	3/2	7/7	114/28	<b>161</b> (124/37)
Norton (27)	-	3/0	164/0	<b>167</b> (167/0)
Parry (24)	3/29	-	102/51	<b>185</b> (105/80)
Porter (15)	5/43	0/8	254/33	<b>343</b> (259/84)
Powell (3)	19/34	26/2	702/11	<b>794</b> (747/47)
Raynal (35)	0/2	-	48/0	<b>50</b> (48/2)
Ringler (16)	10/24	10/6	252/15	<b>317</b> (272/45)
Saunders (8)	8/9	35/17	468/51	<b>588</b> (511/77)
Schlaepfer (11)	3/11	8/0	429/0	<b>451</b> (440/11)
Schulz (26)	1/31	0/0	115/22	<b>169</b> (116/53)
Shields <sup>a</sup> (33)	7/62	6/0	33/0	<b>108</b> (46/62)
Smart (14)	47/3	18/0	286/9	<b>363</b> (351/12)
Stewart (19)	4/3	0/0	267/0	<b>273</b> (270/3)
Teale (12)	18/28	0/0	326/21	<b>393</b> (344/49)
Turner (22)	0/14	4/0	207/12	<b>237</b> (211/26)
Weir <sup>a</sup> (10)	8/19	30/0	411/0	<b>468</b> (449/19)
Whipps (5)	12/0	4/0	645/12	<b>673</b> (661/12)

\*rank out of all 38 faculty; 1 highest, 38 lowest

<sup>a</sup> on sabbatical leave for one semester

**Workload Statistics by Adjunct Faculty, Emeriti, Instructional  
Support Specialists, AEC Staff, Visiting Instructors, etc.**

Allen	0/6	-	-	<b>6</b> (0/6)
Ettinger	6/0	-	15/6	<b>27</b> (21/6)
Giegerich	1/0	-	20/0	<b>21</b> (21/0)
Hager	-	-	18/0	<b>18</b> (18/0)
Hocutt	-	-	17/4	<b>21</b> (17/4)
Kirby	-	-	752/20	<b>772</b> (752/20)
Patinelli-Dubay	-	0/6	13/6	<b>25</b> (13/12)
Podniesinski	-	-	12/0	<b>12</b> (12/0)
Scanga	-	-	69/0	<b>69</b> (69/0)
Shriver	-	-	15/0	<b>15</b> (15/0)
Townsend	-	-	16/0	<b>16</b> (16/0)
Underwood	0/10	5/0	-	<b>15</b> (5/10)

### Undergraduate Student Advising Loads

Listed below is the number of undergraduate advisees assigned to each faculty member, as reported by that faculty member. Additionally, some faculty regularly and informally advise a much larger number of undergraduates, and some advise ES undergraduate students.

Abrahamson 0	Mitchell 13
Baldassarre* 34	Nakas 12
Brunner 20	Nakatsugawa 11
Castello* 25	Norton** 26
Dovciak 14	Parry 24
Farrell 0	Porter 27
Fernando 16	Powell* 22
Fierke 13	Ringler 0
Frair 30	Saunders* 28
Gibbs* 31	Schlaepfer 17
Hall 20	Schulz 15
Horton 12	Shields 21
Kimmerer 16	Smart 24
Leopold 9	Stewart* 25
Limburg 22	Teale 12
Lomolino 28	Turner 29 (includes Environmental Science)
McGee 6	Weir 16
McGrath 0	Whipps 21
McNulty 0	

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\*Also coordinator for one of EFB's majors

\*\* Undergraduate Curriculum Director and coordinator for the environmental biology major

### Curriculum changes

College-wide assessment of all academic programs last fall semester led to significant changes in the curriculum of several EFB majors, and at least some minor changes in all.

However, other significant curriculum modifications not driven by assessment were already planned. Beginning in the Fall '08 semester we replaced General Botany (EFB 226) with General Biology I (EFB 101) and the lab (EFB 102), and in the spring '09 semester we replaced Principles of Zoology (EFB 285) with General Biology II (EFB 103) and lab (EFB 104). These new courses are required of all undergraduates in all our EFB's seven majors, and are service courses to other departments at ESF. General Biology I is an introductory exploration of biological principles at ecosystem, population, and organismal levels; the emphasis in this course will be on form, function, diversity, ecology, and evolution of living organisms. General Biology II focuses on the organization and function of living cells; key topics include biological molecules, organelle structure and function, gene expression, cell division, metabolism, photosynthesis, cell signaling, genomics, and population genetics. Dr. Melissa Fierke taught EFB 101 and Dr. Chris Whipps taught EFB 103. Dr. Greg McGee was responsible for the laboratory courses. Despite very limited new resources, especially for the lab course both semesters, the general biology sequence was remarkably successful during its first offering, due in large part to the substantial efforts of Drs. Fierke, Whipps, and McGee.

Although not a change in any of the curricula, a number of new and innovative courses were offered for the first time by EFB faculty. Drs. John Castello and Steve Teale offered a new General Education course, "Peoples, Plagues, and Pests" to over 100 students. Dr. Karin Limburg taught "Wine Appreciation: From Grapes to Glass" to nearly 40 undergraduate and graduate students. And Dr. Robin Kimmerer offered "Land & Culture: Indigenous Issues".

Beginning in the fall 2009 semester, Dr. Scott Turner will be offering Physics of Life, a lecture-only course to replace the current physics course requirement of most of our majors, which has been met by traditional physics courses taught at Syracuse University. We are hopeful that this course will instill in EFB undergraduates the importance of physics in biological systems.

Faculty responsible for the curriculum of each of EFB's seven undergraduate majors met throughout last fall semester to meet the Provost's request to implement an assessment program for all college majors. This process, facilitated by EFB's Curriculum and Course Assessment Committee and the Undergraduate Curriculum Director resulted in assessment programs for each of our seven majors, all to be fully implemented beginning during the fall '09 semester.

Additionally, this process led to important changes in three EFB majors, i.e., Forest Health, Wildlife Science, and Aquatic and Fisheries Science. The Forest Health major eliminated Cell Physiology (EFB 325) and Survey of Calculus I (APM 105) as required courses and added Forest Health Monitoring (EFB 439) and Senior Synthesis (EFB 494) as required courses. Additionally, the Forest Health major now requires three credits of Internship (EFB 420) or Research Experience (EFB 498). The main change in the Wildlife Science major is the new requirement of Elements of Organic Chemistry (FCH 210). Additionally, the two hour Wildlife Practicum course (EFB 491) has been modified into a three hour Applied Wildlife Science course. Limnology (renumbered as EFB 424) is now required of all undergraduates in the Aquatic and Fisheries Science majors. Senior Synthesis in Aquatic and Fisheries Science has also been added to the requirements of this major. All of these curriculum changes are effective with the beginning of the '09-'10 academic year.

### **Undergraduate students enrolled in each EFB major**

Enrollment numbers change throughout the year, especially after December and May graduations, e.g., there were 620 EFB undergraduate students enrolled in classes during the fall



'08 semester and 548 registered for the spring '09 semester. Current (undergraduates registered for the spring '09 semester) enrollments (and percent of total) in each major are:

Environmental Biology:	155 (28%)
Wildlife Science:	148 (27%)
Conservation Biology:	101 (18%)
Biotechnology:	56 (10%)
Aquatic and Fisheries Science:	47 (9%)
Natural History and Interpretation:	29 (5%)
Forest Health:	11 (2%)

**Total** **548 undergraduates in EFB**

The total number of undergraduates in EFB of 548 (spring '09) represent about 39% of all full-time undergraduates (1419) at ESF.

### **Listing of awards and recognition**

### **Research/Scholarship**

#### **Summary of publications/presentations**

Appendix C lists books and refereed publications of the EFB faculty; papers submitted, in review, or pending decision are shown in Appendix D. Presentations by EFB faculty at science meetings are shown in Appendix E.

EFB faculty published an average of 2.25 (vs. 2.50 and 2.45, previous two years) refereed journal papers per person this past year (range of 0 to 11), and have an additional 1.31 (vs. 1.25 and 1.3, previous two years) refereed publications in press. They also have an average of 1.03 papers submitted to peer reviewed journals.

EFB faculty have three books in press: (1) by Dr. William Porter (co-author; *The Great Experiment in Conservation: Voices from the Adirondack Park*. Syracuse University Press. Syracuse, NY. 622 pp.); (2) by Dr. Scott Turner (Japanese language edition of *The Tinkerer's Accomplice. How Design Emerges from Life Itself*. Seidosha); and, (3) by Professor Emeritus Dietland Müller-Schwarze (*Hands-on Chemical Ecology. Simple Field and Laboratory Exercises*. Springer).

The "impact" of one's overall publication record can be objectively assessed by a variety of citation indices. The following table shows the science citation index for each faculty member, using the Web of Science for columns 1, 3, and 5; and, Scopus for columns 2, 4, and 6. Using the number of citations for 1999 to 2008 as determined by Scopus, Drs. Karin Limburg and Myron Mitchell have the highest number of citations followed by Drs. Mark Lomolino, Tom Horton, and James Gibbs. Using this same data base for only last year, Dr. Myron Mitchell had the highest number of citations followed by Drs. Mark Lomolino, Karin Limburg, James Gibbs, and Roy Norton. Dr. Myron Mitchell had the highest h-index, followed by Drs. James Gibbs, Mark Lomolino, Karin Limburg/Tom Horton.

**Science Citation Indices for EFB Faculty from the Web of Science  
(columns 1, 3 and 5) and Scopus (columns 2, 4, and 6) Searches  
for the Time Periods Indicated (data gathered by L. Galloway)**

	<b>#Citations 05-06*</b>	<b>#Citations 08**</b>	<b>#Citations 01-05*</b>	<b>#Citations 04-08**</b>	<b>#Citations 96-05*</b>	<b>#Citations 99-08**</b>	<b>h- Index **</b>
Abrahamson, Larry	29	59	84	220	125	266	11
Baldassarre, Guy	24	33	133	164	246	315	6
Brunner, Jesse		32		95		95	4
Castello, John	23	29	65	114	126	179	6
Dovciak, Martin		14		50		56	3
Farrell, John	0	8	3	34	10	42	5
Fernando, Danilo	13	15	40	78	65	127	9
Fierke, Melissa		19		40		40	3
Frair, Jacqueline		103		207		207	7
Gibbs, James	151	203	451	789	666	1064	19
Hall, Charles	65	73	267	371	549	661	10
Horton, Thomas	113	134	301	774	345	1076	14
Kimmerer, Robin	19	30	73	147	99	223	6
Leopold, Donald	51	56	185	236	308	410	7
Limburg, Karin	68	332	187	1375	277	2192	14
Lomolino, Mark	178	367	510	686	670	1111	17
McGrath, Kathleen		1		1		1	1
McGee, Gregory		34		144		178	8
McNulty, Stacy		3		12		23	1
Mitchell, Myron	183	406	564	1458	878	2181	22
Naksa, James	29	38	117	170	288	334	4
Nakatsugawa, Tsutomu	1	1	11	8	35	22	4
Norton, Roy	44	136	136	355	263	436	11
Parry, Dylan	17	24	61	102	76	155	6
Porter, William	35	50	145	225	230	378	10
Powell, William	26	30	91	165	160	263	6
Ringler, Neil		15		80		141	5
Saunders, Andrew	0	0	1	0	1	0	*
Schlaepfer, Martin		73		237		261	8
Schulz, Kimberly	56	54	161	243	176	388	5
Shields, William	38	11	154	56	399	96	2
Smart, Lawrence	28	47	114	177	206	324	8
Stewart, Donald	49	71	138	274	240	396	12
Teale, Stephen	20	29	68	101	110	223	7
Turner, Scott	22	12	72	63	112	99	7
Weir, Alexander	12	49	31	110	51	126	6
Whipps, Christopher		83		241		250	11

(Science Citation Index Table, continued)

\*Data collected in 6/2006 using Web of Science Citation Indices. Web of Science is a citation index to 8700 authoritative, high impact journals including 200 open access. Full coverage begins in 1985 but these data also represent citations to older materials.

\*\*Data collected in 6/2009 using Scopus database. Its coverage of scientific, technical, medical and social sciences literature includes 15,000 peer-reviewed journals, 1,200 open-access journals, 500 conference proceedings, over 600 trade publications, and 200 book series. Scopus also cover 360 million quality web sources including 22 million patents

### Summary of grant activity

From May 1, 2008 to April 30, 2009, EFB submitted 26.2% of all proposals (of 223 total) submitted by all departments (and the AEC) at ESF, an 8% decrease in number of proposals submitted during the previous reporting procedure. However, these EFB proposals represent 20.4% of the \$51,265,057 amount for all proposals submitted by academic units to the ESF Office of Research Programs, a nearly 43% increase of the total amount of money for all EFB proposals submitted during the previous reporting period. The average amount per EFB proposal was \$235,418 (versus \$151,420 the previous reporting period).

The proposal submission activity of each faculty member for the 12 month period ending April 30, 2009 follows. Dr. Limburg has the highest credited number of proposals submitted, followed by Drs. Brunner, Gibbs, Leopold, and McGrath. Dr. Gibbs has the highest credited dollar amount of proposals submitted, followed by Drs. Nakas, Smart, Brunner, and Farrell.

### Proposal Activity Summary by PI/CoPI (12-Month Period ending 4/30/09)

<u>Name</u>	<u>Credited* Number</u>	<u>Credited Amount</u>
Abrahamson, Lawrence	0.75	\$27,000 (31**)
Allen, Douglas	1.58	\$57,365 (26)
Brunner, Jesse	4.05	\$1,343,627 (4)
Baldassarre, Guy	0.00	\$0 (38)
Castello, John	0.25	\$14,918 (33)
Dovciak, Martin	2.41	\$257,616 (20)
Farrell, John	2.83	\$1,306,009 (5)
Fernando, Danilo	1.00	\$268,573 (18)
Fierke, Melissa	1.06	\$129,053 (22)
Frair, Jacqueline	0.67	\$33,595 (29)
Gibbs, James	3.98	\$1,593,630 (1)
Hall, Charles	2.33	\$262,776 (19)
Horton, Thomas	0.38	\$51,342 (28)
Kimmerer, Robin	1.00	\$31,105 (30)
Leopold, Donald	3.88	\$480,358 (11)
Limburg, Karin	6.31	\$1,093,797 (6)
Lomolino, Mark	1.00	\$391,104 (15)
McGee, Gregory	0.71	\$79,882 (24)
McGrath, Kathleen	3.85	\$520,046 (10)
McNulty, Stacy	2.17	\$53,861 (27)
Mitchell, Myron	2.33	\$525,669 (9)
Nakas, James	1.75	\$1,581,275 (2)

Nakatsugawa, Tsutomu	0.00	\$0 (38)
Norton, Roy	1.00	\$585,374 (8)
Parry, Dylan	0.25	\$19,950 (32)
Porter, William (includes AEC)	3.07	\$378,994 (16)
Powell, William	0.67	\$106,386 (23)
Ringler, Neil	2.67	\$392,494 (14)
Saunders, Andrew	0.00	\$0 (38)
Schlaepfer, Martin	2.33	\$476,543 (12)
Schulz, Kimberly	1.50	\$400,079 (13)
Shields, William	0.00	\$0 (38)
Smart, Lawrence	1.46	\$1,447,820 (3)
Stewart, Donald	0.00	\$0 (38)
Teale, Stephen	1.50	\$141,940 (21)
Turner, Scott	2.05	\$618,640 (7)
Weir, Alexander	1.00	\$350,000 (17)
Whipps, Christopher	2.58	\$67,316 (25)

\* credit percentages are calculated by ORP to distribute credit for award and proposal activity to each faculty member identified as a PI or CoPI on each Sponsored Program proposal or award, as well as their respective college Departments. As an initial starting point this fiscal year, ORP has issued credit as follows: the identified Principal Investigator of a proposal or award will receive 2-parts credit and each coPrincipal Investigator will receive 1-part credit. For example: For a proposal or award with a PI and two CoPIs, the PI and his/her respective Faculty will receive  $2/4=50\%$  credit, and each CoPI and respective Faculty would receive  $1/4=25\%$  credit, for all sponsored program activities. This procedure generally results in fractional numbers of proposal/awards credited to each faculty member and his/her respective college Department, as well as the respective fractional portion of the total proposal, award or expenditure amount.

**\*\*rank by credited amount; 1 highest, 38 lowest**

Appendix F lists all active grants of each EFB faculty. For the 12-month period ending 4/30/09, EFB accounted for 29.7% of all active sponsored research projects at ESF (of 392 total, all academic departments plus AEC) and 35.1% of the \$12,853,287 of all sponsored program expenditures by academic departments (and the AEC) at ESF. These numbers represent a 16.5% increase in number of projects and 32.8% increase in expenditures since last reporting period. The average amount per project increased over 30% from the last reporting period to \$36,079.

The average amount of sponsored program project expenditures by each faculty member was \$130,824 (\$4,971,296 total expenditures and 38 faculty) versus \$116,855 last reporting period. Sponsored program expenditure activity by PI/coPI among EFB faculty for the 12-month reporting period ending 4/30/09 follows. Dr. Leopold has the highest credited number of program expenditures, followed by Drs. Gibbs, Porter, Nakas, and Smart. Dr. Gibbs has the highest credited dollar amount of program expenditures, followed by Drs. Leopold, Farrell, Porter, and Smart.

#### **Sponsored Program Expenditure Activity Summary by PI/CoPI** (12-Month Period ending 4/30/09)

<u>Name</u>	<u>Credited Number</u>	<u>Credited Amount</u>
Abrahamson, Lawrence	4.35	\$145,556 (*10)
Allen, Douglas	3.45	\$38,383 (23)
Baldassarre, Guy	2.00	\$19,708 (26)
Brunner, Jesse	0.00	\$0 (38)

Castello, John	0.00	\$0 (38)
Dovciak, Martin	0.17	\$75 (31)
Farrell, John	7.53	\$547,145 (3)
Fernando, Danilo	0.25	\$845 (29)
Fierke, Melissa	0.33	\$7,384 (27)
Frair, Jacqueline	1.87	\$130,335 (14)
Gibbs, James	14.20	\$874,613 (1)
Hall, Charles	4.25	\$40,069 (22)
Horton, Thomas	3.17	\$93,550 (17)
Kimmerer, Robin	7.85	\$133,598 (12)
Leopold, Donald	14.85	\$574,683 (2)
Limburg, Karin	4.07	\$201,564 (8)
Lomolino, Mark	0.00	\$0 (38)
McGee, Gregory	0.00	\$0 (38)
McGrath, Kathy	0.00	\$0 (38)
McNulty, Stacy	1.00	\$94,389 (16)
Mitchell, Myron	7.40	\$237,781 (7)
Nakas, James	9.16	\$190,006 (9)
Nakatsugawa, Tsutomu	0.00	\$0 (38)
Norton, Roy	1.00	\$406 (30)
Parry, Dylan	3.62	\$44,028 (21)
Porter, William (includes AEC)	9.87	\$325,346 (4)
Powell, William	7.92	\$140,287 (11)
Raynal, Dudley	0.93	\$21,315 (25)
Ringler, Neil	3.17	\$258,051 (6)
Saunders, Andrew	0.00	\$0 (38)
Schulz, Kimberly	1.57	\$119,102 (15)
Shields, William	2.00	\$31,061 (24)
Smart, Lawrence	7.97	\$279,183 (5)
Stewart, Donald	1.17	\$72,023 (19)
Teale, Stephen	4.33	\$84,948 (18)
Turner, Scott	1.00	\$52,832 (20)
Weir, Alexander	1.00	\$130,817 (13)
Whipps, Christopher	1.00	\$3,705 (28)

\*rank by credited amount; 1 highest, 38 lowest

### Patents and Patent Applications

Larry Abrahamson: Invention No. 1649-550, “Ornamental Varieties of Willow”. Submitted for plant patent (10/2008) willow varieties ‘Sunny Twist’ and ‘Green Sparkle’ with co-inventors Richard Kopp, Kimberly Cameron, and Lawrence Smart.

James Nakas: European patent issued Nov.5, 2008 on “Biodegradable Thermoplastics from Xylan and Levulinic Acid, Eur. Pat. No. EP 1585821

Larry Smart: Invention No. 1649-550, “Ornamental Varieties of Willow”. Submitted for plant patent (10/2008) willow varieties ‘Sunny Twist’ and ‘Green Sparkle’ with co-inventors Richard Kopp, Kimberly Cameron, and Lawrence Abrahamson.

### **Listing of Awards and Recognition**

Jacqueline Frair: *Journal of Applied Ecology* paper (45:1504) was identified as “Editor’s Choice”

James Gibbs: University of Maine, Dept Wildlife Ecology, “Award for Professional Excellence,” 2008

Charles Hall: Distinguished Speaker, Wetlands Laboratory, Ohio State University

Thomas Horton: Elected Ecology/Pathology Counselor for the Mycological Society of America.

Robin Kimmerer: Accepted as Writer in Residence at Mesa Refuge, Point Reyes, CA

### **Outreach and Service**

#### **Service to the department, college, and university**

A summary of service by each faculty member to the department, college, and university is given in Appendix G.

#### **Enumeration of outreach activities**

Appendix H shows unfunded service by EFB faculty to government agencies, public interest groups, etc. This list does not include the many hours of outreach made by our Instructional Support Specialists, graduate students, and undergraduate students. For example, the Instructional Support Specialists who manage our Roosevelt Wildlife Collection and the Illick greenhouses (Ron Giegerich and Terry Ettinger, respectively) host numerous tours for the ESF community (e.g., Family & Friends Barbeque, Annual Alumni Tour, college visitors which include many school groups). Besides the numerous phone and email inquiries that faculty receive from the public, news channels, and newspapers, Ron Giegerich, Terry Ettinger, and Kim Adams respond to many similar requests for information from these sources. For example, Kim Adams received about 300 requests for information last year which resulted in 94 identifications, 56 written responses, and 21 onsite visits. Terry Ettinger assisted in the development and delivery of 52 episodes of the ESF/Time Warner Cable “Going Green” collaboration which is broadcast weekly and available on the web. Ron Giegerich coordinates EFB’s day at the NYS Fair each August which attracts hundreds of visitors. Instructional Support Specialist Pat McHale, besides his research duties for Dr. Mitchell, assisted with meteorological, air pollution and particulate matter monitoring activities associated with the CARTI multi-institutional project at Upper Onondaga Park and Syracuse Center of Excellence.

One example of how EFB graduate and undergraduate students contribute significantly to EFB’s outreach is the work by Ph.D. student Sara Scanga and the seniors in her Conservation Biology Senior Synthesis course (EFB 414) this past spring. Students developed a comprehensive conservation plan for Three Falls Woods, a significant natural area just east of Syracuse. In late April, the class presented their recommendations to the organization seeking to protect this land.

Although there are no data to support this claim, no other department or office at ESF nor at Syracuse University during this past or recent previous years appears to have generated the public media attention that does the Department of Environmental and Forest Biology. Most of the dozens of local newspaper articles of this past year are posted in the main foyer of Illick. This media attention comes from beyond central New York. For example, the German

equivalent of the *New York Times* featured Dr. Karin Limburg's recent work on the decline of fish in the Atlantic Ocean.

Unfunded service to professional societies and organizations is summarized in Appendix I. Appendix J summarizes the funded service by EFB faculty to government agencies, public interest groups, etc. Appendix K lists the presentations made to the public by EFB faculty and Appendix L includes miscellaneous publications and outreach materials.

### **Summary of grant panel service (by agency)**

Kimmerer, R.W.: National Science Foundation, URM Review Panel 12/08

Limburg, K.E.: National Science Foundation, Coupled Natural and Human Systems panel, March 2009.

### **Summary of journal editorial board service**

*Acarina*: R. Norton

*Acarologia* (Paris): R. Norton

*Acta Zoologica Hungarica*: R. Norton

*Adirondack Journal of Environmental Science*: W. Porter

*Bioenergy Research*: L. Smart

*Biomass and Bioenergy*: L. Abrahamson

*BioResources*: J. Nakas

*Ecological Economics*: C. Hall

*Ecological Economics Review*: K. Limburg

*Ecology and Society*: K. Limburg

*Experimental & Applied Acarology*: R. Norton

*Folia Entomologica Mexicana*: R. Norton

*Folia Entomologica Hungarica*: R. Norton

*Forests and Shade Trees*: L. Abrahamson

*International Journal of Acarology*: R. Norton

*International Journal of Plant Developmental Biology*: D. Fernando

*Journal of Herpetology*: J. Brunner

*Mycorrhiza*: T. Horton

*Northeastern Naturalist*: D. Leopold

*SACNAS*: R. Kimmerer

*Stone Canoe*: R. Kimmerer

*Systematic & Applied Acarology* (China): R. Norton

*The Bryologist*: R. Kimmerer

*Wetlands*: J. Farrell (until January '09)

### **Number of journal manuscripts reviewed by faculty (#journals/total #manuscripts reviewed; excludes numerous reviews of NSF, EPA, USDA, McIntire-Stennis, etc. proposals)**

Abrahamson, L.: 1/3

Brunner, J.: 2/2

Castello, J.: 1/1

Dovciak, M.: 6/7

Farrell, J.: 2/4

Fernando, D.: 4/6

Fierke, M.: 4/4

Frair, J.: 3/3

Gibbs, J.: ?

Hall, C.: 3/6

Horton, T.: 6/9

Kimmerer, R.: 1/1

Leopold, D.: 3/4

Limburg, K.: 8/13

Lomolino, M.: “approx. 20...”	Powell, W.: 2/2
McGee, G.: 1/1	Ringler, N.: 3/5
McGrath, K.: 1/1	Schlaepfer, M.: 6/7
McNulty, S.: 1/2	Schulz, K.: 1/1
Mitchell, M.: 9/12	Shields, W.: 4/5
Nakas, J.: 1/1	Smart, L.: 4/5
Nakatsugawa, T.: 3/3	Teale, S.: 3/3
Norton, R.: 14/27	Turner, S.: 6/7
Parry, D.: 3/3	Weir, A.: 1/2
Porter, W.: 5/6	Whipps, C.: 8/10

### **Listing of Awards and Recognition**

James P. Gibbs and co-authors of *The Amphibians and Reptiles of New York State* (Oxford University Press, 2007: Outstanding Conservationist Award, NY Chapter of The Wildlife Society)

### **Graduate Students**

By the end of this reporting year, 22 graduate students (Appendices M and N) completed all degree requirements for the Ph.D., M.S., or M.P.S. degree.

### **Number of students by degree objectives**

At the beginning of this past academic year, there were 134 graduate students officially enrolled in our department. Of these, about 54% (51% previous year) are in our M.S., 10% (11%) in our M.P.S., and 36% (37%) in our Ph.D. programs. The approximate percentage of students in each of our nine graduate areas of study is as follows (with percentages of previous year in parentheses):

Ecology	38% (31%)
Conservation Biology	22% (22%)
Fish and Wildlife Biology and Management	16% (19%)
Plant Science and Biotechnology	8% (7%)
Environmental Interpretation	4% (7%)
Entomology	3% (5%)
Forest Pathology and Mycology	3% (7%)
Chemical Ecology	2% (1%)
Environmental Physiology	2% (<1%)
Undeclared	1% (0%)

### **Graduate student national fellowships/awards (new awards only)**

Jason Townsend (W. Shields): EPA STAR Fellowship



### **Graduate recruitment efforts**

EFB's Graduate Program Advisory Committee (GPAC) added two EFB graduate students (Anna Stewart and Danielle Baker) to this committee. The GPAC continues to urge all faculty to update their websites and to assist the department to find professional society websites and journals that might be good avenues for advertising our graduate program. The committee is also updating EFB's graduate program website, to assist with graduate recruiting efforts.

Graduate applications to EFB dramatically increased from 100 to nearly 150 this past year. Additionally, whereas we lost a substantial portion of our best graduate applicants last year, about 80% of our top graduate applicants will be matriculating here this August.

EFB processed 149 graduate applications during the 2008-2009 academic year, vs. 112 the year before. As of June 25, 2009, at least 38 new graduate students (i.e., "accepted/coming" applicants) will matriculate this fall '09 semester (versus 23 for fall semester 2008), although a small number of these new graduate students changed their matriculation dates to mid May so they could begin summer research activities. The previous highest number of accepted/coming graduate applicants since 2003 was 22, with an average number of accepted/coming graduate applicants of slightly more than 19 from 2003 to 2008. While the record number of applicants to the EFB graduate program certainly affected the number of new graduate students planning on beginning their graduate work this fall, this large increase is also likely because many of the new faculty recruited and accepted more graduate applicants.

The previous year, our Graduate Program Director (Dr. Danny Fernando) and graduate program secretary (Ms. Barb Scharf) sent a survey to all graduate applicants asking how they discovered our graduate program. This survey continues with the current pool of applicants to our graduate program to help us decide how to increase recruiting efforts.

Graduate recruitment remains highly dependent on the efforts of individual faculty members in attracting graduate students into their programs. We stress the importance of obtaining research grants by EFB faculty to provide graduate stipends and tuition-waivers through graduate research assistantships (GRAs). In recent years, EFB has been allocated 40.5 graduate teaching assistantships (GTAs); our graduate enrollment at the beginning of each AY generally is about 130 graduate students. Although we have over 40% of the full-time graduate students at ESF, we receive about 30% of the 132 state-funded graduate assistantships. GRAs are critical for maintaining and expanding our graduate support. These GRAs can provide a larger stipend than that provided by TAs and include support for the full calendar year. Teaching assistantships only provide academic year support. A robust graduate program can only be sustained by recruiting graduate students who are competitive for GTAs and national fellowships, and having an active research program that provides GRAs.

This past spring the Provost allowed each department to take the funding (stipends + tuition) provided for their graduate teaching assistantships and to decide on whether to decrease the number of GAs so that the stipend amounts could be increased or whatever other decision was felt to be in the best interest of each department's graduate program. EFB, based on the recommendation of its Graduate Program Advisory Committee, reallocated the resources from two M.S. GAs to two of its Ph.D. GERI GAs, which resulted in two "super" GAs funded at \$22,533. We offered these enhanced GAs to the two top graduate applicants this past spring – one accepted and is matriculating in the department this fall and the other declined. We are hopeful that these enhanced GAs will improve our yield among the highest ranked applicants.

### Graduate Student Advising

Below shows the approximate number of graduate students advised last academic year by each EFB faculty member, as each have reported. Some EFB faculty advise graduate students in other departments, especially in GPES, and even at other institutions. Co-major professors are counted as 0.5 graduate student.

Abrahamson 1	Nakas 5
Baldassarre 3	Nakatsugawa 0.5
Castello 2.5	Norton 0
Dovciak 4.5	Parry 7
Farrell 6.5	Porter 8
Fernando 3	Powell 6.5
Fierke 3	Raynal 1
Frair 2	Ringler 8.5
Gibbs 7	Saunders 6
Hall 8.5	Schlaepfer 1
Horton 7	Schulz 3.5
Kimmerer 6	Shields 9.0
Leopold 13.5	Smart 1.5
Limburg 5	Teale 3.5
Lomolino 2	Turner 2
McGee 0.5	Weir 5
McNulty 0.5	Whipps 0.5
Mitchell 4.5	

### Courses having TA support and enrollment in each

<u>Course #</u>	<u>Course Name</u>	<u># of Students</u>	<u># of GTAs</u>
101	General Biology Lecture I	309	2
102	General Biology Lab I	307	7
103	General Biology Lecture II	192	2
104	General Biology Lab II	192	7
120	Global Environment (fall and spring)	250	3+
132	Orientation Seminar	120	0.5
215	Interpret. Science Through Art	83	2
217	Peoples, Plagues, & Pests	110	0.5
300 (ESF)	Intro to Geospatial Information Systems	?	1
303	Intro Environ. Microbiology	56	2
307/308	Principles of Genetics	209	5
311	Principles of Evolution	177	1.5
320	General Ecology	193	5
325	Cell Physiology	82	0.5
326	Diversity of Plants	66	2
336	Dendrology I	201	4
340	Forest & Shade Tree Pathology	55	1.5
351	Principles of Forest Entomology	65	1.5
355	Invertebrate Zoology	41	1

385	Comparative Vertebrate Anatomy	53	1.5
390	Wildlife Management	70	2
401/601	Molecular Biology Techniques	27	1
405	Literature of Natural History	16	0.5
413	Introduction to Conservation Biology	110	1.5
416/616	Intro. Environmental Interpretation	35	1.5
419	Problem Solving in Conserv. Biol.	16	0.5
427	Plant Developmental Biology	7	0.5
428/628	Mycorrhizal Ecology	19	0.5
444	Geography of Nature	43	1
445/645	Plant Ecology	39	1
446/646	Ecology of Mosses	28	1
462/662	Animal Physiol.: Environ. & Ecol.	73	0.5
480	Principles of Animal Behavior	79	3
482	Ornithology	20	1
483	Mammal Diversity	56	1.5
485	Herpetology	54	1
486	Ichthyology	73	2
487	Fisheries Science and Management	19	1
488	Fisheries Science Practicum	8	
491	Wildlife Practicum	33	1
493/693	Wildlife Habitats/Populations	48	2
516	Ecosystems	26	1
518	Systems Ecology	18	1
519	Geographical Modeling	13	0.5
524	Limnology	37	1
525	Limnology Laboratory	19	
530	Plant Physiology	17	0.5
531	Plant Physiology Laboratory	2	
535	Systematic Botany	6	1
542	Freshwater Wetland Ecosystems	66	1
554	Aquatic Entomology	16	1

## **Governance Structure**

### **Components:**

Chair (D. Leopold)

Promotion and Tenure Committee (T. Nakatsugawa, chair; J. Castello, J. Gibbs, J. Nakas, W. Powell)

Course, Curriculum, and Assessment Committee (Dylan Parry, chair; M. Fierke, G. McGee, R. Norton, C. Whipps)

Graduate Program Advisory Committee (K. Limburg, chair; D. Fernando, J. Frair, W. Porter, W. Shields, M. Dovciak, M. Schlaepfer)

Building and Space Committee (John Farrell, chair; J. Brunner, K. Limburg, P. McHale, B. McMaster, C. Whipps)

Field Program (including International Programs) Committee (Stephen Teale, chair; R. Davis, J.

Farrell, C. Nowak, W. Porter, A. Weir, C. Westbrook)  
Awards Committee (D. Leopold and others)

- Undergraduate and Graduate Academic Awards
- Illustrious Alumni, Emeriti Awards

### **Supporting Offices, Committees, Directors, and Coordinators**

Administrative Office

- Office Manager/Secretary 1 (Sandra Polimino)
- Keyboard Specialist 2 (Joyce Buczek, undergraduate program secretary; Barbara Scharf, graduate program secretary)
- Keyboard Specialist 1 (Joanne Rappleyea; receptionist)

Undergraduate Curriculum Director (R. Norton)

Undergraduate Curriculum Coordinators (by major)

- Environmental Biology (R. Norton)
- Aquatic and Fisheries Science (D. Stewart)
- Biotechnology (W. Powell)
- Conservation Biology (J. Gibbs)
- Forest Health (J. Castello)
- Natural History and Interpretation (A. Saunders)
- Wildlife Science (G. Baldassarre)

Graduate Program Director (D. Fernando)

Adirondack Ecological Center (W. Porter, Director)

Cranberry Lake Biological Station (A. Weir, Director)

Roosevelt Wild Life Station (W. Porter, Director)

Thousand Islands Biological Station (J. Farrell, Director)

Animal Use and Care Protocols (college-wide committee; J. Brunner)

Exhibits Coordinator (A. Saunders)

Instructional Support Specialist Supervisors

- K. Adams – D. Leopold
- R. Giegerich – J. Frair
- P. McHale – M. Mitchell
- B. McMaster – L. Smart
- T. Ettinger – D. Leopold

Environmental Studies Program Coordinator (C. Hall)

### **Budget**

EFB's budget comes from three main sources, i.e., (1) state allocations; (2) the SUNY Research Foundation (RF) research incentives funds; and, (3) development funds through the College Foundation. A summary of the allocations from each source and expenditures follows.

**State budget allocations: \$69,400** total (versus \$79,500 previous year); excludes search committee allocations from the Provost, CLBS, AEC, Biotechnology, Tree Pest Info Service, and Academic Equipment Replacement allocations – amounts of these shown below)

Initial Allocation (August 20, 2008): \$69,400 (\$65,000 OTPS; \$4,400 TS)

Expenditures:

Offices (main, faculty, staff, grads):	\$14,000
Computers:	\$1,000
Photocopy:	\$5,000
Mileage:	\$2,000
Repairs:	\$3,500
Building and facilities:	\$4,300
Seminars and receptions	\$8,500
Operating (over expenditures, all categories)	\$4,500
Faculty subaccounts and additional requests:	\$22,200
Temporary services	\$4,400

Biotechnology accounts: \$10,900

Tree Pest Info Service account: \$1,750

Academic Equipment Replacement: \$0 (versus \$41,625 previous year)

End-of-year allocation: \$0 (versus \$4500 previous year)

**NOTE: state allocations to EFB decreased from \$125,625 for the '07-'08 AY to \$69,400 for the '08-'09 AY, a decrease of \$56,225 despite record undergraduate enrollment and the department mounting significant new courses.**

**SUNY RF departmental Research Incentives funds** (\$35,713 allocated 10/08; carryover of \$11,739 balance from previous years; total available \$47,452)

Expenditures (estimated, by general categories):

Individual faculty requests (equipment, supplies, travel, misc.)	\$7,962
Department equipment, supplies	\$3,500
Seminars, receptions, workshops	\$7,000
Greenhouse expenditures	\$1,000
Two CLBS undergraduate research fellowships	<u>\$4,000</u>
Total Expenditures	\$23,462

Balance (July 1, 2009) \$23,990

**Development funds** (\$50,650 budgeted for '08-'09)

Undergraduate and graduate student awards come from the following endowments: Maurice and Annette Alexander, Robert L. Burgess, Betty Moore Chamberlaine, Leroy C. Stegeman, Robert A. Zabel, John and Etta Simeone, Josiah L. Lowe-Hugh E. Wilcox, Ralph T. King, Phyllis Roskin, Joseph and Ruth Hasenstab, Lanier Memorial, Silverborg Memorial, and Patricia D. and Jeff J. Morrell.

Endowment funds at the college lost a significant amount this past year, as the U.S. and world's financial crisis unfolded. Because of endowment losses this year, departments were advised in early 2009 to use college foundation funds already made available for this year and decide whether to leave some of these funds for next year. At the beginning of this academic year EFB had \$50,650 budgeted from the department's endowments. By the end of May '09 the department awarded about \$34,000 of this total, leaving about \$16,650 to add to endowment residuals (already withdrawn from endowment accounts, therefore unaffected by the economic downturn; about \$45,473) for student awards during the '09-'10 academic year and perhaps beyond, until endowments yield funds again.

EFB had an additional \$4310 in the Dence Memorial account (which supported Dr. David Mech's public presentation on campus, April '09) and ~\$2000 in a General EFB Fund, the result of occasional donations to the department, primarily from current and retired faculty, and used for end of year student awards that are made at our annual spring recognition ceremony.

In August 2007 EFB received a \$5000 gift from an alumnus who attended the Cranberry Lake Biological Station reunion held that month. The money was donated for new equipment at CLBS and matched by the Provost and EFB. In December 2007, this individual donated \$50,000 to improve the lab facilities at CLBS, a renovation that was completed during the summer of '08 with the dedication of the Dr. Samuel Grober Genetics Research Laboratory. This individual was in the process of making a more substantial donation to CLBS facility and programs when he passed away this past spring so the details of this last gift are currently unresolved.

Over the next few years and beyond we hope to attract sufficient development funds for a variety of significant purposes, including: endowed chairs (in biotechnology, conservation biology, wildlife and fisheries management, etc.), a research and residential building at the TIBS, museum display cases for the Roosevelt Discovery Center, a graduate seminar series, graduate fellowships (to attract the top applicants) and scholarships (to fully fund attendance at professional meetings), and undergraduate scholarships (for recruiting to students and support for attending professional meetings and field trips offered in our program, e.g., to Russia, Ireland, Australia, and Africa).

### **Student Learning Outcomes Assessment** (adapted from Dr. R. Norton, EFB Undergraduate Curriculum Director)

The current Department of Environmental and Forest Biology formed in 1977 with the amalgamation of three smaller departments, Forest Zoology, Forest Botany and Pathology, and Forest Entomology. EFB's undergraduate curriculum has substantially evolved since then, at one point allowing students to pick from nearly one dozen options, but all under the umbrella of our Environmental Biology major. That is, between 1965-2002, the Bachelor of Science in Environmental & Forest Biology was the single undergraduate program offered by the Department of Environmental & Forest Biology.

As part of the department's strategic planning we adopted a vision statement in November 2001 that included as a key task the importance of strengthening our undergraduate curriculum, which we planned to do by offering a smaller number of distinct majors. By Fall '04, all seven of EFB's current undergraduate majors (i.e., Aquatic and Fisheries Science, Biotechnology, Conservation Biology, Environmental Biology, Forest Health, Natural History and Interpretation, and Wildlife Science) were being offered, replacing the elective

concentrations or options. But with the implementation of these seven majors, explicit student learning objectives were not developed for each nor had any formal assessment process been implemented although during the spring '05 semester, according to a SUNY mandate, an external review of the Environmental Biology major was made.

During the first half of the fall '08 semester, the Curriculum Coordinator of each major was asked to meet with associated faculty to develop preliminary assessment plans. Dr. Norton attended most of these meetings, to keep the process as uniform as possible and to address questions as they arose. EFB's Curriculum and Course Assessment Committee met several times with coordinators and separately to discuss both general approaches and details of the process, so there was a relatively high level of interaction.

In the second half of the semester, coordinators were asked to refine and reformat the plans in accordance with a template given to Dr. Norton by then Dean Raynal. As an intermediate step, Dr. Norton recast the plan for the Environmental Biology program, passed it through the CCAC and Dean Raynal for comments and approval, then sent it to the coordinators of the other six majors. The status of this process for each of EFB's seven majors is summarized in Appendix P. Specific and detailed assessment plans for each major were submitted to the Provost's Office at the end of last calendar year.

### **Objectives 2008-2009**

#### **Objectives, status, and relations to strategic plan**

As a key part of our strategic planning process, the EFB faculty adopted the following vision statement in November 2001: "Environmental and Forest Biology will be a world leader in furthering our understanding of the structure and function of the world's ecosystems and their biota, and in applying scientific principles to solving the pressing environmental problems of the biosphere. EFB will pursue this goal through excellence in basic and applied research, in service to the public, and in educating the next generation of environmental scientists, thinkers, and problem solvers". The month before this vision statement was adopted, faculty discussions culminated in identifying the following tasks that if accomplished would help us realize this vision:

- (1) attraction and retention of top-flight scientists;
- (2) evolution of a stronger learning and mentoring environment for students, faculty, and staff;
- (3) development of a more fully integrated field program;
- (4) development of greater prominence and national/international recognition of our graduate program;
- (5) enhancement and formal recognition of our public service, informational outreach, and service learning program;
- (6) development of new undergraduate programs;
- (7) development of international perspectives and opportunities; and,
- (8) working as College partners on data development and utilization.

Numerous examples and data throughout this annual report indicate that EFB continues to make substantial progress towards accomplishing these tasks.

Our main objectives during the '08-'09 academic year were to: (1) send out an electronic newsletter to EFB alumni and parents of current undergraduates, highlighting key information in this annual report and other newsworthy items; (2) implement the General Biology lecture and laboratory courses; (3) implement a student learning outcomes assessment process for each of EFB's seven major; (4) continue to upgrade EFB web pages; (5) hire a new faculty member to teach Cell Physiology and Molecular Techniques; and, (6) initiate discussion to examine an undergraduate major or/and graduate area of study in Environmental Health.

Late last summer we emailed EFB alumni a summary of department highlights of the previous year and invited all to review the department's annual report and the annual reports of all EFB faculty, all posted on the web. A number of alumni contacted the EFB Chair, thanking him for the summary and indicating how pleased they were to receive this update.

The General Biology lecture and lab courses were very successful, despite receiving basically no new resources, especially challenging for the lab courses because of the hundreds of students enrolled. We anticipate that these foundation courses will be even stronger this year.

A student learning outcomes assessment process has been implemented. A very positive and immediate result of this process is that important changes were made to many of EFB's majors that will take effect this fall. Faculty who initially grumbled about this process later acknowledged its short and long-term value.

EFB's web pages have been substantially revised by Paul Otteson, Aaron Knight, and Joyce Buczek, allowing viewers to better find important information and helping us to readily post information that should be of interest to our alumni and parents of our students.

After a search process brought in four strong candidates for the Molecular/Cellular Biologist position, in early June '09 our offer was accepted by our top candidate, Dr. George Bachand, who will be an Associate Professor in EFB and begin teaching Cell Physiology this fall. Dr. Bachand's research in nanobiology adds a critical dimension to the department.

## **Objectives 2009-2010**

### **Objectives and relations to strategic plan**

Our primary objective for this coming year is to implement the methods of assessment for each major that were identified last fall and submitted last December to the Provost's Office.

This year we plan to gather the email contact information for parents of current students and send a summary of our annual report and link to the full report. We plan to send out occasional emails to this group about potentially interesting news.

Although we were very fortunate to hire Dr. George Bachand to cover some of the key teaching duties of Drs. Kretzer and Smart who are no longer in the department, EFB is still without a plant physiologist. A doctoral granting environmental biology program must have a plant physiologist so we are anxious to explore options that would fill this significant void.

With Dr. Bachand's hiring, we also hope to make progress in developing programs in Environmental Health. Dr. Norton is currently drafting a curriculum plan sheet for a potential major in environmental health to serve as a focal point for department discussions this fall.



## **Undergraduate Recruitment Efforts**

Most of EFB's undergraduate recruitment efforts are made through existing college programs, especially open houses, Transfer Days, and receptions for accepted students. For open houses, an overview of all our programs is presented in 5 Illick; this is followed immediately by a dynamic, fair-like gathering in the foyer. There, tables are organized by major and attended by at least one faculty representative - and when possible a current undergraduate student - to provide information and handle inquiries. Hands-on displays complement the information in the glass display cases about our undergraduate program. Additionally, EFB meets all requests by prospective and accepted students for personal visits with faculty during both the academic year and summer; one experienced secretary, Joyce Buzcek, is responsible for organizing these meetings.

EFB's undergraduate curriculum director sends a letter to all Fall-accepted undergraduates in the spring, welcoming each into our program. These letters are individualized to the student, and tailored to the circumstances, e.g., whether the accepted student is a Presidential Scholar, or in a particular major. Similar letters go to the few applicants who start in the Spring semester.

Last year, the chair and coordinators of our majors taped a web video message that all accepted students were encouraged in their acceptance letters to view. This message was tailored to accepted students within each major, highlighting unique aspects of the major and ESF. Acceptance letters this spring included the link to this message.

As of June 20, 2009 (vs. week before in 2008 and two weeks before in 2007), we had received 968 total applications for fall 2009 (freshman + transfer students; vs. 859 last June and 750 in June 2007). We have accepted 403 (vs. 408 and 406 the previous two years) applicants and have received 198 deposits (vs. 191 and 168). Of the total number of applications that we received, 67.5% were for freshman; about 60% of our deposits are from this group. The total number of deposits by EFB major and percent of total for the class entering fall 2009 (in parentheses) are: Aquatic and Fisheries Science, 14 (7% vs. 11% for class entering fall 2008); Biotechnology, 12 (6% vs. 7%); Conservation Biology, 39 (20%, same); Environmental Biology, 68 (34% vs. 29%); Forest Health, 7 (4% vs. <1%); Natural History and Interpretation, 3 (1%, same); and, Wildlife Science, 55 (28% vs. 31%).

## **Longer Term Visioning and Planning**

The EFB Chair spent a significant amount of time this past year serving on the College's Advisory/Steering Committee for the Campus Master Plan of Study. This committee focused on examining future options for building locations on campus, and general features of the two newest buildings planned for construction, i.e., the Gateway Building (scheduled for completion by end of 2011) and an Academic Research Building that is currently planned to be completed in about five years and will be the new home to the Department of Environmental and Forest Biology. More recent, regular, and longer meetings have been devoted to all aspects of the Gateway Building, which because of its intended program use, highly unique combined heat and power systems, landscaping, and adjacency to Illick, will greatly benefit EFB programs. Besides these formal campus planning activities, the EFB Chair spends a substantial amount of time

advising Physical Plant on campus plantings, which also are very important to EFB's (and the Department of Landscape Architecture's) teaching programs.

Program visioning and strategic planning have not been undertaken formally at the department level in EFB since the department's strategic plan was developed in 2001-2002. Very limited space, resources, and understaffed Development Office greatly limit the extent to which many significant ideas can be pursued and implemented. However, with the addition of eight faculty the past three years, greater use efficiency and enhancements of existing space, and improvements at our field stations, the department is closer towards realizing its basic goal of being one of the premier environmental biology programs. The EFB Chair hopes that with the department's strong foundation, energy from many new faculty, and with the beginning of the chair's second term, that the department is poised to discuss and move towards EFB's aspirations beyond what has already been articulated and attained.

### **Institutional Advancement Initiatives**

#### **Academic innovation initiative – Biodiversity conservation at ESF**

At the request of Provost Bongarten this past spring semester, the EFB Chair submitted a brief proposal written by Dr. James Gibbs that the Development Office plans to incorporate into their Capital Campaign. While good ideas regularly emanate from EFB faculty, this proposal, which follows, was submitted because of its scope and potential for affecting the greatest portion of EFB's teaching, research, and outreach programs and its strong relationship to the department's vision statement and College's mission. Additionally, the proposal needed to be exciting to potential donors. The EFB Chair welcomes similarly exciting, broadly relevant, and inclusive proposals for department discussion and pursuit of funding.

Biological conservation is a primary theme and driver of ESF's academic programs. Wildlife science, aquatic and fisheries science and conservation biology are, together, the largest draw for undergraduate and graduate recruitment to ESF. A major component of extramural grant activity at ESF is associated with conservation of wild species and the ecosystems they inhabit. Public interest in ESF's activities is disproportionately focused on wild species as indicated by the frequency of website "hits" and the typical focus of press coverage of ESF. Thus, "biodiversity" broadly speaking is a figurative and literal "goose that lays the golden egg" for the College and one that presently sustains itself largely on its own intrinsic merits.

Much could be gained in terms of external resources, elevated profile and enhanced recruitment by synergizing the various biodiversity-related activities at the College that are currently unfolding in a disjointed and largely unnoticed manner. ESF's Development Office could play a key role in catalyzing this. We therefore propose an Academic Innovation Initiative to develop a Center for Biological Conservation or similarly named entity that would leverage SUNY-ESF's intellectual and institutional resources to promote nature conservation (both biodiversity and wildlife and the conservation and sustainable exploitation thereof) in New York State and internationally.

Fund-raising for the new Center would focus on generating support for (1) a Director (also a faculty member who would have commensurate teaching and research duties), (2) an endowed Chair position with appointment renewed on a 5-year basis whose combined teaching, research, and outreach activities would be self-directed but measured in terms of aggregate contribution to advancing the Center's mission, (3) on-going Ph.D. research assistantships (likely

2-3) to assist with key research thrusts of the Center, and (4) a series of modest “exploration grants” to undergraduate and graduate students from ESF for high-risk/high return and high profile geographic “explorations” related to conservation of biodiversity and wildlife around the world.

It is notable that we are proposing here both an entirely novel entity and set of inter-dependent positions (the “Center”) while also simply creating an “umbrella” for the many exciting incipient fund-raising opportunities and faculty-instigated research, teaching and outreach activities currently unfolding at ESF. Thus we see this combined re-packaging of an already strong program with genesis of exciting new dimensions for it as a particularly “safe” development initiative for the College. Our primary goal is to catalyze ESF’s image as “the place to be” for students and “go to place” for research, training and contracts for biological conservation in the northeastern US. The return to the College will be an increase in quantity and quality of student recruits due to our elevated profile, enhanced extramural support, and greater impact on the vexing biological conservation problems confronting society.

Themes driving the activity of the Center would be:

- “Who We Are,” that is, promoting our community of dedicated scholars, which includes (1) undergraduate majors and grad programs and associated faculty, (2) student organizations and their activities (e.g., TWS, SCB), (3) facilities, particularly the rare specimens housed in our Museums and Collections as well as Greenhouses and their living holdings (e.g., globally endangered cacti), (4) expanding partnerships and institutional relationships with NYSDEC, Panthera, NBWLA, etc.
- “What We Do,” that is, promoting (1) undergraduate/graduate/faculty research projects under domains of conservation genetics, species (“plants,” “fungi,” “inverts,” “birds,” “mammals,” “herps”), ecosystems, economics, policy, theory, practice, outreach/education, and tools, (2) training courses for professionals, and (3) internships for students with external agencies.
- “Where We Work,” that is, highlighting our significant field properties: CLBS, AEC, Heiberg, TIBS, Costa Rica and “sister” sites with long-term research and teaching associations, e.g., Galapagos, Siberia, Mongolia etc.
- “What We Know,” that is, development of significant web-presence for ESF as a repository of natural history information for public consumption (consolidate from other parts of college website) expanded and updated including authoritative species accounts developed as class projects and image catalogs of properly identified plants and animals from faculty slide collections, other natural history resources as appropriate. This would become a major target for public interaction with the college (recall, for example, that the mere “snakes of New York” is the second most heavily visited website at ESF).
- “Why Work With Us?,” that is, contractual services we can provide, with an emphasis on field-based surveys and inventories, GIS work, etc. and sample products
- “Come Visit Us,” that is, a celebration of why CNY/ESF is such a great place to be for those interested in nature study and conservation...local sites (ADK’s, Finger Lakes, Tug Hill), plus activities SU outing club, etc.

Initial activities and subsequent evolution of Center and its programs would be guided by input from participating faculty and students as well as an advisory board that would include a representative from ESF's Development Office.

## Appendix A. EFB Faculty: Rank (during reporting period), Education, and Interests

Name and Title	Degrees	Interest Areas
<b>Abrahamson</b> , Lawrence Sr. Research Associate	PhD, University of Wisconsin, MS, University of Wisconsin, BS, Michigan Tech. Univ.	Forest Entomology; IPM of gypsy moth and other defoliators; insect monitoring and survey; pest management (insects, fungi & weeds) pesticide science
<b>Baldassarre</b> , Guy Distinguished Teaching Professor	PhD, Texas Tech University MS, Univ. of Wisconsin BS, Univ. of Maine	Waterfowl and wetland wildlife ecology; shorebird ecology; nongame birds; ornithology
<b>Brunner</b> , Jesse Assistant Professor	PhD, Arizona State University BA, Carleton College	Evolutionary ecology of infectious disease, transmission dynamics, persistence in small populations, and evolution of virulence.
<b>Castello</b> , John Professor	PhD, Univ. of Wisconsin MS, Washington State Univ. BA, Montclair State College	Plant virology; viruses and mycoplasma in urban and forest tree decline; forest pathology; microbiology
<b>Dovciak</b> , Martin Assistant Professor	PhD, Univ. of Minnesota Dipl. Engin., Zvolen Technical University	Plant ecology; forest ecology; biodiversity; plant population & community dynamics; spatial ecology; ecosystem management & restoration
<b>Farrell</b> , John Sr. Research Associate	PhD, SUNY ESF MS, SUNY ESF BS, Cornell University	Fisheries management, aquatic ecology, wetlands restoration, St. Lawrence River studies, muskellunge and northern pike ecology & mgt., invasive species
<b>Fernando</b> , Danilo Associate Professor	PhD, Univ of Alberta, Canada MS, Univ of Phillippines BS, Mountain State Agr. Coll.	Plant reproductive biology, plant structure and development, in vitro fertilization in conifers, pollen transformation & gene expression during pollen tube development
<b>Fierke</b> , Melissa Assistant Professor	PhD, University of Arkansas MS, Oregon State University BS, Arkansas Tech University AA, North Arkansas CC	Forest entomology and forest ecology; impacts of invasives in forested settings with a focus on wood-boring insects.
<b>Frair</b> , Jacqueline Assistant Professor	PhD, Univ of Alberta, Canada MS, University of Wisconsin BS, Cornell University	Wildlife and landscape ecology, animal movements and habitat use, predator-prey interactions
<b>Gibbs</b> , James Professor	PhD, Yale University MA, University of Missouri BS, University of Maine	Conservation biology, ecological monitoring, wildlife management, population biology and conservation genetics
<b>Hall</b> , Charles A. S. Professor	PhD, Univ of No. Carolina MS, Penn State University BA, Colgate University	Systems ecology; synthetic studies of population and ecosystems, including studies of fish migrations, estuaries, tropical land use change and energetics. Emphasis on measuring and modeling human-dominated eco-systems and geographic modeling.
<b>Horton</b> , Thomas Associate Professor	PhD, Univ of Cal.-Berkeley MA, SanFrancisco State Univ. BA, Humbolt State University	Mycorrhizal ecology and systematics, mycology, restoration ecology

<b>Kimmerer</b> , Robin Professor	PhD, Univ. of Wisconsin MS Univ. of Wisconsin BS, SUNY ESF	Ethnobotany, conservation biology, and bryophyte ecology
<b>Leopold</b> , Donald Distinguished Teaching Professor and Chair	PhD, Purdue University MSF, University of Kentucky BS, University of Kentucky	Forest and freshwater wetland ecology; dynamics of plant communities as affected by man and environment; management for unique communities and rare species; dendrology
<b>Limburg</b> , Karin Associate Professor	PhD, Cornell University MS, University of Florida AB, Vassar College	Fisheries ecology, ecosystem ecology, fish migration, biogeochemical tracers modeling ecological economics
<b>Lomolino</b> , Mark Professor	PhD, SUNY Binghamton MS University of Florida BS SUNY-Cortland	Biogeography; conservation biology, diversity in isolated ecosystems and habitat islands.
<b>McGee</b> , Gregory Instructor	PhD, SUNY ESF MS, SUNY ESF BS, Allegheny College	Forest ecology, management, and restoration; effects of atmospheric nitrogen deposition on northern hardwood forests.
<b>McGrath</b> , Kathleen Adjunct Assist. Prof. & Research Assoc.	PhD, University of Idaho MS, University of Vermont BS, University of Vermont	Stream ecology, conservation of native fishes, watershed and spatial ecology, hyporheic exchange, stream restoration, stream geomorphology
<b>McNulty</b> , Stacy Research Associate	MS, SUNY ESF BA, SUNY Geneseo	Forest and landscape ecology, applied GIS; ecology, conservation, and forest management in the Adirondacks
<b>Mitchell</b> , Myron Distinguished Professor	PhD, University of Calgary BA, Lake Forest College	Biogeochemical cycling in forests and freshwater ecosystems
<b>Nakas</b> , James Professor	PhD, Rutgers University MS, Seton Hall University BS, Lemoyne College	Microbiology; transformation & decomposition processes; nutrient cycling; soil and aquatic microbiology; microbial biomass; solvent production; microbial ecology
<b>Nakatsugawa</b> , Tsutomu Professor	PhD, Iowa State University MS, Iowa State University B.Agric, Univ. of Tokyo	Toxicology role of liver in chemical defense; chemical ecology and health impacts of nature's chemical warfare; health effects of pesticides and other pollutants
<b>Norton</b> , Roy Professor	PhD, SUNY ESF MS, SUNY ESF BS, SUNY ESF	Acarology, soil biology; systematics and ecology of oribatid mites, arachnid community structure; effect of human disturbances on soil microarthropods; mite-insect interrelationships
<b>Parry</b> , Dylan Assistant Professor	PhD, Michigan State Univ. MS, University of Alberta BS, University of Alberta	Forest insect ecology, population dynamics of defoliating Lepidoptera, ecology of predators, parasitoids, and pathogens of forest caterpillars, invasive species in forested environments, top-down (natural enemies) and bottom-up (host plant) regulation of insect populations, evolution of life-history strategies in solitary and gregarious caterpillars.

<b>Porter, William</b> Professor	PhD, Univ. of Minnesota MS, University of Minnesota BS, Univ. of Northern Iowa	Wildllife population dynamics; integrated forest-wildlife management, habitat analysis and project impact evaluation; radio-telemetry
<b>Powell, William</b> Professor	PhD, Utah State University BS, Salisbury State University	Forest biotechnology, molecular plant-microbe interactions, plant genetic engineering, plant gene analysis
<b>Saunders, D. Andrew</b> Research Associate	MS, Utah State University BS, University of Missouri	Environmental Interpretation
<b>Schlaepfer, Martin</b> Assistant Professor	PhD, Cornell University MS, Cornell University BS, McGill University	Conservation Biology; evolutionary ecology; herpetology; invasive fish predators in Arizona
<b>Schulz, Kimberly</b> Associate Professor	PhD, University of Michigan BA, Cornell University	Nutrient and exotic species effects on aquatic ecosystems; ecological stoichiometry, aquatic community and ecosystem ecology; bioenergetics; nutrient cycling; lower food web studies; Great Lakes; Finger Lakes
<b>Shields, William</b> Professor	PhD, Ohio State University MS, Ohio State University AB, Rutgers University	Animal behavior; evolution and genetics; evolution of animal communication and dispersal systems; effects of genetic constraints on the evolution of social behavior; sociobiology and behavioral ecology, the use of DNA in identity testing and conservation biology; the interface between science and the law
<b>Smart, Lawrence</b> Associate Professor	PhD, Michigan State University BS, Cornell University	Plant physiology and genetics; regulation of gene expression and signal transduction in response to environmental stimuli; genetics of willow
<b>Stewart, Donald</b> Professor	PhD, University of Wisconsin MS, University of Michigan BS, University of Michigan	Fish ecology and fisheries management; ecological energetics; modeling predation and production processes; Great Lakes ecosystems; Amazonian ecosystems; ecology and systematics of Neotropical freshwater fishes
<b>Teale, Stephen</b> Associate Professor	PhD, SUNY ESF MS, University of Kansas BA, College of St. Rose	Forest entomology; chemical ecology; pheromones of forest insects; evolution of pheromone communication
<b>Turner, Scott</b> Associate Professor	PhD, Colorado State Univ. MS & BA University of California-Santa-Cruz	Animal physiology; physiological ecology, thermal energetics; biology of body size; physiology of gas exchange
<b>Weir, Alexander</b> Associate Professor	PhD, University of Newcastle upon Tyne BS, University of Bradford, UK	Systematics and evolutionary biology of fungi using classical and modern molecular approaches; fungal biodiversity and conservation; fungal arthropod interactions; biology of parasites and symbionts
<b>Whipps, Christopher</b> Assistant Professor	PhD, Oregon State University BS, University of Victoria at Malaspina University-College	Fish and wildlife diseases, parasitology, microbiology, taxonomy, molecular systematics, diagnostics, parasites as biological tags and ecological indicators

## Appendix B. Summary of Individual Faculty's Most Significant Accomplishments

(As written by each faculty member in response to the following request for each individual's annual report: [Provide a] "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 would be most helpful: this past year, what have you done for our students, department/college, and self professionally?"

### Lawrence P. Abrahamson

#### Students

Since I do not have direct contact with the students in class most of my contact is with them on an individual basis. In this presence I have given advice to both undergraduates and graduates on courses and options in the environmental and forestry fields the after leaving SUNY-ESF. I am active on graduate committees and provide advice to grad students on various aspects of woody energy crops and pesticide application and effects. I have provided many job opportunities for both undergrads and graduate students while attending SUNY-ESF working on various aspects of my funded research projects.

#### Department/college

I served as the Continuing Education and Extension Coordinator for the Department of Environmental and Forest Biology. In this role I supervise Kim Adams in her role as Extension specialist for the Department and College. I have not been active in this role at the Department level as I assume some of the responsibilities have been taken over by other individuals. I am a member of the Human Subjects Committee (Institutional Review Board (IRB)) for Syracuse University and SUNY-ESF. I am also a member of the SUNY wide Human Subjects Committee (Institutional Review Board (IRB)) for the Research Foundation. As the Pesticide Use advisor to the College I work with the grounds people and John Wasiel, environmental Health and Safety Officer on a case by case basis. I remain involved in Faculty governance by attending the college meetings and serving as Sergeant-at-Arms for the Faculty Governance. I have dedicated a great deal of effort to outreach and tech transfer associated with the willow program. Much of this effort has been directed at educating legislators, the press, and the public and has positively impacted the reputation and notoriety of ESF. While all of the seven plant patent applications for new willow varieties have now been issued by the U.S. Patent and Trademark Office, a new plant patent application for at two new ornamental varieties has been submitted (Invention No. 1649-550, "Ornamental Varieties of Willows". I have been promoting the willow crop enterprise, including the publication of Willow Fact Sheets, a revised willow planting manual (in works) and presenting outreach exhibits at Empire Farm Days, the New York State Fair, etc. Together with Larry Smart and Bob Tieckelmann, I also worked to develop new licensing partners for our willow varieties. These efforts have now resulted in the second year of commercial sale of willow cuttings and whips of varieties developed in our breeding program that is generating a royalty stream to the inventors and to the College.

#### Professional

I continue to take part in and travel to professional meetings, presenting papers and cooperating with fellow researchers, which has lead to invitations to give additional presentations. I continue to work well with Larry Smart and Tim Volk to develop the willow enterprise system in not only New York but the rest of the Northeast US and Canada. I am working to keep my international contacts in place so that our willow research can be developed for use in Europe (Sweden, UK, Ireland, Poland, etc.), New Zealand, China and Chile. I am actively involved in the International Symposium on Environmental Concerns in Rights-of-Way Management, as co-chair of the 8th Symposium and on the steering Committee with the 9th Symposium to be held in Portland, OR September 27 through October 1 2009. I collaborate with Tim



Volk and Larry Smart on a number of funded projects that will expand our willow research, demonstration and outreach efforts.

### **Guy A. Baldassarre**

#### Students

As coordinator of the wildlife curriculum (now the 2nd largest undergrad enrollment on campus). I spend tremendous time with students in addition to those who are my advisees. Additionally, I spend significant time with prospective parents and students visiting campus and requesting a meeting with a faculty member in wildlife science. I'm accessible and students know that, and that's fine. In 2008-09, considerable time was spent coordinating the developing of an assessment plan and more time will be needed to implement same.

#### Department/College

The coordinator position generates duties associated with Open Houses, ASRs, etc. I have never refused any additional departmental assignments

#### Professional

In last year's annual report I wrote, "It was nice to receive that Ducks Unlimited Award. Now I have to think what last big thing I might want to do before retirement." Now I have that task. In spring 2009 I accepted an offer from the Wildlife Management Institute to author the 4th edition of "Ducks, Geese and Swans of North America." This book is the global source of such information and will represent a pinnacle achievement—the third edition sold over 250,000 copies worldwide.

### **Jesse L. Brunner**

#### Students

This was the first year that I was really involved in teaching beyond seminars and short courses. In the fall I taught two new graduate-level courses—one in Wildlife Disease Ecology and one, called The Ecological Detective, in fitting models to data (with Jacqui Frair). Both classes were very interactive, hands on, and required a lot of intellectual effort and hard work from the students, but both courses received high praise from the students. I had a lot of fun in both courses and I am quite proud of the degree of sophistication the students achieved by the end of the semester. In the spring I taught the second half (following Martin Schlaepfer) of EFB 311, Principles of Evolution, which was my first large lecture course. While it was sometimes overwhelming (too often I was just barely ready for class), it was always rewarding. I love interacting with our undergraduate students in and out of class, and really enjoyed changing the way they think about the world (the subject has a way of doing that!). I also coordinated the Adaptive Peaks seminar series during the fall and again in the spring with Melissa Fierke, bringing in a number of terrific speakers; joined several graduate student committees, which has been really interesting and illuminating; and mentored a cadre of undergraduate volunteers in laboratory in disease ecology—one volunteer from last summer, just reported that she is entering a masters program in immunology and infectious disease! Formally and informally, as teacher, mentor, resource, and friend, I am happy to be part of our students' experience at ESF.

#### Department/College

This was also an interesting year in terms of learning about and contributing to the department and college. Advising 20+ wildlife majors and helping revise the wildlife curriculum and establish an assessment plan, I feel I have a much better sense of our curriculum, our students' experience, and where I can help advance the departmental goals. This year I also became the chair of the IACUC committee,

overseeing the care and use of animals in research and education at ESF. This has provided a unique opportunity to contribute to the mission of the school (research, teaching, and outreach) while learning about, and often helping refine, the research going on at ESF.

#### Self professional

I am very pleased to have gotten my lab up and running to the point where I am able to do diagnostic work for individuals and agencies now sending me amphibian samples from around the state. This has led to new connections, several budding collaborations, and a soon-to-be submitted manuscript. It has also helped me better understand the lay of the land, both geographically and metaphorically, in terms of people and agencies. I expect that my new position as an associate editor at *Herpetological Review* in charge of ranavirus reports will also prove helpful for my professional development and for my research agenda (e.g., I am interested in establishing the distribution and patterns of relatedness of ranaviruses around the world). I am also rather proud to have submitted three significant grants to national funding agencies, two of which were recently funded (NIH) or recommended for funding (NSF). The third is pending review (CDC). Two of these are collaborative grants on climate change and tick-borne disease (NIH & CDC); the other, to the NSF, was my first large, single-investigator proposal. It focuses on host behavior and disease transmission in a salamander larva-virus system; a new and I expect interesting and fruitful line of research. I was also fortunate to receive an ESF Seed grant for this new research. Each of these projects and collaboration have been made possible by an increasing level of quantitative sophistication, which I attribute to a workshop in Bayesian methods in ecology, teaching from the *Ecological Detective*, and my collaborating with a very quantitative friend in Germany. In short, it feels that a number of pieces of the professional puzzle are coming together.

#### **John D. Castello**

I continue to work hard to enhance the Forest Health major within EFB, of which I am the coordinator. This past year (2008-2009), three students graduated from the major. Despite the losses to graduation, the major appears healthy. We now have 11 students in the major as of late May (2009). I completed development of an assessment plan for the major, which will be implemented this summer (2009). Enrollment in EFB 340, Forest and Shade Tree Pathology has increased to around 55 students and has remained at that level during the past several years since I assumed responsibility for the course. Enrollment in EFB 345-Forest Health, at CLBS has maintained an enrollment of 8-14 students during the past 3-4 years as well.. I attribute this increase to enhanced interest in Forest Health at ESF.

In addition, Dr. S.A. Teale and I taught a new course this past spring semester called ‘Peoples, Plagues, and Pests ‘ (EFB 217) to fulfill the Gen. Ed. ‘Other World Civilization’ requirement. The enrollment was 110 students in its first offering, which surpassed our wildest expectations.

I served on a blue ribbon panel organized by the American Association for the Advancement of Science to review the State of Oklahoma’s NSF EPSCOR program. It was both an educational and rewarding experience for me. The college certainly obtained some good free exposure and advertisement in the process.

Dr. S.A. Teale and I are under contract to write a textbook on Forest Health for Cambridge University Press. The manuscript is due on August 1, 2009.

My research program is expanding in new directions. I submitted three proposals this year. One proposal (with S. McNulty and S.A. Teale) involving beech bark disease is a continuation of recent efforts with Dr. Teale working on this disease. One student (S.K. Letkowski) just completed his MS degree on this research topic this month, and a new one signed up in January (J. Cale) to continue the work. One paper is

‘in press’ from this work and a second is in preparation. A second proposal on fungal isolation from *Sirex noctilio* has been submitted to the USDA Forest Service (with S.A. Teale). A third proposal on viral metagenomics in polar ice has been submitted to the NSF Office of Polar Programs.. So I am hopeful that at least one of these proposals will be funded.

## **Martin Dovciak**

### Students

My main teaching activity during the 2008-09 academic year consisted of developing and teaching EFB 535 Systematic Botany (a course I taught for the first time), and teaching EFB 445/645 Plant Ecology (for the second time). This was my first academic year at ESF (and ever) when I taught during both semesters and I feel that I made good progress in both courses. Student enrollment in EFB 445/645 increased by ~ 20% relative to the last year and students who took EFB 535 seemed to have enjoyed it (I received an average grade of 4.7 out of 5). I have built a new Blackboard-based course website for EFB 535 and all course materials are currently on it, including all lecture slides, lab assignments, student PowerPoint presentations (“featured plants”), video clips, exam reports/suggested answers, links to assigned readings, and class announcements. I have worked with Terry Ettinger to better develop the greenhouse collection of flowering plants that could be used in the class. Given the effort, I feel that I now have a solid course composed of well integrated lecture, lab, and greenhouse materials and that I have a very viable set of teaching materials. Obviously, improvements can (and will) be made, especially in further improving the greenhouse collections and course links to the greenhouses. To make this course more attractive to a broader audience, I have revised the course title and description – it will be offered this Fall as EFB 535 Flowering Plants: Diversity, Evolution, and Systematics. In addition to teaching my two main courses, I also taught Plant Ecology/Taxonomy components of EFB 202 (Ecological Monitoring & Assessment) to 34 students at CLBS, evaluated student final projects in EFB 202 at CLBS, and gave guest lectures in EFB 326 (Diversity of Plants) and BIO 415/615 (Conservation Biology) at Syracuse University. Outside of the classroom, I served as an MP to 3 graduate students (1 Ph.D., 2 M.S.), served on steering committees for 6 other graduate students (two defended their theses this May), mentored a NSF UMEB student, officially advised 14 undergraduates, and unofficially advised another 5 undergraduate advisees of Dr. Horton while he was on a sabbatical.

### Department/College

My main contributions to departmental and college activities included preparations of several new collaborative research proposals for a variety of funding sources (1 successful, 3 pending). At the departmental level I continued to serve as the Chair for the Selection Committee for the Robert Burgess Graduate Scholarship in Ecology and as a member of the Graduate Program Advisory Committee (GPAC). Being involved with GPAC was especially exciting as we were able to make a number of positive changes, including instituting departmental super TA’s, which I believe will improve our ability to successfully recruit top grad students. At the College level, I continued to participate in activities of the Center for the Urban Environment as a core faculty member, including partaking in The Bridge— Classroom to Community Connection, an exciting educational outreach activity linking ESF and the broader Syracuse community. Outside of ESF, I continued my service as a reviewer for major peer-reviewed journals (6 journals, 7 manuscripts) – activities that contribute to the name recognition of both the college and the department.

### Self

Professionally, this was an exciting and busy year for me – I have spent much of my first academic year of fully teaching by further developing and settling my teaching (see above), research, and building my research group. With two new graduate students starting this fall, the lab will include 5 graduate students in total (1 Ph.D. and 4 M.S. students). I have redesigned my lab’s webpage to reflect these new

developments and further improve my and departmental recruitment efforts. I have developed and submitted research proposals with my new ESF colleagues that were worth > \$600,000 (several of these are still pending), and so far successfully acquired \$48,173 in funding (with C. Beier et al.). I also continued to be actively involved as a collaborator on three multi-year research projects at the University of Washington, Seattle. Beyond developing new proposals, my projects at the University of Washington and Technical University in Zvolen, Slovakia, have continued to provide professional challenge and lead to research products. I have several manuscripts in advanced stages of preparation from my work in both the western Carpathians in Europe and Andrews LTER, and a manuscript from the forest restoration experiment study in the Pacific Northwest which is currently under review. I presented some of the work done in my lab at several venues— at Connecticut College (invited seminar), Ecological Society of America Annual Meeting, Odum 2009 Conference, Adirondack Research Consortium Conference, and the Northeastern Alpine Stewardship Gathering.

### **John M. Farrell**

#### Students

Two of my MS graduate students (Geof Eckerlin and Katie Woodside) graduated during this reporting period and my PhD student (Kevin Kapuscinski) successfully completed his candidacy exam in the spring semester and we brought in a \$148,000 grant to support the remainder of his program. I brought on two EFB PhD students, Geof Eckerlin started in January and Derek Crane will begin in June 2009. I worked with undergraduate Dan Zangari (EFB graduate May 2009) on an independent study of round goby in the St. Lawrence River during summer 2008 and fall 2009. Dan presented his research at the EFB Aquabreak seminar during the spring semester. Jennifer Raino and Colby Bowman both EFB majors also worked with my research program through the summer. I worked with two American Fisheries Society Hutton Scholars, Carly Fairbanks and Mariah Taylor (now an EFB major) that were High School Seniors in my program. I took these students to the AFS meeting in Ottawa where they were recognized for their accomplishments, each received a plaque at the business meeting, and we attended presentations and events- their excitement was a real highlight for me.

#### Department/college

The development of the Thousand Islands Biological Station continues and I led an effort to renovate the main lodge facility at TIBS. I hired three construction workers and with Physical Plant assistance we renovated the kitchen, bathroom and main room in the building. The project is nearly complete and has improved our appearance and facilities. I have initiated a collaborative effort with the Antique Boat Museum in Clayton NY. They have provided a waterfront house for student housing complete with docking and we are improving it as a mainland facility. I will provide a short summer lecture series at the museum and other environmental interpretive activities that showcase our research to the community. I continue to work with the ESF Development Office and Bob Quinn to help us with fundraising for the proposed Multipurpose Building for TIBS. We have secured gifts and grants totaling \$170,000 and continue to meet with private donors. As Chair of the Building Advisory Committee we continue to work on space, efficiency, and workplace quality concerns. We have met twice this period and developed a memo to the EFB Chair with recommendations to improve Illick Hall.

#### Professional/self

Our work with the St. Lawrence River habitat restoration strategy for several native coolwater fish species was funded and we continue to design, implementation, and evaluate habitat enhancements in the St. Lawrence Valley. Gillian Avruskin will continue as our GIS specialist and I hired Eli Polzer (our 2008 Valedictorian) as a Research Support Specialist. I submitted a major \$1.5M grant to NOAA through Ducks Unlimited with many partners including four EFB faculty that if funded will result in beginning a major research effort to evaluate the habitat enhancements in a truly holistic way. It would support five

graduate students and a post-doc and bring together an analysis of biogeochemistry, lower trophic levels and nutrient chemistry, plant ecology, avifauna, herps, amphibians, mammals and fish in a comprehensive evaluation of habitat enhancements.

### **Danilo D. Fernando**

#### Students

In the past academic year, I taught Plant Developmental Biology and Plant Diversity, and convened the freshman orientation seminar for biotechnology students. I have also trained several undergraduate students in my lab through independent research, internship and professional experience. In total, at least 105 students have been served. I have also been personally involved in the further training of my two PhD students on several laboratory techniques including bioinformatic analyses of the genes and proteins that we have isolated, PCR primer design, amplification of 3' cDNA ends to obtain full-length sequences of genes, monitoring of pollen development, collection or sterile pollen grains, and many others.

In my Plant Diversity course, I have modified the laboratory manual and added an exercise on Basal Angiosperms, which includes the requisition of various living materials so as the students will be able to see some of these primitive plants in person rather than just from preserved and dried herbarium specimens. To enhance student interest and broaden their understanding of various groups of plants, three speakers were invited to give presentations in this course - Drs. Robin Kimmerer and Martin Dovciak (who talked about bryophytes and plant systematics, respectively) and Dr. Jim Seago (from SUNY Oswego) who talked on Basal Angiosperms. I also served as one of the resource speakers for an ESF student-organized symposium on Graduate School 101, i.e., tips on graduate application process.

#### Department/college

I served as the Director of the Graduate Program (for the second year) and my major responsibilities include the following: 1) replied to inquiries (email, phone, and/or personal) on an almost daily basis from potential applicants about our graduate program, as well as from our current graduate students, 2) processed a total of 156 applications (20 for spring and 136 for fall) that involved designating reviewers for each application, following up on the completion of the reviews on each applications, summarizing the reviews for each application, and submitting EFB's recommendation for each accepted and rejected applications to the Dean of Instructions and Graduate Studies, 3) provided orientation seminars to new graduate students about our graduate program, and 4) worked closely with Dr. Karin Limburg, the Chair of the Graduate Program Advisory Committee, on various issues concerning the graduate program from graduate recruitment to deliberation of the Outstanding EFB PhD Student Award.

I served as a member of the search on Cell and Molecular Biology Faculty for the department. We received and reviewed 48 applications and interviewed four. I also served as a member of the search for the Assistant Dean for Instructions and Graduate Studies, where we reviewed 18 applications and interviewed three.

#### Professional

The following are what I consider as significant: 1) published two papers this year, plus one currently in press and another in review, 2) invited to be a Guest Editor for a Special Issue on Plant Development and Evolution by the International Journal of Plant Developmental Biology. I have contacted various colleagues from around the world and ten have confirmed participation in this special issue thus far, and 3) submitted a new proposal to NSF's Plant Genome Program on the genomics of pine pollen tube wall formation and regulation.

**Melissa K. Fierke**

In the fall semester, I taught General Biology for the first time ever here at ESF and it turned out that we had record numbers of freshmen enroll, forcing me to teach two sections three days a week. Quite challenging as I had to develop lectures, write and grade lecture quizzes and exams, supervise 2 graduate TAs and their workshops with over 10,000 grades. I posted lectures and other materials to blackboard and personally contacted students that were doing poorly. I was quite satisfied with the end of the course with a 74.1 class average and class evaluations of 4.0 and 4.2 on the two lecture sections. I worked with an undergraduate in the spring semester, Greg Williams and he presented a poster at the Student Spotlight on Research on *Sirex noctilio* oviposition scars in the tree ring record. I facilitated two summer internships, one on the endangered American burying beetle research in NW Arkansas and another on horse-breeding for a pre-vet student in Environmental Science. I'm also helping another undergraduate develop research to determine the importance of toad/frog predation of pests in organic vs non-organic farms. I helped coordinate the Adaptive Peaks Graduate Seminar series in the spring with seven presentations, several of which were outside quality researchers and presenters.

A unique research opportunity was undertaken at the suggestion/encouragement of James Gibbs on a parasitic fly in the Galapagos islands of Ecuador. Since its inadvertent introduction *Philornis downsi*, a parasitic fly, has reached population densities capable of colonizing >90% of nests and is directly responsible for imposing large fitness costs on endemic altricial bird species on a majority of the islands in the archipelago. I spent seven days on the island of Santa Cruz and my newest graduate student, Warren Hellman, spent seven weeks investigating the biology of this fly in an effort to promote future eradication efforts, e.g., sterile insect technique. Though we were disappointed upon arrival to find that the science wasn't as far advanced as anticipated, Warren was able to make strong strides forward in our understanding of the fly and development of diets for the larvae. Initially our efforts went into finding more efficient ways of trapping adults and from there we studied mating and oviposition cues and behavior. We hope to pursue further funding of this research in an effort to contribute to the noble effort of saving several endemic finch and mockingbird species in this unique and iconic archipelago.

I am happy with the progress of my current cadre of graduate students. Pat Eager has shown excellent progress in our research into the parasitoids of *Sirex noctilio* and has presented his research at four separate venues and is in the process of finishing up his first manuscript. Peter Rockermann has also presented his research on the importance of ash in NY riparian zones at four venues and is currently developing methods to quantify ash-specialists in ash-dominated riparian forests that may face extirpation with the demise of ash due to emerald ash borer. Warren Hellman will work for the NY DEC this summer on biomonitoring of emerald ash borer using a buprestid-hunting native digger wasp. Part of this will include documenting current diversity of Buprestid beetles ahead of the non-native parasitoids that have been introduced to control emerald ash borer.

My outreach efforts include pulling together and manning an entomology display in the ESF booth at the 2008 New York State Fair. I also participated in several other outreach efforts including Take Your Daughter/Son to Work Day, a Stream Team day for freshmen in conjunction with Kelley Donaghy in the Chemistry department, and I've answered public inquiries about insects throughout the year. I've served on the ESF Learning Community committee as well as the EFB curriculum committee this past year and reviewed scholarship applications for three EFB scholarships.

Professional development has included attending conferences and meetings, making contacts in the northeast in an effort to get my name and interests known, finishing publications from my PhD research and postdoctoral work, traveling to the Galapagos for research as well as writing grants. I gave a presentation as part of the NSF distributed graduate seminar on the economic and ecological impacts of non-native forest pests for the 2008 Ecological Society of America meeting in Milwaukee WI. My talk

focused on two recent introduced insects, *Sirex noctilio* and emerald ash borer. There were 5 other participating universities from around the United States that concentrated on other pests. I've also given presentations at local meetings on invasives species here in NY.

### **Jacqueline L. Frair**

#### Students

Although not personal accomplishments per se, my most rewarding experiences this past year have been encouraging TWS students to compete (and win!) quiz bowls at the local, regional, and national level, watching last years' students excel as teaching assistants in my class this year, engaging undergrads (and high school students) in active research programs, and being thanked by both undergrad and graduate students for the experiences my courses provide as well as my enthusiasm for their education. Despite periodic frustrations, the enthusiasm for ecology and competence ESF students demonstrate simply bowls me over. In response to student enthusiasm and feedback, I've nearly doubled the size of my summer wildlife techniques course (from 10 to 18), modified my core course (Wildlife Ecology and Management Practicum) to include an additional hour of lecture time to provide the students and myself more time together, and developed a new graduate course (with J. Brunner) to work through the Ecological Detective. I'm quite pleased with this new grad offering, and, in response to student interest, we are revising the format from a 1-credit seminar to a full 3-credit course next fall. This past year I also revamped my Landscape Ecology labs to be completely GIS-based (no small feat). The content and style of this course is still in flux, but has clearly proven useful as several students have included aspects of their term projects into their thesis or dissertation work. This was my third time through my undergrad courses, and now that course content has been largely refined I am starting to reap the rewards of being more personally invested in the students themselves. I was a personal reference for at least 10 students recently and am excited to see them go off to help study Mexican wolves, work at Hubbard Brook, and start grad school themselves.

#### Department/College

This year I continued to serve on two key committees of interest to me, the Campus Committee on Research (COR) and the EFB Graduate Program Advisory Committee (GPAC). Service to the COR has been particularly beneficial to me in that experiencing the process of a grant review panel has improved my grant-writing ability. It has also provided more insight into the research conducted by various faculty members at ESF, and has led to potential collaborations. I'm pleased to have been nominated to serve as the chair of the COR for the coming year. Discussions of the GPAC have led to some interesting new directions for the coming year such as the experimental offering of 'top-ups' as a recruiting tool and a grad-level orientation seminar to increase student awareness and networking potential early on. I'm pleased to be on this committee and working towards strengthening the graduate experience at ESF.

#### Self professionally

This past year I was invited to a workshop on GPS Telemetry in Trento, Italy in which we evaluated whether this new tool has indeed 'revolutionized' the wildlife field as predicted. I was invited as an expert on the implications of spatial inaccuracy and bias in these systems for ecological analyses. This week-long workshop spurred new collaborations, and an interesting series of critical reviews on what we have gained and have yet to gain from this technology. We submitted a proposal for a series of papers resulting from the workshop for consideration by Philosophical Transactions of the Royal Society B (and it has been favorably reviewed so far with little requested modification). More locally, as a member of the executive board of the NYS Chapter of The Wildlife Society, I become more involved with professional biologists in the state this past year. We organized a very successful annual meeting in Syracuse this past February that provided a rich networking environment for students and professional

alike, and we look forward to offering continuing education workshops for professional biologists at future meetings.

### **James P. Gibbs**

I coordinate EFB's growing conservation biology undergraduate major, offer its two core courses for undergraduates (enrollments in both swelled this year), and oversee the progress of a large contingent (ca. 35) of undergraduate advisees, mainly conservation biology majors. I also teach at our Cranberry Lake Field Station. As internship coordinator for EFB I assist many students each year to find, undertake and receive credits for their experiences. On the graduate front, we have recruited a fine nucleus of new graduate students and a research fellow from Brazil to move forward a major constructed small wetlands project, seeded by a just-received McIntire-Stennis grant. Taking advantage of a lull in graduating grad students, I focused hard this year on publishing technical articles, with many now in press; otherwise, I remain quite busy overseeing the financial aspects of a large "biocomplexity" grant relocated to ESF last summer as well as advising my own graduate group and serving on the committees of many grads here at ESF and at Columbia University, where I am an active adjunct. With much interest nationwide in Professional Science Masters initiatives, I'm serving with a cross-college group trying to create a niche for ESF in the PSM arena. I remain active as an adjunct scientist with the Charles Darwin Foundation, advising on many matters, and will be supported by USAID for further consultation during 1.5 months in Galapagos this summer. A large contribution of time was made as an appointee to a USNPS "Blue Ribbon Panel" evaluating science programs at Isle Royale National Park, in which we fashioned a research agenda for the Park for the next decade. I continue to seek out relationships that benefit our students and the College via groups in the private sector, including Panthera and NBWLA, among others, and also am seeking an opportunity to help coalesce ESF's image as the "go to" place in the northeast for research and outreach on matters of biological conservation.

### **Charles A.S. Hall**

I continue teaching a very large load (6 courses) to try to bring what I think is important to our students. I am driven, perhaps foolishly, by the concept that if I do not teach e.g. Systems Ecology, Energy or Tropical Development or what is now called Biophysical Economics it simply will not be taught. I have been greatly aided in this by graduate and undergraduate TAS for which I am appreciative and grateful. I try to maintain my perception of very serious quality within this schedule. I believe in giving serious, thinking papers and tests (and I grade the "biggie" questions in all of my advanced classes and read all papers with much feedback). In addition, as I think anyone knowledgeable will tell you, there is usually a line of students waiting for personal interaction with me essentially every afternoon.

My former graduate students continue to receive what I consider premium job offers, for example during the past year Hanquin Tian became distinguished Professor at Auburn University, Leandro Castello started his Postdoc at The Woods Hole Research Center, Laura Schmidt a tenure track assistant professorship at Michigan State, Jerry Mead moved from his Post Doc at University of Pennsylvania to a staff position at the Patrick Center at the Philadelphia Academy of Sciences (perhaps the premium stream research center in the U.S.) and Master's student Nate Gagnon started his job at the John S. Herold oil analysis company, his dream job. My undergraduate students are likewise doing very well. For example, Billy Schoenberg and Bobby Powers, two of my best students ever, were taken into the very strong modeling program at the University of Bergen, Norway without even being asked to apply based on the recommendations of members of their staff, Sarah Herbst starts her master's degree at Michigan State and so on.



I believe that I bring our programs and students at ESF to the world very effectively in a series of high quality and high profile papers in, for example, BioScience and American Scientist, as well as many disciplinary journals in energy, modeling and ecology. I received perhaps 4 dozen very positive emails for my paper in American Scientist, but was disappointed that it was not covered by the major media despite many people trying for that for me. I have spent some effort this year trying to upgrade my web page to include, for example, a site on Biophysical Economics. Our latest book received an unbelievably positive review in a development Journal.

Peak oil for the world, predicted by Hubbert in 1968 and in my own papers since 1975, occurred unequivocally in July of 2008. Energy has come to the forefront in our society, again, and my guess is to stay. I find that both my earlier and my most recent work is gaining a great deal of attention, although in a very uneven way. I remain very much in demand as a speaker on energy and its relation to environment. For example was a plenary speaker in both the International Congress of Geologists (Oslo, Norway) and International Association for the study of peak oil (Barcelona). I was also an invited speaker at 8 colleges and universities.

I successfully organized and held the First International meeting on Biophysical Economics in Syracuse with about 50 attendees from as far away as British Columbia and Spain (See web site). This has spawned a website and a loose federation of interested people. I run an energy list serve with about 400 members where I distill and send out at weekly intervals what I believe to be the most important energy and energy/economic information. I have also been interviewed for TV perhaps half a dozen times and even been in a movie of sorts along with half a dozen other "oil experts".

As I have reached 66 I have to consider what might remain at ESF after I am gone. Of greatest satisfaction and with considerable difficulty we (with Tim Volk deserving the major kudos) have begun a new energy minor with about 20 students enrolled. It may soon also be a major within Environmental Sciences. This is the first step in hopefully strengthening and formalizing our Environmental Sciences program. I have also been working with working with about 5 other faculty members to create unified undergraduate programs (minor etc) in Ecological Economics of which my newly named Biophysical Economics course will be key.

Funding remains an issue as to my and many others' astonishment there does not exist at NSF or even DOE programs to fund the kind of research I consider most important. Even our proposal "Developing a multidisciplinary program in energy for small science-based colleges to NSF" for funding to help get our energy program off the ground was rejected with reviews of astonishing ignorance and stupidity. Few have a clue as to the energy freight train headed towards us which is already responsible for much of the wreckage of much of our economy over the past year (not wishing to downplay greed and corruption!) Nevertheless I have had in operation some 50- 60 thousand dollars of research funding from private and NGO sources for energy research (hard to pin down from data sent me by Sponsored research). I have also sought substantial private funding to support this and our small EROI institute.

As to what I have done professionally all I can say is that I continue, as always, to integrate the physical sciences with biology and social sciences using what I believe to be rigorous science as I try to prepare students at all levels at this University and the world for what I perceive to be a very different energy/economic future for which there is very little understanding or preparation. But I am not a policy person: I am interested in science, in how ecosystems work, including the human-dominated ecosystems that constitutes the majority of the terrestrial surface of the Earth. I seek to understand these systems and promulgate that understanding to an energy-illiterate world and scientific establishment.

## Thomas R. Horton

### Students

I continue to get lots of mileage out of direct interactions with undergraduate students in my coursework and through their contributions working on my lab. Note that 8 of the 16 undergrads in my Mycorrhizal Ecology course this spring have signed up for the Advanced Mycology: Basidiomycetes course. On the research end, I am very excited about Anna Conrad, a stellar student who has gained lots of research experience through UMEB with Robin Kimmerer, NSF-REU with me, and is working in Florida with Kari Segraves this summer. I am helping Anna attend this year's FESIN and MSA/BSA meetings in Snowbird Utah. I also enjoyed advising Eva Sztchemiler on her CLBS Fellowship project. She did an admirable job on her summer project working on the pines planted by Kathy LoBuglio 20 years ago. I also advise many other students with respect to their preparation for graduate school and/or interest in pursuing research now and in the future. Tangible results of this activity include Jordan Zachritz, now at UC Berkeley in Matteo Garbelotto's lab (Matteo and I were labmates during grad school). I also am pleased to report that one of my advisees, Andy Cortese, was selected for a competitive REU position at Rutgers working with a colleague on mycorrhizal research (John Dighton). I also enjoy my interactions with the graduate students. I am excited about Kathleen Pitcher's acceptance to a PhD program with a colleague, Marc Cubeta, and North Carolina State. Marc and I are serving on the MSA Program Committee and I believe our connection probably contributed to Kathleen being accepted. And of course, helping my graduate students finish (O'Brien, Hough, Page) was rewarding. I believe O'Brien in particular will prove to be very successful as he continues on his career path. I find advising students from other institutions rewarding and can lead to big payoffs such as the Ecology paper with Simberloff.

### Department/college

Serving on the Committee on Research as chair was very interesting. I learned a great deal about ORP and the Research Foundation, how they function, and how best to utilize the services offered. The COR is an important committee and I did my best as chair to maintain a high level of integrity in the process of reviewing grant proposals and running the Spotlight on Student Research. I believe this year's Spotlight was very successful. As chair I also served on the Faculty Governance committee and contributed to minor revisions on the by-laws. Neil Ringler gave the Committee on Research the charge to review and revise a new Policy on Data Ownership to be included in the 'Bluebook' on the web and later in print. This proved to be a bit of a challenge as I navigated important issues such authorship and data ownership and, just as importantly, fine-tuned the language for clarity. I also sought to leave the committee with a solid panel. I recruited Jacqui Frair for the position of chair. She has 2 years of experience on the committee and I believe was one of the strongest members, both as an administrator and reviewer of McSten, Seed, and Exemplary Researcher proposals.

### Self

I was on sabbatical leave during the fall semester. I expected to get several proposals and papers off for review, and I achieved about 50% of my goal, acknowledging that an NSF proposal and one manuscript will go out by July. I also planned to use the fall sabbatical to gather high quality images for a field guide on mushrooms of the Oregon coastal sand dunes. My goal of getting a publisher interested in the field guide did not work out, but my effort continues there. I am most proud of following three accomplishments: 1) getting a paper in Ecology, 2) getting reconnected with the community of mycological researchers using molecular techniques at last summer's ESA/FESIN meetings which sparked several collaborative efforts and resulted in a short paper that is already published, and 3) getting the project initiated in Honduras. The last two items were not anticipated for my sabbatical effort, but the freedom to follow opportunities during the sabbatical allowed me to pursue them. One of my efforts locally has been to carve out a brand for myself, through teaching (adding the Basidiomycetes course), community outreach (Beaver Lake mushroom fair) and research. I feel my research continues to be strong. Keeping my work out there is something that is a major focus of mine, meaning that I seek topics

and activities that are relevant and timely. My publications continue to attract attention. According to Google scholar Ashkannejhad & Horton 2006 has been cited 26 times, Horton 2002 has been cited 62 times, and Horton and Bruns 2001 continues to inform researchers in the field, having been cited 317 times. I fully anticipate the Ecology paper on how plant invasion may be hindered by a lack of mycorrhizal inoculum to be cited often. I continue to get lots of recognition for my work, both nationally (e.g., elected MSA counselor of ecology/pathology, invitation to be lead author on a chapter in Seedling Ecology and Evolution) and internationally (e.g., invitation to co-author a review paper on mycorrhizal network for Journal of Ecology). The new project in Honduras is obviously going to be fun for me, but will also help attract attention to my program and to ESF. I also envision using results from that project to leverage funding from NSF or other sources, with possible angles including fungal biodiversity in an undersampled region, biogeography, and edible mushrooms as secondary forest products. I anticipate Tera Galante's work on spore dispersal to attract a lot of attention as she is the first person to use empirical data and modeling to predict how far spores are dispersed from caps of mushrooms. I am proud of her effort developing the model with our collaborator, Dennis Swaney. The NSF proposal with Simberloff and his student Nuñez will focus on spore dispersal and will build on Tera's work. All of these activities give me a great deal of pride and keep ESF on the radar.

### **Robin W. Kimmerer**

#### Students

My major, and most rewarding contributions during 2008-2009 have been to our students. I have taught 11 distinct courses to ESF students as well as 4 short courses/workshops for the public, including the first ever offering of a moss short course at the Cranberry Lake Biological Station. I am pleased to be able to create innovative, interdisciplinary courses which broaden the scope of ideas and perspectives available to our students. Excellent student evaluations indicate that they appreciate the content and character of these offerings. In the capacity as Director of both the USDA Multicultural Scholars program and the NSF Undergraduate Mentoring in Environmental Biology Program, I have helped to mentor the academic, personal and professional development of 23 promising undergraduates this year (in addition to my assigned advisees). This effort has included three different weekly seminars, out of class activities and individual research guidance for students engaged in undergraduate research and/or apprenticeships. All students completing the UMEB program presented research posters at the Spotlight on Research. The retention and achievement rates of underrepresented minority students in our programs is 93%, nearly double the national average, which attests to the strength of our USDA and NSF sponsored mentoring and enrichment programs. My 6 graduate students are flourishing and making solid contributions. I have also contributed to teaching in diverse outreach settings such as Onondaga Nation School and through a wide array of invited public presentations.

#### Department and College

I have served as founder and Director of The Center for Native Peoples and the Environment in 2008-2009 which has brought significant positive attention to the College's leadership role in incorporating traditional ecological knowledge in environmental education and research. The Center designed and implemented a very successful two-day symposium "Conversations on the Land: Indigenous and Scientific Principles for Sustainable Communities" in November 2008. The symposium featured internationally known scholars and attracted approximately 120 participants from a wide array of institutions. The Center received competitive funding from SUNY Conversations in the Disciplines and other extramural sources to host the symposium. The many activities of the Center are summarized in the report submitted last semester, highlights include a summer community environmental internship program and planning for a new minor in indigenous issues and the environment. The Center was also awarded funding from the National Science Foundation to initiate a summer science camp for indigenous youth, which will debut this summer. The camp has been a focal point for wide-ranging collaborations

with 8 different indigenous nations in the region, which lays the foundation for additional partnerships. The impact of the Center can be seen in the number of invited presentations and collaborations on traditional ecological knowledge requested from around the country, and in attraction of indigenous students to our graduate programs. In the Fall semester we will have 4 Native American graduate students on campus, a testament to the importance of these programs. The validity of using TEK as a partner to ecological science in education and research is gaining traction through our efforts. The successful development of the Center has created a platform from which grant proposals such as the recent NSF-IGERT “Helping Forests Walk” have developed. I served as the PI for the development of this year’s IGERT pre-proposal with an interdisciplinary group of collaborators. I’m very excited about the creative directions a successful IGERT could generate.

#### Contributions to self/profession

I’ve chosen to focus my writing in the literary arena this year, and have 4 essays accepted or published in 2008-2009, including an invited piece in *Orion*, the leading journal of environmental literature. I’ve made significant progress on my next book and have completed a book proposal and 80% of the chapters. I continue to seek sabbatical support for completion of the project in the near future. My work in this interdisciplinary arena is recognized through invitations to be the keynote speaker at the International Society for Environmental Philosophy, The International Green Building Symposium and the Sitka Symposium. I’m particularly proud of the contributions of the Center for Native Peoples and the Environment, as an emerging change agent in broadening the scientific dialogue to include traditional ecological knowledge. Engaging in these diverse roles has come at the cost of conducting independent research, although I continue to be active in bryocology, serving as Associate Editor of *The Bryologist*.

#### **Donald J. Leopold**

This past AY I taught nearly 275 students in Dendrology (EFB 336) and Freshwater Wetland Ecosystems (EFB 542), this latter course being offered after a two year hiatus. Collaborating with a number of colleagues, I am coPI of over \$1 million in newly funded projects (highlighted in bold, Section III. B. 1), including a \$600K grant from NSF (Kelley Donaghy, PI) which will provide scholarships to about 32 scholarships to talented but financially needy undergraduates in Chemistry, EFB, Engineering, and Environmental Science. From mid February to mid March I had eight invited presentations, typically to audiences between 100 to 200, and including the keynote presentations at the annual Central New York Blooms and a presentation at the Frelinghuysen Arboretum in Morristown, NJ. Related to these outreach activities, the Syracuse Post-Standard featured my research on the Solvay wastebeds in July and our discovery of a believed-to-be extirpated inland salt marsh species in October. This discovery of the seaside goldenrod was covered by all local news stations, and many newspapers throughout NYS and the Northeast. More importantly, it has brought much attention to the once common but now globally rare non-tidal inland salt marshes of the Northeast, which we continue to study and hope to restore on brownfield sites. I also worked with the Syracuse Post-Standard for a front page article (October) on fall colors. This substantial media attention, which takes significant amount of time to cultivate, brings much attention to ESF and the department.

#### **Karin E. Limburg**

##### Students (and others)

Looking back on what I wrote last year, it is nearly the same: teaching brings its rewards in terms of getting to know students, recognizing talent, and encouraging them to bring it out. Sometimes we luck out and get assigned outstanding undergraduate advisees. I was fortunate to work with Jorge Barbosa, who received multiple awards, and whom I’m mentoring in writing a research paper that we’ll submit to

Limnology and Oceanography; and Kean Clifford, who at my suggestion applied for and received a prestigious Ernest F. Hollings Undergraduate Scholarship from NOAA. He's my second student to do so, which makes me very proud.

In terms of what I did for grad students this year (in addition to serving on the GPAC, next section), I obtained funding from the provost to subsidize the attendance of the U.S. Society for Ecological Economics biennial conference by our graduate students. In return, the students will help out at the conference, an arrangement we also made in 2007. I've also kept several grad students funded through my NSF and CARTI grants.

I also traveled to Spain and taught a module in a European Master's course through the EU's Erasmus Mundus program. The module consisted of 2 hours of instruction every day for a week. I blended and adapted elements of my fisheries science and watershed ecology courses. Judging by the feedback, the students liked it quite a lot. This and other Erasmus Mundus programs are now competing with US graduate programs on the international stage, and I had the opportunity to interact with students from countries I've never seen represented in US classrooms.

Three of my students defended their theses this academic year: Carina Olson (Stockholm University, Ph.D. in Archaeology), Katie McGohan (M.S., EFB), and Ansy Sopacua (Ph.D., GPES). Ansy will be working on her revisions this summer, and we plan to submit several papers from her dissertation. I've also published with Carina, and hope to turn Katie's fine research on Onondaga Creek allochthonous matter processing into a journal article as well.

I continued to work with post-docs and visiting scientists over the past year. Post-doc Bongghi Hong has become an incredibly valuable member of our research team working on integrated watershed assessment, developing models and integrating the various project pieces into a whole. Aude Lochet finished up her post-doc in June and returned to France, but we continue to work together to finish our projects on selenium/mercury interactions in fish. Visiting scholar Fawen Yu returned to the Chinese Academy of Social Sciences in Beijing last September, but we produced his first English-language scientific paper (on grain economics and environmental impacts) that is currently in review at *Ambio*. We have built some excellent connections to the Chinese Society for Ecological Economics.

#### Department and college

Aside from teaching fisheries and watershed courses, I responded to a request for courses to replace popular ones at Syracuse University by offering a course this spring called "Wine Appreciation from Grapes to Glass." This course was co-taught (pro-bono!) by my husband, and we had 37 students who finished out the class. (We'll see what the reviews say.) The financial benefits of offering such a course at ESF are two-fold, since it saves the college from paying for accessory instruction and also brings income.

At the department level, I chaired the Graduate Program Advisory Committee. This committee took on several tasks this year: (1) we devised an orientation course for incoming grad students, that will be coordinated by Kim Schulz and Martin Schlaepfer and will involve other faculty; (2) we recruited two graduate students (Anna Stewart and Danielle Baker) to the committee; (3) we came up with a means to add additional support to outstanding accepted doctoral students, which was subsequently approved by the faculty and adopted; (4) we deliberated on the Outstanding Ph.D. Student award, and came to the tough decision not to award it this year; and (5) provided input (through Jaqui Frair) to the biometrics and statistics professors in FNRM regarding needed coursework for our grads. Additionally, we are making plans to have a retreat early in the fall to get grad students and faculty together, discussing graduate issues and needs.

I also served as an official mentor for two faculty members, Martin Schlaepfer (EFB) and Myrna Hall (ES), and did some informal mentoring of Kathy McGrath (EFB) and Maria Hosmer-Briggs (ES). I worked with Valerie Luzadis and Greg Boyer to propose a SUNY-wide “Conversations in the Disciplines” conference on ecological economics (funded, to take place in Fall ’09), and with several others to develop both undergraduate and graduate programs in ecological economics/sustainability science.

I’ve also participated in a number of multi-disciplinary ESF-SU meetings and seminars. These have largely been spear-headed by Jack Manno and Rachel May, and I give them a lot of credit for fostering these meetings of minds. In general, the themes have circled around sustainability. The meetings are fostering a climate for writing joint grant proposals (including the IGERT pre-proposal effort led by Robin Kimmerer). There is also growing interest in making out expertise in ecological economics more prominent by creating both undergraduate (a minor) and graduate (option within GPES) programs. ESF has incredible expertise in this field, and we need to advertise it better.

### Self

This year has been dedicated to quite a lot of external service, which I’ve detailed above in various sections of this annual report. I keep three major folders on my computer: Research, Teaching and Outreach, and (external) Service. Over the past two years, I’ve noticed that the last folder has been growing more rapidly than it had previously. The US Society for Ecological Economics continued to occupy a good deal of my time, and I look forward to “retirement” from the board. I’ll continue involvement through co-editing the new monographic series, Ecological Economics Reviews; Volume I is expected out in early 2010.

Nevertheless, I’ve also been able to squeeze in time for research, which is certainly my passion. I’ve been trying to perfect the art of writing scientific articles for high-impact outlets, which requires a re-focusing of what to present. Some of my mis-adventures include having the same manuscript reviewed twice and rejected twice by Science magazine (reviewed manuscripts have a good chance of being accepted). But with the help of a sympathetic editor, I was able to revise that article and publish it in the Proceedings of the Royal Society – and he then wrote a commentary on it. I now have an article that appears will be published in BioScience.

I find myself drawn increasingly to work on ecosystem services quantification and valuation, since this is a timely topic; I’ve worked with Colin Beier, Valerie Luzadis, and several others on campus to write grant proposals in this area. I think we are getting close to being successful. Another big topic that I’m getting into is the linkage between nutrient loadings from watersheds, coastal marine hypoxia, and fisheries. I’ve been working with Denise Breitburg at the Smithsonian Research Lab on a set of international workshops where we hope to use EcoPath/EcoSim/EcoSpace models to help us assess the degree to which hypoxia affects coastal marine and estuarine food webs, in order to estimate biomass reductions of fish (and losses to fisheries). A hypothesis we have is that overfishing can in some cases exacerbate hypoxia that’s caused by nutrient loading, because of trophic cascade interactions. If this is true, then we have identified a “management gap” between fisheries and water quality management agencies that may need to be addressed. That is, water quality management (by EPA, for example) to address watershed nutrient loading reductions may not be effective at reducing algae blooms, if overfishing has altered food web structure such that zooplanktivorous fishes are released from predation. As I wrote last year, I continue to be dismayed by the rapid declines in diadromous species. I’m focusing some of my research and writing now on this topic, particularly with John Waldman of Queens College. I may decide to launch a website devoted to this.

An exciting development is that my efforts to push my physicist colleagues in new directions that will ultimately help otolith chemistry seem to be taken seriously. My suggestions have been incorporated into

grant proposals both at Cornell's High Energy Synchrotron Source and at Lund University in Sweden. In both cases, we are proposing to use a new generation of X-ray detectors with much greater counting efficiencies. In the case of Lund, we've proposed a project wherein we would develop micro-analytic methods to quantify stable isotopes of nitrogen and oxygen in fish otoliths. In theory, we would be able to "read" the trophic history of fishes from their earstones, for example determining retrospectively the age (in days) at which a young fish switched from eating zooplankton to eating fish.

A final new research direction for this year is my involvement in a project in the Grand Canyon. This grew out of meeting a fisheries scientist at a review panel for the Atlantic States Marine Fisheries Commission. The project entails understanding the ecology of threatened and endangered species in the Colorado River and its tributaries below the (in)famous Glen Canyon Dam. This is certainly the most politically charged research I've been involved with, and should be interesting from both scientific and social perspectives.

### **Mark V. Lomolino**

In teaching, I continued to develop my course offerings for graduate and undergraduate students. Significant changes and improvements have been made to the EFB 483 – Mammal Diversity, which is now taught every year and now has an expanded series of 5 interactive discussions on current topics in biodiversity and conservation of mammals. My other principal, undergraduate offering is EFB 444 – Geography of Nature, which continues to be a popular upper level course offering. My graduate level offerings include an advanced course in Biogeography (EFB 644), and I continue to coordinate a seminar on various topics in Conservation Biogeography for graduate students.

In research activities, I continued in the areas of biogeography and conservation, including a recent review to be published on the development of island biogeography theory (Quarterly Reviews of Biology) and book chapters on this and related subjects.

### **Gregory G. McGee**

I completed the first iteration of the General Biology laboratory courses (EFB 102/104) with a degree of satisfaction, but also knowing that some aspects of the courses require restructuring. I am satisfied that I am developing laboratory experiences that are engaging to our first-year students and that build student capabilities in scientific inquiry, communication and laboratory skills. Through both semesters, students prepared four full laboratory reports and two partial reports on descriptive field studies or controlled laboratory experiments. This level of scientific writing is double the amount that freshmen biology students conducted in the past first-year biology sequence. I also devoted a great deal of effort to teaching laboratory techniques, including microscopy and sterile transfer methods. Instruction on laboratory techniques was followed-up with a lab skills proficiency exam during the first semester. These half-hour, face-to-face (student-instructor) examinations proved to be very worthwhile evaluation activities and teaching experiences. Students took these examinations seriously and I believe they generally demonstrated good lab techniques during the second semester. I will consider instituting a similar exam during the second semester. I missed a few opportunities to synchronize the laboratory instruction with Melissa Fierke's and Chris Whipps' lecture courses. With some adjustments in the scheduling and scope of a few activities, the three of us are certain to better integrate our courses in the coming year.

In addition to 102/104 I facilitated EFB's Freshmen Orientation Seminar (EFB132, two sections). Also, in lieu of taking on a substantial component of EFB202 last summer, I once again taught a field-based

General Ecology course (EFB 320) at the Wanakena Ranger School. With a small class size (twelve), access to numerous Adirondack ecosystems and field stations, and the addition of a full-time TA, this developed into an exceptional course. Students were able to participate in daily theoretical discussions and hands-on field investigations. Having a TA permitted for quick turn-around of written assignments and laboratory reports, and students showed marked improvement in their writing and analytical skills during this three-week course.

I have also had the pleasure of collaborating with Annie Woods at the Adirondack Ecological Center, and Leah Flynn in the Office of Student Life, to develop a pilot Pre-Orientation Adirondack Experience for twenty of this year's incoming EFB freshmen. The purpose of this program is to offer incoming students a voluntary opportunity to enjoy a number of informal outdoor experiences with EFB faculty, staff and upperclassmen, and to develop friendships and a sense of community with their new peers prior to their official on-campus orientation. We hope to use the Adirondack wilderness setting to begin a dialogue with our new students on matters of personal wellness and assimilation to college life. We are planning a number of hikes, canoeing trips, rafting trips and service projects during this five-day event. If the event goes smoothly we'll plan to open up participation to more students the following year.

This year, I enjoyed making (small) contributions to ENB's Middle States accreditation assessment plan. Furthermore, given my role in coordinating EFB202, I have begun organizing student learning outcome evaluation tools through that course, which was identified as one of the courses where student assessment can be conducted across all EFB majors. To date, I have coordinated diversity-related assessments with some of this summer's EFB202 instructors (aquatic ecology, plant ecology, entomology) and plan to expand the diversity-related evaluations to more units next year (e.g., birds, mammals, herps, fungi). In addition, I developed a student peer-review evaluation tool to assess student group work, and restructured the EFB202 Research Symposium evaluations to permit the assessment of oral presentation skills and hypothesis testing skills.

My service to the college took a variety of forms this year. Perhaps first and foremost was my very enjoyable and rewarding collaboration with the faculty, staff and administrators on the ESF Learning Community Team. Through the Learning Community Team I contributed to the planning and participated in the two day-long Freshmen Retreat events last autumn, and participated in the summer reading selection and discussion groups. Interactions with other LC faculty have lead to a number of collaborative ideas for biology/chemistry instruction (described below) and writing instruction. In addition, I joined the COI Subcommittee on General Education, which kept me busy reviewing numerous student petitions for Gen Ed course requirements; contributed to assuring a smooth transition to South Campus housing in the coming year by serving on the South Campus Housing Task Force; facilitated two workshops on Evaluating Written Work at last summer's ESF Graduate Assistant Colloquium; and provided proposal review for the McIntire-Stennis program.

### **Kathleen McGrath**

#### Students

This year I offered a seminar offering graduate and upperclass undergraduate students the opportunity to study aquatic resources in a landscape context, filling a perceived need within the department. We covered all major topics in landscape ecology and discussed applied topics in aquatic ecology. The students also benefitted from 3 guest speakers. I will be evaluating the future need for this class. I also co-taught both sessions of the aquatic portion of EFB202 at Cranberry Lake last summer, interacting with most of the Department's sophomores and counseling numerous students on their special research topic within the class. I will soon be taking on two M.S. graduate students, offering them exposure to and the opportunity to study highly disparate topics in stream ecology: lake sturgeon and hyporheic ecology.



#### Department/college

My greatest contribution to the department and college this year was through successful grant-writing efforts. Three of my proposals have been selected for funding and will begin soon. All three include funding for graduate and undergraduate students and will bring significant resources to EFB and the college. I hope to build on each of these projects in future years. I also contributed to several Department efforts this year, including the Aquatics major outcomes assessment, representing the Aquatic major at the accepted student reception this spring, and participating in efforts to recognize outstanding undergraduates through the Phyllis Roskin Award and the Outstanding Female Graduates Dinner.

#### Self

I took advantage of the outstanding resources at EFB by sitting in on two classes this year, Jesse Brunner's statistics seminar (EFB797) and Charlie Hall's System's Ecology (EFB598). These are great classes and sharpened my statistics skills, and exposed me to a new approach toward ecology and study design, respectively. I attended two Grant Writing workshops to improve my understanding of the granting world and attributes of a successful proposal. Finally, significant time this year was devoted to networking with USGS, NYSDEC, and other agency personnel to become more familiar with aquatic issues and players in New York and the region.

### **Stacy A. McNulty**

#### Students

At multiple levels, I serve students: primarily from ESF but many from other institutions studying at the AEC. I have grown my graduate advising capacity with the addition of a third MS student to arrive this summer. I am pleased to share my experience with graduate students and enjoy the challenges of mentoring at that level and producing both sound scientific studies and future career biologists. Turning to undergraduates, the UMEB program (NSF funded, with Robin Kimmerer) continues to improve and gain recognition regionally and nationally. This program has been a huge success: getting undergraduates excited about research and motivated to conduct independent work, to connecting them with mentors in environmental biology fields and working on real-world issues, to helping them shape their futures. In addition to writing the grant proposal, coordinating summer research at AEC, overseeing a graduate TA, and mentoring some of the students directly, I am very proud to co-lead this strong program that will produce future scientists and, more importantly, future thinkers.

#### Department/College

Two areas where my work has contributed to the mission of the department and college: visibility and collaboration deserve special mention. I have continued to raise ESF's visibility and credibility through a variety of means. These include: Raising the level of dialog about data sharing and informing decision-making in the Adirondacks via the UMP-GIS project. Originally focused on state Forest Preserve land planning, we have increasingly expanded our spatial analyses and tools to include all Adirondack lands and beyond for stewardship and land use planning. Organizations such as DOT, DEC, NY Natural Heritage Program, The Nature Conservancy, Wildlife Conservation Society, and others routinely confer with me/AEC to collaborate on problem-solving. Now that I will serve on the Adirondack Research Consortium board, I have an opportunity to bring more attention to information sharing and more effective policy generation. The Spruce Moose, AEC's newsletter, continues to flourish. It is printed in full color and now reaches well over 1,000 alumni and college partners, keeping them informed of developments and opportunities to stay involved with ESF. We get many compliments and comments on the activities of AEC/ESF from newsletter readers and between the print and online versions can reach Keeping in touch with alumni and "friends" of Huntington Wildlife Forest. In the past year, I was a key player in creating Facebook groups for both HWF and the ESF UMEB program, so that students and

colleagues could keep up to date on events and stay in touch with the college and each other. As social networking continues to expand on the internet, and as our graduates use these tools to stay connected, to maintain a vital alumni network, we must as well.

I also have worked hard to collaborate with colleagues at ESF as well as those at other institutions. The Adirondack Biodiversity Project (ATBI), which I continue to be involved with, has a coordinator housed at the Center for Adirondack Biodiversity, located at Paul Smiths College (the director is an ESF post-doc, David Patrick). This citizen science initiative has brought many partners together and continues to grow. David and I have forged many plans together for improving research and involvement of citizens in science in the Adirondacks. I have also worked to develop research projects and/or publications with faculty in EFB, other departments, institutions, and agencies which should continue to bear fruit into the future.

#### Self

Becoming sole advisor to graduate students might be the largest growth I experienced this year. I am now overseeing a greater number of grad and undergrad students which required some shifts in allocation of energy and learning to navigate college policies and timelines. I have assumed a supervisory role for the AEC TA which will help develop my mentoring and administrative capacity. Over the next several months, I intend to work with other faculty and staff to design a robust program for the TA. This will include clear expectations and outcomes and will be beneficial to both the graduate student and to AEC programming.

### **Myron J. Mitchell**

#### Students

During this period I advised 14 undergraduates and. I had 5 graduate students (2 Ph.D. and 3 M.S.). The Biogeochemistry Class had 39 students including 5 from CIE. We had a continuation of an interdisciplinary seminar entitled "Cross-disciplinary Seminar in Hydrological and Biogeochemical Processes" that included 56 faculty, staff and graduate students from six different programs at ESF and SU. We will continue this seminar format next academic year (2009-2010).

#### Department/College

I served as director of the Council on Hydrologic Systems Science. I also co-chaired the Faculty Advisory Committee on Establishing a Joint ESF-SU Doctoral Environmental Program that provided a report to the SU and ESF administration in October 2008. I have also served in a variety of capacities as a Board Member of the Research Foundation including a member of two committees and Chair of the Human Resources Committee. I served as a Commissioner on NYS Commission on Higher Education. The final report of the Commission was given to Governor Patterson in June 2008. I was also asked to serve in a group that as a member of the Strategic Planning Team for evaluating the Research Foundation. This team includes various representatives from SUNY and I am serving as a representative of the Research Foundation Board and am the only faculty member on the team. Over the past six months the team has had various meetings and has worked with a consulting group to develop a draft plan. I also serve on other SUNY-wide committees.

#### Self-Professionally

I maintain a large research effort that includes the operation of a watershed and associated instrumentation at the Huntington Forest. I am also involved with cooperative research with various individuals in the United States, Europe and East Asia. I am a co-PI on the HBEF LTER. This research effort was supported by 9 grants with ~\$1,500,000 of direct support. I am a member of the EPA EPA's Clean Air Scientific Advisory Committee (CASAC) Review Panel on Secondary Standards for NOx and

SOx. During this reporting period I authored or co-authored 14 publications (13 referred) either published or in press. I continue to review papers and proposals from a wide variety of journals and agencies. I gave an invited talk at American Geophysical Union in San Francisco, CA on “Discrepancies in Watershed S Budgets in Southeast Canada and Northeast U.S.: A Comparative Mass-Balance Approach”. San Francisco, CA. I am currently working on two manuscripts involving multiple authors (~20) that are evaluating sulfur budgets in North America and Central Europe respectively. In June 2009, I will participate in a Summer Program on Ecosystem Ecology in Hokkaido, Japan. In addition to field activities, I will be giving the plenary lecture for this program. I have also been invited to give a plenary lecture at the Gordon Conference on Small Catchments (July 2009). I was also invited to participate in a panel reviewing European Union Proposals on the Effect of Climate Change on Water Resources in Brussels, Belgium (March 1-7). This review process allowed me to become highly familiar with water related research issues in Europe.

### **James P. Nakas**

#### Students

During the past year I have taken on two new graduate students who have been part of my group since May, 2008 (Rosanna Stoutenburg), and Sept., 2008 (Chris Addona). Both have now reached a point where they are fully functional in the laboratory, and indeed, would be fully functional in any microbiology laboratory. They have received good training and taken to it well. I have also had one undergraduate student (Joseph Gredder) working in the laboratory since Sept. 2008 and he has also become fully competent and would never embarrass ESF by his performance in any respected microbiology laboratory. My two other graduate students (Chengjun Zhu and Wenyang Pan) continue to do outstanding work and will do well after ESF. Joe Perrotta (Research Technical Specialist) has been with me for a number of years and provides invaluable service in assisting in the training of all my graduate students as well as undergraduates.

I still continue to teach English as a Second Language to international students at ESF and routinely have 4 to 6 students each semester. We generally meet once a week and focus on pronunciation, vocabulary, current events, etc., etc.

#### Department/College

During the past year, my contributions to the department/college have probably been most noteworthy in the areas of service as exemplified by searching for a new cellular/molecular biologist which resulted in the hiring of George Bachand, work on the Promotion and Tenure Committee, and participation in many, many meetings of the CNY Biotechnology Research Center as part of the advisory committee. A site (former Kennedy complex, Fayette Street) has been identified, purchased, site remediation and demolition work begun, and numerous discussions have taken place with architects who have now designed the building and construction layout. Completion is scheduled for 2011. I also participated in the certificate program in Bioprocess Engineering with four students (all from BMS) who are conducting research in my laboratory on hydrogen production and the results will be presented at a graduation ceremony/reception later this summer.

#### Self

This past year has been particularly gratifying to me as I feel that a few milestones have been met which had been churning away for, in some cases, extended periods of time. Probably the most significant accomplishment was being issued a(n) European patent for our work on biodegradable polymers from wood-based feedstocks. The patent was issued on Nov. 5, 2008 and can be viewed at the European Patent Office web site under EP 1585821. This describes our work on the bioconversion of the hemicellulosic component of wood to biodegradable thermoplastics using a bacterial fermentation. I believe patents have

been issued on only three other occasions in the 30 years I have been in EFB (the three being Teale, Powell, and Smart/Abrahamson/Volk). The US and Canadian patent applications for our work are still pending.

I was very pleased this past year to receive some significant funding (~\$500k) for our biodegradable polymer work from a consortium involving Tessa Plastics, Welch Allyn, Blue Highway (a spin-off of WA), ESF, and NYSERDA. For the past few years I have tried to pull together a group effort whereupon we at ESF would produce the raw polymer for delivery to Tessa Plastics who would then fabricate the polymer into disposable medical products. This has now been accomplished using the pilot plant fermenter (400L) and the production of kilogram quantities of PHA which were subsequently processed by injection molding by Tessa Plastics into ear tips for use with an otoscope. Welch Allyn, which distributes the product worldwide, will now evaluate the PHA product for various quality assurance criteria compared to the normal polypropylene-derived product. The photo below shows a comparison between the usual polypropylene-derived product (black) and the PHA-derived product (brown). Some injection molding problems remain but we continue to focus on manipulating the polymer composition to achieve better separation from the mold after cooling.

The production of kilogram quantities of polymer was, in part, achieved due to collaboration with Albany Molecular Research Institute (AMRI) who provided some critical downstream purification expertise which allowed us to switch solvents from chloroform to dichloromethane and subsequent precipitation in methanol which greatly improved product yield and purity. We look forward to future collaborations with AMRI with the hope that we can offer them something in return for their very generous support.

Two methods of regulation are now available to us for producing an even better PHA product. First, we can manipulate the composition by varying the carbon source which allows the production of a range of polymers from a rather stiff product to a fairly elastic and flexible material. Secondly, growth on glycerol (a byproduct of biodiesel production) results in PHAs of varying size as the glycerol serves to “end-cap” the polymer, i.e. no additional subunits will be added after glycerol is inserted. Therefore, careful addition of glycerol will produce polymers of different chain lengths which will exhibit different physical-chemical characteristics. It is anticipated that one or both of these measures will result in a better product for use in injection molding applications.

A few billion pounds of cheese whey are generated within New York State each year. Most cheese producing facilities either pay to dispose of this high BOD “waste” material or will treat it on site using normal wastewater treatment procedures. However, the presence of lactose at a concentration of 4-5% allows fermentation of this byproduct into value-added products. Our goal is to use cheese whey as a feedstock for eventual fermentation to PHAs which could be accomplished at the cheese-making facility. We have been collaborating with Dr. John Fieschko on all aspects of this work. Laboratory experiments have established the feasibility of this process and we are now in the pilot plant phase and have scaled-up the process to 200L.

The most recent publication listed (under IV) with Dr. Nomura will be the sixth member of the Chemistry Department with whom I have published papers. I am not exactly sure this is an “accomplishment” in the intended sense but it sure has been fun working with them. They’re just so damn good!

**Tsutomu Nakatsugawa**

My sabbatical leave yielded a book proposal which, with the help of Dr. Leopold, was sent to an editor at Comstock Publishing Associates at the end of July. The editor found a merit and decided to send it for reviews, which produced by January a mixed review, one favorable and one critical. The latter turned out to be more helpful, and following discussion, I have decided to change my writing from textbook style to a series of essays for a broad audience.

I offered a undergraduate/graduate seminar under the title of “Organic Foods, IPM, GMO and Precautionary Principle”, as the third in a seminar series on organic foods that began 9 years prior. Seminars were compiled as a booklet and have been distributed to the class as well as interested attendants. I appreciate Dr. Underwood’s guest lectures and Linda Galloway’s help in setting up a website with RefWorks to facilitate literature search, a first on campus.

I was asked to assume the chairmanship of the Promotion and Tenure Committee to lift the burden off Dr. Powell who was willing to be Faculty Chair. The committee’s task included a decision on a title shift for Dr. Farrell and initiation of the 3-year pre-review for Dr. Frair. Most importantly, I was asked, as Chair of PT committee, by Provost Bongarten to coordinate collecting and summarizing assessment of Dr. Leopold’s performance as EFB Chair, draft a summary with the committee, obtain an approval of the faculty and report back to the Provost, all in preparation for discussing Dr. Leopold’s reappointment. Since the procedure Provost outlined was new and far more detailed than before, we strived to make the process as fair and transparent as possible to set a respectable precedent. Initial solicitation yielded a minority responding, but the second urging was well answered so that we felt comfortable preparing a consensus summary. The report was approved by the faculty and delivered to the Provost together with the individual questionnaire. I thank committee members for their conscientious work to produce the report.

## **Roy A. Norton**

### Students

I taught 41 undergraduates in Invertebrate Zoology, a time-demanding course that continues to be highly regarded by students. I also served students directly as ENB Curriculum Coordinator (CC) and EFB Curriculum Director (CD), dealing with myriad academic and personal matters. Beyond guiding my own 26 advisees, and serving as planned or ad-hoc stand-in when advisors are not available, I dealt daily with referrals from other faculty members (or am contacted directly by students) on the more difficult of issues. While they were not from ESF, the 22 international graduate students and professionals at a workshop on Soil Acarology (which I taught last summer at the Ohio State University) highly praised the experience.

### Department/college

These, in large part, also relate to CC and CD positions and to affiliated activities and committees (Course, Curriculum and Assessment, Committee on Instruction, Subcommittee on Academic Standards, ad-hoc Judicial Review committees). Significant time was spent interacting, on behalf of the department, with the Admissions and Registrar offices on diverse issues, and I was involved in most on-campus recruitment activities. Much effort went into developing plans for academic assessment, in response to the mandate from the Middle States Commission on Higher Education for developing a student learning-outcome approach. I was directly involved (at various levels) in formulating assessment plans for 6 of the 7 undergraduate programs in EFB, and had primary responsibility for the final organization and presentation of all 7, for inclusion in the college’s interim report. Associated with these plans were many curricular and course changes that needed passage prior to submission of the report: through my capacity as CD, member of CCAC and member of CoI, I was heavily involved with each proposal.

#### Activities/accomplishments relevant to self

This has been a productive year for research, with 7 refereed papers published, 4 others accepted during the reporting period, and 3 more submitted. Collectively, these are on diverse subjects (perturbation impacts on soil fauna, molecular biology, functional anatomy, genetics, evolutionary biology, phylogeny, paleontology and systematics) and involve 16 coauthors from 10 institutions in the US, Poland, Germany, New Zealand and Brazil. Two published papers were selected as cover articles for the flagship journal in their respective field (Journal of Paleontology and Journal of Morphology). Perhaps most important was a non-referred work: an entirely new, 134 page chapter in the 3rd-edition of A Manual of Acarology, which has been the authoritative work on the world's mite fauna for nearly 40 years. I serve on 8 editorial or advisory boards of scientific journals, and during the reporting period refereed 27 papers submitted to 14 journals, mostly international in scope. I also provided expert advice to 16 researchers on diverse projects associated with universities and agencies in the US, Canada, and 8 foreign countries. Travel highlights included two weeks in the vicinity of Manaus, Brazil, where I presented seminars (above), conducted and planned joint research with Dr. Elizabeth Franklin, and advised faculty and graduate students on specific research problems by conducting two informal workshops. During one week at Adam Mickiewicz University in Poland I was an invited guest for various ceremonies associated with a major university anniversary, and presented a plenary lecture at the associated conference on Contemporary Issues in Biology and Biotechnology. In November I was the keynote speaker at an Acarology symposium associated with the annual meeting of the Entomological Society of America (see above).

#### **Dylan Parry**

##### Students

I again taught my Ecology and Management of Invasive Species course in the fall. This year I incorporated significant changes into the course as I removed the enrollment cap which doubled the number of students in the class. Despite the increase in numbers, I retained many of the interactive aspects of the smaller class and was rewarded with the best set of evaluations I have received to date. In the spring, I taught for the second time, my course in Plant-Herbivore Interactions. As I have done in all but one year since I started at ESF, I contributed to the teaching program at Cranberry Lake through EFB-202 where I instructed the entomology component of the diversity field course (EFB-202). I also mentored an undergraduate, Andres Garzon, in his independent research project. Finally, I taught the second edition of my insect ecology graduate seminar, which I plan to continue offering in alternative years.

This year is a bit of a transitional year with four of my graduate students finishing up their degrees at ESF. Keith Post defended his MS and graduated in May. Keith followed up his departmental LeRoy C. Stegeman Award in 2008 by having his research honored at the national Entomological Society Meeting in Reno, NV in December as a recipient of the Kenneth and Barbara Starks Plant Resistance to Insects Graduate Student Research Award, and then the Student and Young Professional Award in 2009, also from the Entomological Society of America. Brian Hoven will defend this summer and Monica Phillips and Phil Barber this fall.

##### Department and College

In the second year of my tenure as Chair of EFB's Curriculum and Course Assessment Committee (CCAC), we took on the onerous task of developing protocols for assessing our programs in EFB in response to the guidelines issued by Middle States. The role of my committee was central in developing realistic and practical methodology for assessing student learning in each of our majors. This effort was ultimately successful because of the hard work of the CCAC, Roy Norton's skills as a liaison between COI and CCAC, and the willingness of the coordinators of each major to buy into what we trying to accomplish. Ultimately, we significantly changed programmatic structure in three of our majors (Forest

Health, Wildlife, and Aquatic and Fisheries Science), and modified or added 8 courses to improve our programs and meet the assessment objectives of Middle States. CCAC also approved changes or new additions in 21 other courses during the fall and spring semesters. Perhaps the greatest compliment to our efforts was that not a single course or program change proposal was rejected or was returned for revision by COI.

#### Self

My research on the decline of native moths in New England and the larger issue of the unintended consequences of biological control introductions has garnered considerable national attention over the past few years. I was honored present two invited symposia papers (The Legacy of Melrose Highlands: Parasitoid Drift and its Unintended Consequences for Lepidopteran Diversity in New England Forests and Ghosts of Invasions Past: Non-target Acquisition of Native Lepidoptera by Parasitoids Released to Combat Exotic Tussock Moths in North America) at the prestigious International Congress of Entomology in Durban, South Africa July of 2008 and I published an invited synthesis paper that incorporated some of this research in the January 2009 issue of the international journal Biological Invasions. This gave my program and the college some international attention.

As part of a team (Powell, Maynard, Leopold, Horton, Parry), we extensively revised and resubmitted a large USDA proposal to look at the environmental risks of naturalizing genetically modified trees in 2008 and received word that it would be funded beginning in fall of 2008. Melissa Fierke and I have been developing a number of proposals to expand our research on the introduced European woodwasp, *Sirex noctilio*, which would take advantage of our newly funded McIntire-Stennis proposal in 2009.

This year, I became a member of the NY State Invasive Species Advisory Council. This advisory panel is tasked with providing expert advice to the NY legislature and state agencies on ongoing and emerging issues as well as representing stakeholder concerns in planned legislative proposals. Currently we are developing a tiered list for invasive plants and advising on the development of planned legislation regarding the pleasure boating industries. I have not previously been involved in influencing governmental policy and have really found the process informative and very useful. In turn, I can incorporate this first hand knowledge into the policy and legislative section of my invasive species course.

Finally, I have become an adjunct faculty at Syracuse University and will be teaching an advanced forensic entomology course in their inaugural professional program in Forensic Investigation this fall.

### **William F. Porter**

#### Students

Teaching programs expanded with an increase in the credit-hours for EFB 484 Winter Mammalian Ecology to make this more comprehensive field course offering in the spring semester. While the enrollment was expanded to 20 students, there was still a waiting list to get into the course. We also experimented with new courses focused on philosophy and wilderness management in the Adirondack Park with good response. The latter course was a joint offering with the University of Vermont that brought 24 ESF and UVM students together for two 3-day weekend retreats in the Adirondacks.

#### Department and College

Our work with climate change and songbird communities resulted in two papers published or accepted for publication in top-caliber journals: abundance-occupancy work in *Journal of Animal Ecology*, and poleward shifts of the bird community in *Global Change Biology*. The latter is among the high-impact journals of contemporary science. These publications led directly to a successful proposal to the NASA for a new study of the dynamics of land cover, especially shrub communities using new LIDAR remote

sensing technology. Significant accomplishments at the Adirondack Ecological Center are reported elsewhere but work in the Adirondacks also included the first of a two-year term as President of the Board of Directors of the Adirondack Research Consortium. This is a not-for-profit organization with a mission of providing better information for better decision making in the Adirondacks. An annual conference of scientists, students, government and business leaders, and NGOs is central to the organization and this year's conference saw a large ESF presence from EFB, FNRM and LA, as well as AEC. In addition, we began an initiative to establish a \$3 - 5 million competition funded through NYSERDA to focus on energy in the Adirondacks. Several members of EFB participated in the scoping. Finally, it was a privilege to serve as master of ceremonies in honoring Dudley Raynal for his 30 years of contributions to the Adirondacks.

#### Professional growth

The most significant accomplishment for the past year was completion of a book, *The Great Experiment in Conservation: Voices from the Adirondacks*. This represents the final product from my 2005 sabbatical. The establishment of the Adirondack Park created an unprecedented blend of human communities within wild lands and makes it one of the greatest case studies in conservation and development in U.S. history. This project has been especially valuable to me because it deepened my understanding of the Adirondacks and expanded my interest in the interface between ecology, and economics and policy. In the longer term, I expect it will enhance our abilities to be more effective with the science we do.

### **William A. Powell**

#### Students

In addition to serving as the biotechnology coordinator, teaching one of the larger courses in EFB (Principles of genetics with 209 students), a specialty course in Plant Biotechnology, and one of the core biotechnology major courses, I have many (maybe the most) undergraduate research projects, BTC497, in my lab with 6 undergraduate students taking 16 hours of research. In addition, I have taught three high school students over the summer who went on to win awards in their science fairs and have been accepted into top universities. This demonstrates my commitment to giving as many research experiences as possible to interested students at all levels of their educational program. I can only do this because of my success at attracting research grants (see section IIIB).

#### Department and college

For our department, I chaired a successful faculty search to replace Larry Smart and Annette Kretzer. I have also continued to be a member of the Promotion and Tenure Committee even when my term as Chair was over. I have participated wherever is needed by standing in as Chair, as Curriculum Director, participating in open houses, giving seminars to freshmen, etc. For our college, I stepped in as the executive chair of faculty governance at a time when this organization appeared to be collapsing. There is more work to do, but even with the loss of two key members we were able to edit the bylaws, have five good meetings, and carry out all the needed business.

#### Self/professional

I believe what I do for ESF is closely linked to what I do for myself. Each benefits the other. The big thing this year is that we have reached a new phase in our American chestnut research. Just as we are planting an order of magnitude more transgenic trees in the field, the research funds are also growing. Last year I reported that we had an opportunity to tap into a \$10 million dollar grant to support this research. Because of the downturn in the economy, this money has dropped to \$5.2 million and at the same time several more institutions are trying to win part of these funds. Even with these challenges, we are hoping to bring in about \$1.3 million to the ESF campus. This has been a long and hard process, but



if we are successful, it will greatly benefit ESF and myself professionally. Lastly, I am a little over a year from my next sabbatical leave and I have started making plans to “hit the road” and promote the American chestnut restoration research at ESF during this time. I have even considered writing a book.

### **Neil H. Ringler**

A major event this year was the completion of Master’s degrees by four students, two of whom will continue on to doctoral studies on recommendation of their committees, and two of whom are employed. These students presented a set of papers at the American Fisheries Society Annual Meeting in Ottawa, Canada last August. These students were funded through a combination of EFB teaching assistantships and Honeywell research funds. Publication of a paper that distinguishes hatchery from wild fish has facilitated new research on the Salmon River. Coupled with a new \$ 1.2 MDEC-operated marking trailer (7000 fish/hour!), this technique may lead to far more useful estimates of reproductive variability in the River, and should form the basis of at least two new thesis projects beginning next fall. Our studies of Onondaga Lake have flourished based on teamwork among ESF, Honeywell and consulting scientists and engineers. We will be able to make important recommendations on the detailed habitat enhancements of this perturbed ecosystem, as well as publish significant scientific results of interest at the national level.

At the Department level, discussions of future candidates for the new position in biotechnology were helpful in preparing for the new hire’s research program at ESF. The addition of Dr. Mary E. Fowkes as Adjunct Faculty was a significant event. Her teaching in comparative anatomy and medical entomology continues to educate and attract undergraduates and graduates alike. Dr. Fowkes could provide future continuity with Upstate Medical University via Environmental Medicine, and perhaps will bring enhanced emphasis on programs for students considering careers in health sciences.

At the College level, activities that connect closely with EFB included development and hosting of the Faculty Mentoring Conference: “Graduate Students and Professors: Synergy-Energy-Compatibility in Research, Teaching and Service.” at the Sheraton Hotel. I believe that the Poster Session and “Town Hall” presentation of Dr. James Weyhenmeyer from SUNY RF was a success, and this was the first such presentation since his appointment as VP of Research and Vice Provost. Dr. Weyhenmeyer has also looked to ESF to initiate a new “3rd part” program to commercialize intellectual property, including that developed by EFB scientists. Working with the College-wide Committee on Research has proven very valuable as we further develop the Exemplary Researcher, Seed Grant and McIntire-Stennis programs.

### **D. Andrew Saunders**

#### Students

Offering students, both undergraduate and graduate, the methods, encouragement and opportunities to practice and test their professional skills by interacting with a range of audiences in the region and beyond has been one of my most important contributions this past year. Developing and supervising these opportunities is a demanding task. I am proud of the students’ accomplishments and contributions of approximately 494 hours. On some weekends, both fall and spring semesters, my students were simultaneously presenting program in many locations in this region. We seemed to be operating at optimal capacity. Despite other difficult challenges, this has been one of my most enjoyable and more productive years working with students on and off campus. The completed assessment protocol, while consuming an enormous amount of thought and time, I see as not just a yardstick on performance but also as a dynamic means of enlivening and advancing all efforts within the NHI major.

Department/college

Promotion and education are key words to highlight these contributions. I am especially pleased to have been able to implement the pilot Master Naturalist program: Naturally New York with Virginia Collin's assistance, and with the generous contributions of so many colleagues and their graduate students. The program extends into many CNY organizations and institutions by hand-picking participants from many professional venues who interact with youth, including scout leaders, teachers and others, e.g., from the medical professions. We look forward to continuing, and to improving, this program based on our formal and informal evaluations and experiences. Coordinating the growing NHI major (largest to date) and advising a large group of graduate students are other ongoing and important accomplishments to honor and share departmental and campus missions. We have continued to serve the Open Houses, the summer program series for children in all Onondaga County public libraries, and the growing network of nature/science trails, including the new one at the Rosamond Gifford Zoo, which offers possibly a unique slant to zoo education. Initiating an improved natural history experience for Chittenango Falls State Park visitors, at the request of its staff is yet another example of enlarging influence and recognition.

#### Personal professional growth

Efficiency is a word I would choose to use in this context although shrewdness comes to mind as well. This evidenced by the documented products and programs. Certainly, there have been the traditional lines of growth, some acquired in unexpected quarters by renewing efforts to rub shoulders with colleagues on and off campus and to network with professionals in other organizations. For all of us, the literature is always a source of expanded learning and wisdom; I am no exception. However, I would point up one of my more fruitful pathways. The graduate seminars I offer each semester have in retrospect probably done more for my professional growth than through other means. Engaging sharp minds and exuberant idealism in debating and addressing contemporary issues presented by noted authors and editors within entire books and within the context of communication and the relevant science of the day exercises critical thought. This tends to keep one at the front and sometimes even ahead of the professional curve.

### **Martin A. Schlaepfer**

#### Students

My primary contributions to ESF's students came in the form of mentoring and teaching. My proudest accomplishments in mentoring has been getting to know students more personally, understanding their personal aspirations and shunting them in directions that will help them reach their career goals. For example, Tim McCoy expressed interest in getting some research experience to be more competitive for grad school and I pointed him in the direction of the UMEB program, to which he was accepted. John Vanek was my undergrad TA for Herpetology, and I was able to put him in touch with a friend who is a faculty at Chase University, and who offered him a paid research assistant position working on amphibians for the summer. In Fall 2008 I taught Herpetology (53 students) for the first time and in Spring 2009 I co-taught Evolution (177 students). Finally, I anticipate that the three graduate students (Bendz, Shoemaker, Helenbrook) will get a significant professional boost from our manuscript (Bendz et al. in prep.) and website ([www.esf.edu/efb/consbiograd/moveit/](http://www.esf.edu/efb/consbiograd/moveit/)) to evaluate the suitability of species for assisted migration. Finally, as of this summer, I am pleased to be the faculty contact for the Society for Conservation Biology student chapter.

#### Department/College

My primary contributions to EFB have been to initiate a new course for incoming graduate students. In an earlier survey, graduate students had complained of the department's balkanized structure and being unfamiliar with most faculty and graduate students. The new core course should create a strong sense of cohort that will last among EFB's graduate students for their entire professional careers. Furthermore, by introducing incoming graduate students to most faculty members, they will become more aware of the department's intellectual and technical resources. The core course will allow graduate students to create

networks of peers and mentors that they can tap into for the various needs, thus reducing their dependence on their own advisor. In creating a cohort, one also highlights the work and accomplishment of the best graduate students, thereby raising the bar for all. As a result, I am hopeful that this new Core Course (coordinated with Kim Schultz's core skill course) will go a long way to improving the social cohesion and caliber of our future graduate students. In addition, I was an active member of the Graduate Program Advisory Committee; responsible for the Cranberry Lake Undergraduate Research Fellowship; and I assisted the department/college in raising its profile by helping out at Open Door events and giving five invited seminars at the University of Washington, Las Cruces OTS field station (Costa Rica), Clarkson University, Utica College, and the University of Neuchatel (Switzerland) and University of Zurich (Switzerland).

#### For Self

This year has been a particularly stimulating and successful year of research for the Schlaepfer lab in Evolutionary Conservation Biology. I am particularly proud of the number (10) and quality (four of the department's top 15 applicants) of graduate student applicants to my lab. I made three offers, two of which accepted (David Taylor for PhD and Meredith Atwood for M.S.). In addition, Madeline Turnquist (current M.S. student) has made great progress in her project to predict methyl-mercury concentrations in NY state lakes. Last year's work has resulted in three peer-reviewed papers, one peer-reviewed book chapter, and a letter in Trends in Ecology and Evolution. I am proud of the fact that two papers have undergraduate students (from the University of Texas) as first authors and plan to continue this model of training promising undergraduate students in independent research. In fact, a promising undergraduate student (Lynne Beaty) has set up a nice experiment to evaluate the effect of water current and predators on lateral line development in tadpoles. This work will likely result in 1-2 papers, and hopefully propel Lynn into the very best graduate schools. The growing number of intelligent and enthusiastic students joining the lab will hopefully continue to make research both fun and productive.

### **Kimberly L. Schulz**

#### Students

This year my contributions to students were in revising and developing courses, and advising and mentoring of undergraduate and graduate students. First, over sabbatical, with a break from teaching, I had more time to reflect on the content and format of the limnology course. In response, this year I greatly revised my limnology laboratory and developed an independent project component that I believe was a great success. I submitted course revision proposals for both Limnology and Limnology Laboratory, and am entirely overhauling the laboratory manual for this coming year. In addition, I developed a new graduate professional skills seminar that will now be incorporated into a 2 semester seminar for new students, which Martin Schlaepfer and I are developing. I am also serving as advisor to the Nautilus Club and to two UMEB students. Finally, my graduate students and I continue to work on many projects and succeeded in obtaining grants, co-authoring papers, and attending meetings, contributing to their professional development. Juliette Smith (co-advised by Greg Boyer) successfully defended her Ph.D. thesis and is now a postdoctoral fellow at Woods Hole Oceanographic Institute. Two students in my lab group (Brandy Brown, co-advised by Neil Ringler and Daniele Baker, co-advised by Myron Mitchell) received grants from Sigma Xi and Edna Bailey Sussman.

#### Department/college

On return from sabbatical I became involved in several department efforts. First, I am a member of the Graduate Program Advisory Committee. Second, I assisted with the assessment efforts for both the Environmental Biology and the Aquatic and Fisheries Science majors. Third, I served on the Cellular and Molecular Biology search committee in EFB. Fourth, along with graduate student Jacob Gillette I resurrected the aquatics seminar, AquaBreak, which serves ESF and Syracuse University as a forum for

talks and discussions by graduate students, staff and faculty related to aquatic science. Finally, I am helping co-ordinate efforts to organize the aquatics group within EFB and to obtain funding for restoring the aquatics experimental facilities. I am considering how best to participate in department and college-level service over the next several years.

#### Professional self

This year I have focused on completing experiments and analyses for several projects, and making sure publications from graduate student work and past grants are completed. We have had several major successes in the lab and field this year that I think will result in some interesting manuscripts (now in the pipeline for this summer and fall). I updated my statistical programming skills by participating in the R workshop on campus. I have been developing a plan for transition to some new projects and submission of additional proposals and projects this year. In addition, I've been working with some former colleagues to write some potentially high profile review papers. Finally, I believe I have successfully avoided the infamous PSD (post-sabbatical depression) and am glad to have had the opportunity to revitalize my teaching and research program.

### **William M. Shields**

#### Students

This fall I taught the freshman honors seminar by myself for the first time. I did have the able help of two colleagues as Chris Nomura and Tim Toland gave superb guest lectures. The course was designed to provide the students with the experience of doing research on different aspects of energy use and presenting an evaluation of each to the group as a whole. The students found it to be a successful course that was stimulating and useful. I enjoyed it tremendously and actually feel a little guilty about being able to interact with our best and brightest every week. I continue to spend lots of my time as official and unofficial advisor to numerous students and this year finished three of my own graduate students. I continue to be asked to write letters for numerous students from this year's grads and numerous former students as well.

#### Department/College

I acted as coordinator and reviewer of petitions associated with field programs. On average, I discuss the issue and review petitions for about 10-15 students per year. As a member of the Graduate Program Committee I attended meetings and discussed numerous issues associated with our graduate program. The committee agreed to recommend that EFB develop a way to provide larger stipends for our best applicants, something I have sought for 4 or 5 years at the college and more recently the department level, and something I am happy that the department decided to implement this year. Maybe we can continue to lead the college on this issue. I have acted as one of the official mentors to Jesse Brunner. Not much work as he is doing a superb job on his own.

#### Professional

Although I accepted one new and superb Ph.D. student this year, he decided to go elsewhere. Bill Helenbrook switched his plans and will be doing research on primates and their parasites in South America. We recruited Chris Whipps as co-major professor because of common interests and because I thought it would be good for both Will and Chris. Amanda Dillon shared with Barb Hager as co-major professor has gathered all of her data studying the diversity and abundance of solitary bees and wasps in different microhabitats at three rivers WMA for her masters. She is processing data and expects to finish soon. CJ Hazell has gathered all of her data in Kyrgyzstan and is here to finish off her Ph.D. this year. I plan to continue my slowly developing work on my book on the Nature of Adaptation on which I have worked on and off for 20 years. My sabbatical went well as Barb and I conducted library research on teaching field biology and people and nature to set the context for our book. We have begun writing it

(have three chapters completed) and will provide a report in late summer detailing the results. It is still intended to be both philosophical and humorous as teaching in the field often is. It also will use specific projects done by students over the years to illustrate the process and excitement of field biology. I still am ruminating on my book on the nature of adaptation. I believe that its time is coming soon but Barb and I are excited about our first joint work. Finally, I still do some consulting and expert witnessing. I will also continue doing teaching and research in this arena as warranted.

## **Lawrence B. Smart**

### Students

This year, I believe I was particularly diligent in encouraging undergraduate participation in my research programs. I engaged four students in year-long research projects, including one who was awarded a competitive summer research fellowship from the American Society of Plant Biologists and completed one of only three Honors Theses at ESF this year. In addition, I employed another fourteen undergraduate students in part-time research aide positions. I continued to deliver my coursework with a high level of rigor and quality, which is recognized by my students in the high evaluation scores I received. My mean score of 4.3 for EFB325 was close to the highest in my 12 years teaching the course, while my scores of 4.8 for EFB530 and 4.9 for BTC499 were the highest I have ever received. I believe that I served as a compassionate, informed, and reliable advisor of the ~25 undergraduate students who were assigned to me. I believe that I also provided valuable and informed advice to the 13 graduate students on whose steering committees I serve, particularly to Emily Pulley, who defended her M.S. in July 2008 and was immediately hired by Edenspace, a plant biotech firm in Virginia and to Michelle Serapiglia, who has published two papers already and has won multiple awards.

### Department/college

While I have reduced my commitment to departmental and college committees this year relative to previous years, I continue to serve on the Radiation Safety Committee and Institutional Biosafety Committees. I also serve as the Chair of the Lowe-Wilcox Scholarship Committee and helped manage the award process for that and the Zabel Scholarship. For the first half of the year, I served on the EFB Curriculum Committee, helping to guide the discussions on curricular assessment. I served as the supervisor for Bridget McMaster, Instructional Support Specialist. I also served on the mentoring committee for Dr. Jesse Brunner. I believe my strongest contributions have been to advance the positive image and reputation of the department and college through the successes of my research and commercialization program in willow bioenergy crops and through my participation in professional activities as a member of the ASPB Executive Committee and the Editorial Board of BioEnergy Research.

### Self/professional

Over the past year, I have continued to strengthen my international reputation and stature in the field of bioenergy crop research. Publishing three peer-reviewed papers and a book chapter on willow bioenergy crop breeding has contributed to this, as has chairing sessions and presenting papers at two international meetings on bioenergy crops and visiting the top willow breeding/genomics program in the world at Rothamsted Research. Most rewarding has been the recognition of the Plant Genomics Group at the DOE Joint Genome Institute of the need to sequence the willow genome. They asked me and my collaborator, Chris Town (J. Craig Venter Institute), to lead the project, which has been initiated by writing a white paper justifying the selection of a genotype and isolating DNA for next generation sequencing. Finally, I have devoted significant time this year to pursuing a faculty position at another university, which was motivated selfishly to advance my professional career and improve my personal home life.

## **Stephen A. Teale**

John Castello and I have made good progress on our Forest Health textbook. We have edited first or second drafts of most of the chapters and have written various drafts of our own chapters. We are experiencing one anticipated benefit of this project: bringing together ecologists and foresters and finding common ground on issues where previously there appeared to be contradictory views. The book will be a fresh synthesis of the field and has the potential to influence the way students, practitioners and academics view forest health.

Our new course, EFB 217 Peoples, Plagues and Pests was very successful. The enrollment was well beyond our expectations and unsolicited, informal feedback was uniformly positive. Given the amount of work involved in putting a course like this together, the response was encouraging. Our students received rigorous instruction in the history of the non-western world together with an education on the influence of human, plant and animal disease on the course of history, and vice-versa. Their eyes were also opened to the world of invertebrates and microorganisms and the decisive roles they play in human ecosystems. Lastly, the students were clearly grateful that they had expanded options in the 'other world civilizations' category of the General Education requirements.

Another new (for me) course was EFB 351 Principles of Forest Entomology which I taught in the fall semester. This course also had solid enrollment: 65 undergrads and 7 graduate students. I redescribed and restructured the introductory entomology course offerings so that both the Entomology (EFB 352) and Forest Entomology (EFB351) courses have graduate counterparts (EFB 552 & EFB 551, respectively). Pre-enrollments for EFB 352 in fall of 2009 are 72; up dramatically from 47 in 2007. The chemical ecology/conservation biology connection is developing well. One of my grad students, Max Collignon, spent several weeks in the Galapagos studying the chemical ecology of a parasitic fly that is devastating populations of Galapagos finch species. Two newly recruited grad students will begin other chemical ecology projects of conservation concern in the near future.

## **J. Scott Turner**

I would say the most significant thing related both to our students and to the College and Department was the approval of a new course to be taught by me, EFB 200 Physics of Life, which will be offered for the first time in Fall 2009. Bringing the teaching of physics back to ESF from SU has been something I have been proposing for nearly 15 years, beginning with my service on Provost Tully's (now defunct) task force on physics and mathematics education at ESF. For various reasons over the past 15 years, this idea has failed to gain traction. Last year's crisis in accessory instruction opened the way for this recommendation finally to be adopted.

I expect the impact of this course to be significant, for two reasons. One is the direct effect on ESF's budget for accessory instruction. As of the end of Spring 2009, roughly 82 students were enrolled in EFB 200. That has freed roughly 330 accessory instruction credit hours that would have gone to support students taking PHY 101 at SU (roughly \$240,000) and freed those credit hours and monies to support the original, and more desirable, intent of accessory instruction: to enrich educational opportunities for ESF students. I expect these savings to grow with the Fall 2009 matriculation. Second, I intend to use this course as a vehicle for innovative delivery of course materials to students. Over the Spring 2009 semester, I began to compile a variety of video, audio and slide-show productions with the help of Christopher Baycura in ITS. The aim is to have a variety of instructional materials available to students both through the internet and through alternate electronic portals, such as iTunes, YouTube and cell phones. I hope this course will be the test bed for similar developments in a other courses offered at ESF.

On a personal professional level, I have launched two new research initiatives. One, funded by the National Geographic Society, is concerned with water balance issues for the mound building termites I study in Namibia. This has opened up a new range of research questions, which I expect to be the subject of a larger proposal to be submitted to the NSF in July. The other is a collaborative project in swarm intelligence of termites, in partnership with the Neuroscience Department at Nottingham University, and funded by the Neural and Cognitive Sciences section of the US Army Research Office. We have completed our first year of field work on this project. This required a very heavy travel year, with four trips to Namibia.

This past year has been a good publicity year. Africa Geographic has done a feature article on us for their electronic magazine, with an article in their print edition to come out some time in the near future. A crew from Discovery Channel interviewed me in October for a special on animal architecture. I do not know the broadcast date for this program. National Geographic magazine is doing an article on our research, for which they commissioned the award-winning author Lisa Margonelli (Oil on the Brain) for the text and the renowned insect photographer Mark Moffett for the photos. I hosted both Lisa and Mark on our field site this year. They expect the article to appear early in 2010. The Financial Times of London is also doing a story on our work, to come out in the next few weeks.

In November 2008, I was one of the invited speakers at a European Science Foundation workshop on the future of the extended phenotype concept in evolution. I shared that honor with such luminaries as Richard Dawkins, Marcus Feldman, and other leading evolutionary biologists. A critique I wrote last year for *The Christian Century* on Intelligent Design theory and the scientific response to it was selected for inclusion in an anthology, *Best American Spiritual Writing of 2008*. Although there was nothing particularly spiritual about the essay, it was nice to be included with luminary writers like John Updike and others.

I continued to offer my major course, EFB 462 Animal Physiology Environmental & Ecological. Enrollment in this course was up substantially from the previous year. For Spring 2009, I offered my intensive 12 credit research experience in Namibia. It did not attract sufficient attention to run. Most of my "teaching" efforts in Spring 2009 were devoted to preparing materials for the upcoming Physics of Life course. Ben Robedee completed his field work in Namibia for his Master's degree and is making good progress toward his degree. Ms Wendy Park is returning to campus to complete her degree.

I am currently serving as ESF's Senator to the SU Senate. This involves committee service on the Senate Committee on Appointments and Promotions. I continue as an active member of the degree program in Environmental Science. I continue to serve as on the science advisory boards for Nidiant Corporation (an architecture/design firm that was inspired by the ideas in my first book, *The Extended Organism*.)

## **Alexander Weir**

### Teaching

Increasingly, my major focus has been in the organization and delivery of overseas teaching assignments. This past year I have organized trips to Costa Rica, Ireland, and Russia for our students as well as facilitating the exchange of Moscow State University students both to Costa Rica, and the Cranberry Lake Biological Station. These overseas opportunities, while very rewarding, take much time and effort to organize. Because of sabbatical leave absence EFB-440 Mycology, was not taught this past fall, but enrollments for this current fall (09) stand at 59 students, the most I have ever had in this class. The teaching highlight for the year was the honor of being presented with the William H. Weston Award for Excellence in Teaching from the Mycological Society of America (August 2008).

### Research

We have made great strides this past year with the molecular work on the NSF PEET grant. During the fall, while on sabbatical leave, we further refined our DNA extraction and amplification procedures and have had a lot of success in obtaining new sequences for critical taxa. The most exciting breakthrough has been the work (mainly by Lauren Goldmann) focused on the idea of “position specificity” which is of broad appeal. Our results generated this year prove that this is a reality and will underpin much of the taxonomic work in years to come in these fungi. Lauren continues to add sequences this summer (along with help from 2 REU students) and we hope to begin a major manuscript in the early fall.

### Service

My major contribution to EFB/ESF this past year has been my leadership role as Director of the Cranberry Lake Biological Station. Enrollments at the Station are still rising and we are running at almost full capacity for the summer of 2009. Renovations to the old washroom building to produce a functional molecular genetics research space were more or less completed last August and the research lab is fully staffed for this coming summer with research groups from Indiana State University and Cornell University, as well as our two Cranberry Lake Undergraduate Research Fellowship recipients, and 4 of our UMEB researchers. In March 2009 I submitted an NSF grant proposal for renovations and expansions to the TA Lodge at the Station and we should hear soon whether or not this application has been successful. This would enable us to upgrade accommodation for research teams and would go a long way towards stimulating further research initiatives at the Station.

## **Christopher M. Whipps**

### Overview

Two areas that stand out for me in my most noteworthy accomplishments are my involvement in the departmental curriculum committee’s educational assessment plan and my development of the new introductory General Biology II. In both of these cases, the contributions to ESF/EFB, students, and my own professional development cannot be divided. A primary goal for this annual year was to bring an assessment based teaching pedagogy to Gen Bio II, and this way of thinking was cast into the spotlight when the college required an assessment plan for all of our majors. I found this useful as I contributed to the assessment plans of the majors for which I’m directly involved (AFS & BTC), as well as other majors in my role on the CCAC. I believe this will set the tone for our department and students in the years to come and I am pleased to have been involved from the beginning to end.

### Students

In addition to my duties as an undergraduate student advisor, I found myself in the role of an informal advisor for several students enrolled in my classes. From my molecular techniques class for example, I advised 5 students, writing 19 letters of recommendation. One student is now accepted to a graduate program and 3 others have summer internships. In my laboratory, 6 undergraduate students had opportunities to be involved in my research, one of which is now employed in my lab for the summer and another will be taking on an honors thesis in her senior year. I have informally advised 6 graduate students on their projects on topics ranging from infectious disease to molecular biology. Perhaps the achievement for which I am most pleased is EFB103. For a new course offering, I believe it went largely as I had anticipated and based on student reviews was generally well received. I look forward to continuing to improve this foundational course in EFB.

### Department

My role in curriculum assessment is perhaps the most notable achievement relating directly to EFB as mentioned above. I also served on the Graduate Program Advisory Committee (GPAC), Space Committee, and most recently the Cell Biologist search committee.



### Professional

This year I was invited to speak at 2 conferences; a regional wildlife conference and at the National Institutes of Health. I attended 3 other conferences regionally and nationally. A huge area of professional development for me this year was with my teaching. I was able to implement many of the ideas, technologies, and methodologies I have often thought about, for the first time in 2 full courses. I am pleased with the progress here and will continue to build and adapt these courses. In research, 2 small grants were accepted for funding, both of which will build a foundation of data for larger future proposals on animal disease and wildlife population genetics.

## Appendix C. Faculty Publications (published or in press; papers in review not included)

### Books

- Müller-Schwarze, D. 2009. *Hands-on Chemical Ecology. Simple Field and Laboratory Exercises*. Springer (in press, expected publication August 2009).
- Porter, W. F., J. D. Erickson and R. S. Whaley. 2009. *The Great Experiment in Conservation: Voices from the Adirondack Park*. Syracuse University Press. Syracuse, NY. 622 pp.
- Turner, J.S. In press. (Japanese language edition) *The Tinkerer's Accomplice. How Design Emerges from Life Itself*. Seidosha. (expected publication March 2009)

### Refereed Publications

#### **Lawrence P. Abrahamson**

- Cameron, K.D., Phillips, I.J., Kopp, R.F., Volk, T.A., Maynard, C.A., Abrahamson, L.P., and Smart, L.B. (2008) Quantitative genetics of traits indicative of biomass production and heterosis in 34 full-sib F<sub>1</sub> *Salix eriocephala* families. *Bioenergy Research* 1:80-90.
- Goodrich-Mahoney, J.W., L.P. Abrahamson, J. Ballard and S. Tikalsky (editors). 2008. Environmental Concerns in Rights-of-Way Management 8<sup>th</sup> International Symposium, Sept. 12-17 2004, Saratoga Springs, NY. Elsevier, 855p.
- Volk, T.A., T. Verwijst, P.J. Tharakan, L.P. Abrahamson, and E.H. White. (in press). Are Short-Rotation Woody Crops Sustainable? 2<sup>nd</sup> World Conference and Technology Exhibition on Biomass for Energy, Industry and Climate Protection. May 10 – 14, Rome, Italy.
- Volk, T.A., L.P. Abrahamson and E.H. White. (in press). Integration of Cover Crops During the Establishment of Short-Rotation Woody Crops. 2<sup>nd</sup> World Conference and Technology Exhibition on Biomass for Energy, Industry and Climate Protection. May 10 – 14, Rome, Italy.

#### **Jesse L. Brunner**

- Brunner, J. L., and R. S. Ostfeld. 2008. Multiple causes of variable tick burdens on small-mammal hosts. *Ecology* 89:2259-2272.
- Greer, A. L., J. L. Brunner, and J. P. Collins. 2009. Spatial and temporal patterns of *Ambystoma tigrinum* virus (ATV) prevalence in tiger salamanders (*Ambystoma tigrinum nebulosum*). *Diseases of Aquatic Organisms* 85 (in press).

#### **John D. Castello**

- Teale, S.A., Letkowski, S.K., Matusick, G., Stehman, S.V., and Castello, J.D. 2009. Quantitative, nondestructive, assessment of beech scale (Hemiptera: Cryptococcidae) density using digital image analysis of wax masses. *Env. Entomol.* (in press).

#### **Danilo D. Fernando**

- Fernando DD, Quinn CR, Brenner E, Owens JN. Male gametophyte development and evolution in gymnosperms. Invited Review. *International Journal of Plant Developmental Biology* (in press).
- Fernando DD, Zhang S. 2008. Characterization and heterologous expression of SLF, a functional homolog of the floral regulator LEAFY/FLORICAULA from *Salix discolor*. *International Journal of Plant Developmental Biology* 2:92-99.
- Wang BY, JR Su, DD Fernando. 2008. Development of the male reproductive structures in *Taxus yunnanensis*. *Plant Systematics and Evolution* 276:51-58.

**Melissa K. Fierke**

M.B. Kelley, M.K. Fierke, F.M. Stephen. 2009. Identification and distribution of *Armillaria* species associated with an oak decline event in the Arkansas Ozarks. *J. Forest Pathology*. doi: 10.1111/j.1439-0329.2009.00600.x

**Jacqueline L. Frair**

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 Wolf, M., Frair, J., Merrill, E., and Turchin, P. (in press) The attraction of the known: the importance of spatial familiarity in habitat selection in wapiti (*Cervus elaphus*). *Ecography*

**James P. Gibbs**

Tierney, G.L., D. Faber-Langendoen, B.R. Mitchell, W.G. Shriver, and J.P. Gibbs. 2009. Monitoring and evaluating the ecological integrity of forest ecosystems. *Frontiers in Ecology and the Environment* (in press).  
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**Charles A.S. Hall**

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 Hall, C.A.S., Balogh, S., Murphy, D.J.R. 2009. What is the Minimum EROI that a Sustainable Society Must Have? *Energies*, 2:25-47.  
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- “The Grammar of Animacy” in press, in “The Colors of Nature” edited by Alison Hawthorn Deming and Laurette Savoy
- “The Giveaway” in press, in “For All Time” edited by Kathleen Dean Moore and Michael P. Nelson
- “Listening to Rain” in press, in “Precious Attention” edited by Thomas Fleischner

### **Karin E. Limburg**

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### **Stacy A. McNulty**

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**Martin A. Schlaepfer**

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**Kimberly L. Schulz**

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### Alexander Weir

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## Appendix D. Papers Submitted, In Review, Pending Decision

### Lawrence P. Abrahamson

Kiernan, B.D., T.A. Volk, J. Gingerich, L.P. Abrahamson, and E.H. White. (Submitted). An evaluation of chips from willow shrubs (*Salix* spp.) grown in short-rotation intensive culture as a carbon source for composting layer manure. *Bioresource Technology*.

### Guy A. Baldassarre

Abundance and Distribution of Waterbirds in the Llanos of Venezuela. Submitted to the *Wilson Journal of Ornithology*

Fate of Captive-reared Mallards released on Long Island, New York. Submitted to *Human-Wildlife Conflicts*

### Jesse L. Brunner

Brunner, J.L., and J.P. Collins. 2009 (in review). Testing the trade-off theory of the evolution of parasite virulence. *Evolutionary Ecology Research*

Greer, A.L., D.M. Schock, J.L. Brunner, R.A. Johnson, A.M. Picco, S.D. Cashins, R.A. Alford, L.F. Skerratt, and J.P. Collins. 2009 (in review). Guidelines for the safe use of disposable gloves with amphibian larvae in light of pathogens and possible toxic effects. *Herpetological Review*

### Martin Dovciak

Sprugel D.G., Grieve K.A., Gersonde R., Dovciak M., Lutz J.A., and Halpern C.B. 200x. Spatially explicit modeling of overstory manipulations in dense, young forests: effects on stand structure and light. *Ecological Modelling* (in review).

### John M. Farrell

B.F. Kelder and J.M. Farrell. 2009. A spatially-explicit model to predict walleye spawning in a Eastern Lake Ontario tributary. *North American Journal of Fisheries Management* (revised, pending decision).

Farrell, J.M., K.T. Holeck, E.L. Mills, C.E. Hoffman, and V.J. Patil. 2009. Recent ecological trends in lower trophic Levels of the International Section of the St. Lawrence River: A Comparison of the 1970s to the 2000s. *Hydrobiologia* (in review).

Farrell, J.M., B.A. Murry, D.J. Leopold, A. Halpern, M. Rippke, K.S. Godwin, and S.D. Hafner. 2009. Water level regulation and coastal wetland vegetation in the upper St. Lawrence River: Inferences from historical aerial imagery, seed banks, and *Typha* dynamics. *Hydrobiologia* (in review).

J. Toner, J. M. Farrell, and J.V. Mead. 2009. Muskrat house abundance responses to regional-scale water regulation within freshwater coastal wetlands. *Wetlands* (in review).

### Danilo D. Fernando

Owens JN, Kittirat T, Fernando DD. Factors affecting seed production in *Pinus monticola* and *P. albicaulis*. Proceedings of the Breeding and Genetic Resources of Five-Needle Pines Conference in Yangyang, Korea. IUFRO Working Party 2.02.15. (in review).

### Melissa K. Fierke

M.K. Fierke, F.M. Stephen. Historic populations of red oak borer (Coleoptera: Cerambycidae) in living northern red oaks from the Boston Mountains of Arkansas. *Canadian Journal of Forest Research*. In review.

M.K. Fierke, F.M. Stephen. Variation in phenolic composition of oaks attacked by red oak borer, *Enaphalodes rufulus* (Haldeman) (Coleoptera: Cerambycidae) a native wood-boring beetle. *J. Chem. Ecol.* In revision.

**Jacqueline L. Frair**

- Van Moorter, B., Visscher, D.R., Jerde, C.L., Frair, J.L., and Merrill, E.M. (in review) Identifying movement states from location data using cluster analysis. *Journal of Wildlife Management*.
- Frair, J., Fieberg, J., Cagnacci, F., Hebblewhite M., DeCesare, N., and Pedrotti, L. (in review) Plentiful but problematic: resolving issues of bias and error in ecological analyses using satellite-based animal location data. *Philosophical Transactions of the Royal Society B*.
- Fieberg, J., Boyce, M.S., Matthiopoulos, J., Hebblewhite, M., and Frair, J. (in review) Autocorrelation and studies of habitat selection: problem, red herring or opportunity? *Philosophical Transactions of the Royal Society B*.
- Beyer, H.L., Haydon, D.T., Morales, J.M., Frair, J., Hebblewhite, M., Merrill, E.H., Boyce, M.S., Mitchell, M., and Matthiopoulos, J. (in review) Habitat preference: understanding use versus availability designs. *Philosophical Transactions of the Royal Society B*.

**Charles A.S. Hall**

- Gagnon, N., C. A.S. Hall and L. Brinker (Accepted pending revisions). A Preliminary Investigation of Energy Return on Energy Investment for Global Oil and Gas Production. *Energies*
- Murphy, D.J.R., M. Hall, C.A.S. Hall, G. Heisler, and S. Stehman. The relationship between land-cover and the urban heat island in northeastern Puerto Rico. *International Journal of Climatology* (in revision).

**Thomas R. Horton**

- Van der Heijden, Horton. (in review) Socialism in soil? About fungi that have the ability to help plants irrespective of their size, status or identity. *Journal of Ecology* (invited review).

**Donald J. Leopold**

- Newhouse, A.E., J.P. Gibbs, L.B. Smart, and D.J. Leopold, A molecular genetic and fitness evaluation of commercial and locally collected *Lupinus perennis* L. (blue lupine) seeds for use in *Lycaeides melissa samuelis* Nabokov (Karner blue butterfly) restoration efforts. *Restoration Ecology* (in revision)
- Farrell, J.M., B.A. Murry, D.J. Leopold, A. Halpern, M. Rippke, K.S. Godwin, and S.D. Hafner. 2009. Water level regulation and coastal wetland vegetation in the upper St. Lawrence River: Inferences from historical aerial imagery, seed banks, and *Typha* dynamics. *Hydrobiologia* (submitted).

**Karin E. Limburg**

- Limburg, K.E., and M. Elfman. 2009. Oscillatory patterns of zinc in otoliths support the recent phylogenetic typology of Salmoniformes and their sister groups. *Canadian Journal of Fisheries and Aquatic Science* (submitted).
- Limburg, K.E., and J. R. Waldman. 2009. Dramatic declines in North Atlantic diadromous fishes. *BioScience* (accepted pending revision).
- Limburg, K.E., V. Luzadis, M.M. Ramsey, K.L. Schulz, and C.M. Mayer. The good, the bad, and the algae: ecosystem services and disservices generated by zebra and quagga mussels. *Journal of Great Lakes Research* (in review)
- Yu, F., and K.E. Limburg. 2009. Decoupling of grain production from land resources in China: land use is reduced but fertilizer and water use is intensified. *Ambio* (in review)

**Mark V. Lomolino**

- Lomolino, M.V. (in review). Four Darwinian themes on the origin, evolution and preservation of island life. *Journal of Biogeography*.

**James P. Nakas**

Zhu, Chengjun, C.T. Nomura, J.A. Perrotta, A.J. Stipanovic, and J.P. Nakas. 2009. Production and characterization of poly-3-hydroxybutyrate from biodiesel-glycerol by *Burkholderia cepacia* ATCC 17759. Biotechnol. Prog. (submitted).

**Roy A. Norton**

Seniczak, S., Norton, R.A. and Seniczak, A. Morphology of *Eniochthonius minutissimus* (Berlese, 1904) and *Hypochthonius rufulus* C. L. Koch, 1835 (Acari: Oribatida: Hypochthonioidea). Submitted to Zoologisches Anzeiger April 2009.

Illig, J., Norton, R.A., Scheu, S. and Maraun, M. Density and community structure of soil and bark living microarthropods along an altitudinal gradient in a tropical montane rainforest. Submitted to Biotropica, April 2009.

Heethoff, M. and Norton, R.A. Functional morphology turns over a new leaf: the use of synchrotron X-ray microtomography (SR- $\mu$ CT) for three-dimensional biomechanical modeling of chelicerate mouthparts and calculation of theoretical bite forces. Submitted to Proc. Roy. Soc. London (B) April 2009.

**Dylan Parry**

Woods, D.M., D. Parry, and R.D. Yanai. Forest fragmentation and duration of forest tent caterpillar (*Malacosoma disstria* Hübner) outbreaks in northern hardwood forests. Forest Ecology and Management (submitted 05/09)

**Neil M. Ringler**

Murray, B. A. M. J. Connerton, R. O’Gorman, D.J. Stewart and N.H. Ringler. Lake-wide estimates of alewife biomass and chinook salmon abundance and consumption in Lake Ontario, 1989-2005: Implications for prey fish sustainability. Submitted: Transactions American Fisheries Society.

**Kimberly L. Schulz**

Smith, J.L., K.L. Schulz, P.V. Zimba and G.L. Boyer. 2009 in review. Possible mechanism for the food-web transfer of covalently-bound microcystin-LR and -LY.

Qin, P., C.M. Mayer, K.L. Schulz, and X. Ji. 2009 in review. Invasive filter feeders and nutrient reductions: synergistic effects on benthic primary producers.

**Alex Weir**

Rossi, W., and A. Weir (submitted). New species of Stigmatomyces from Asia. Submitted to Mycologia  
Thompson, L. and A. Weir (submitted). Laboulbeniales on Elateridae (Coleoptera); a review. Submitted to Mycologia

Goldmann, L. and A. Weir (submitted). Two new species of Ilyomyces from New York. Submitted to Mycologia

## Appendix E. Papers/Posters Presented at Science Meetings

### Lawrence P. Abrahamson

- White, E.H., L.P. Abrahamson, T.A. Volk, L.B. Smart and T.E. Amidon, “WOODY BIOMASS FEEDSTOCK”, Biomass and Bioenergy for the Great Lakes Economy, Queen’s University, Kingston, Ontario, Jun 9, 2008.
- Abrahamson, L.P., T.A. Volk, L.B. Smart, E.H. White, T.E. Amidon and A.J. Stipanovic. 2008 Willow Biomass as Part of a Renewable Energy Crop System, Special invite from Michigan Technological University, Houghton, MI Jun 24, 2008.
- Volk, T.A., L.P. Abrahamson, T. Amidon, D. Aneshansley, K. D. Cameron, G. Johnson, John Posselius, D. Rak, L.B. Smart, E. Spomer, E.H. White. 2008. Commercializing Willow Biomass Crops for Bioenergy and Bioproducts in the Northeastern and Midwestern United States. Short Rotation Crops International Meeting Bloomington, MN August 19 – 21, 2008
- Kelleher, M.J., T. Buchholz, T.A. Volk, and L.P. Abrahamson. 2008. Economics of Willow Biomass Production and Policy to Enhance Market Penetration. Short Rotation Crops International Conference, Bloomington, Minnesota, USA, August 19-21, 2008.
- Abrahamson, L.P., T. A. Volk, E. Priepke, J. Posselius, D.J. Aneshansley and L.B. Smart. 2008. Development of a Willow Biomass Crop Harvesting System in New York. Short Rotation Crops International Conference, Bloomington, Minnesota, USA, August 19-21, 2008.
- Volk, T.A., L. Abrahamson, L. Smart, E. White, T. Buchholz, P. Castellano, and K. Cameron. 2008. Woody Biomass from Willow and Natural Forests for Bioenergy, Bioproducts and Biofuels. NE Renewable Energy Conference, State College, PA, August 26 – 28.
- Volk, T.A., L.P. Abrahamson, L. Smart, T. Buchholz, K. Cameron, E. White. 2008. Willow Biomass Production and Economics. Performance Plants, Kingston, ON, September 17.
- Volk, T.A., L.P. Abrahamson, T. Buchholz, M. Kelleher, and L.B. Smart. 2008. Economic sustainability of willow biomass crops. Sustainable Production & Supply of Biomass in NY Conference, Oswego BOCES - Mexico, NY, November 12 – 14.
- E.H. White, L.P. Abrahamson, T.A. Volk, R.H. Germain and P.J. Castellano, Current State of Forest Inventory in New York, The Forest Biomass Discovery Workshop, Queen’s University, Kingston, On, March 7, 2009.
- Volk, T.A., L.P. Abrahamson, T. Amidon, T. Buchholz, P. Castellano, L. Smart, and E. White. 2009. Woody Biomass: Sources, Sustainability and Status of Markets. NY Society of American Foresters, Syracuse, NY, January 28 – 30.
- White, E.H., L.P. Abrahamson, T.A. Volk, L.B. Smart and T.E. Amidon, The Salix Program in the Northeast. 14th Annual Ethanol Conference, San Antonio, TX, February 22 – 26, 2009.
- Volk, T.A., L.P. Abrahamson, T. Amidon, D. Aneshansley, K. D. Cameron, G. Johnson, J. Posselius, D. Rak, L.B. Smart, E. Spomer, E.H. White. 2009. Developing Willow Biomass Crops for Bioenergy and Bioproducts in the Northeastern and Midwestern United States. Sun Grant Energy Conference Washington, DC, March 10 – 13.
- Volk, T.A., L.P. Abrahamson, T. Amidon, D. Aneshansley, T. Buchholz, K. D. Cameron, G. Johnson, J. Mirck, J. Posselius, D. Rak, L.B. Smart, E. Spomer, E.H. White. 2009. Willow Crops: Research Update and Opportunity, Saskatoon, SK March 17 – 18.
- Volk, T.A., T. Buchholz, P. Castellano, L. Abrahamson, and L. Smart. 2009. Heating the Northeast. Nashua, NH, April 29 – 30.

### Jesse L. Brunner

- Brunner, J.L. and R.S. Ostfeld. An experimental examination of the strength of interspecific interactions in small mammal communities in forest of the Northeast. Ecological Society of America, Milwaukee, WI. August 2008.
- Brunner, J.L. Very preliminary update on ranaviruses in New York State. Emerging Wildlife Diseases: Threats to Amphibian Biodiversity Annual Meeting. Tempe, AZ November 2008.

### **John M. Farrell**

- J.M. Casselman, T. Lusk, J. M. Farrell, and C. Lake. 2008. Muskellunge die-off in the upper St. Lawrence River caused by viral hemorrhagic septicemia, 2005-2008: Impacts and consequences. American Fisheries Society Annual Meeting, Ottawa, Canada.
- G.E Eckerlin, J.M. Farrell, Casey RN, Hope KM, Bowser PR, Casey J and Groocock GH. 2008. Round goby mediated viral distribution and impacts to smallmouth bass in the St. Lawrence River. American Fisheries Society Annual Meeting, Ottawa, Canada.
- K.L. Woodside and J.M. Farrell. 2008. Development and application of models predicting young of the year muskellunge presence and abundance from nursery features. American Fisheries Society Annual Meeting, Ottawa, Canada.
- B.F. Kelder and J.M. Farrell. 2008. A spatially-explicit model to predict walleye spawning in an Eastern Lake Ontario tributary. 2008 American Fisheries Society Annual Meeting, Ottawa, Canada.
- J. M. Farrell, Long term research and management of St. Lawrence River muskellunge (*Esox masquinongy*). 2008. Queen's University Biological Station Seminar Series, August 2008 (Invited speaker).
- G.E Eckerlin, JM Farrell, Casey RN, Hope KM, Bowser PR, Casey J and Groocock GH. 2009. Great Lake Research Consortium's Great Lakes Goes to Albany Day 2009, Outstanding Student Poster entitled, "A New Great Lakes Virus (VHSV) in St. Lawrence River Sportfish: Monitoring Lessons and Linkages to an Invasive Species. April 2009 (won Best Student poster award).
- G.E Eckerlin, JM Farrell, Casey RN, Hope KM, Bowser PR, Casey J and Groocock GH. 2009. A New Great Lakes Virus (VHSV) in St. Lawrence River Sportfish: Monitoring Lessons and Linkages to an Invasive Species. SUNY-ESF Student-Faculty Conference (poster presentation).
- G.E Eckerlin, JM Farrell, Casey RN, Hope KM, Bowser PR, Casey J and Groocock GH. 2009. Viral hemorrhagic septicemia virus among smallmouth bass and round goby in the St. Lawrence River: Monitoring implications and potential reservoir hosts. 16th Annual International Conference on the Great Lakes/St. Lawrence River Ecosystem, St. Lawrence Institute, Cornwall, Ont, Canada.

### **Danilo D. Fernando**

- Fernando DD. Genetic improvement of loblolly pine through pollen transformation coupled with artificial pollination. Consortium of Plant Biotechnology Research, Inc. Annual Meeting. George Washington University, Washington DC. February 9-11, 2009.
- Fernando DD and JN Owens. A proteomic approach to identify differentially expressed proteins in sterile pollen cones of western white pine (*Pinus monticola*). The Breeding and Genetic Resources of Five-Needle Pines Conference in Yangyang, Korea. IUFRO Working Party 2.02.15. September 22-26, 2008.
- Owens JN, Kittirat T, and Fernando DD. Factors affecting seed production in *Pinus monticola* and *P. albicaulis*. The Breeding and Genetic Resources of Five-Needle Pines Conference in Yangyang, Korea. IUFRO Working Party 2.02.15. September 22-26, 2008.

### **Melissa K. Fierke**

- F.M. Stephen, M.K. Fierke, J. M Guldin, L.J. Haavik, J. J. Riggins and J. A. Tullis. 06/08. Red oak borer as an agent of change in Arkansas forests: an historical perspective. Invited presentation in a symposium entitled "Impacts of insects on forest landscapes: implications for forest health management". International Congress of Entomology, Durban, South Africa. Oral presentation.
- M.K. Fierke, C. Landis, M. O'Brien, J. Riddle, N. Werner, R. Germain. 08/08. Economic and ecological impacts of emerald ash borer and *Sirex noctilio*. Annual meeting of the Ecological Society of America. Milwaukee WI. Oral presentation.
- M.K. Fierke. 10/08. Emerald ash borer: Status, biology, impacts, and current research. Invasive Non-Native Forest Pest Conference. Ithaca, NY. Oral presentation.

- P.T. Eager, D.L. Allen, M.K. Fierke. Investigating the *Sirex noctilio* (Hymenoptera: Siricidae) – parasitoid complex in central New York. Poster.  
Presented at: Finger Lakes Conference. 10/08. Canandaigua, NY.
- P.T. Eager, D.L. Allen, M.K. Fierke. Optimal sampling of the *Sirex noctilio* (Hymenoptera: Siricidae)-parasitoid complex in Central New York State. Poster. Presented at: Eastern Branch Meeting of the Entomological Society of America. 03/09. Harrisburg, PN.
- P.J. Rockermann, C.L. Landis, M.K. Fierke. Tree composition of New York riparian forests in advance of emerald ash borer. Poster. Presented at: Finger Lakes Conference. 10/08. Canandaigua, NY.
- G. Williams, M.K. Fierke. 4/09. Dendroentomological evidence of *Sirex noctilio* oviposition. ESF Spotlight on Student Research. Syracuse, NY. Poster.
- N. Werner, D. Parry, M.K. Fierke, DC. Allen. 4/09. Assessing native parasitoid influences on an introduced wood-boring wasp, *Sirex noctilio*. ESF Spotlight on Student Research. Syracuse, NY. Poster.

### **Jacqueline L. Frair**

- “Modeling the cumulative effects of wolves and industrial activities on habitat effectiveness for elk in the Rocky Mountains of Alberta, Canada” – The Wildlife Society annual conference, Miami, FL
- “Coyote foraging ecology in NY State” (poster) – The Wildlife Society, Miami, FL (delivered by C. Boser)
- “Thresholds in landscape connectivity and mortality risks for elk in response to growing road networks” – The 8th Western States and Provinces Deer and Elk Workshop, Spokane, WA (delivered by coauthor)

### **Charles A.S. Hall**

- Energy return on investment and our economic future. Invited plenary speaker: 33rd International Geological Congress, Oslo, 5-14 August 2008
- Economic implications of changing EROI ratios. Invited plenary talk. International Association for the study of Peak Oil. Barcelona, Spain October 2008.
- Ecological Society of America Albuquerque NM.

### **Thomas R. Horton**

- Núñez, Horton, Simberloff. Lack of mutualisms as barrier for Pinaceae invasion. Talk presented at the 2008 Ecological Society of America annual meeting, Milwaukee, Wisconsin
- Rumburg, Moskalenko, Muska. Horton. The Invasive Orchid *Epipactis helleborine* is Associated with Truffle spp. (Tuber -- Ascomycota) in New York State. Poster presented at the 2008 Mycological Society of America annual meeting. College Station, Pennsylvania. Note: The three early authors were undergraduates working in my lab.
- LeDuc, Horton, Rothstein. Ectomycorrhizal community change along a post-wildfire chronosequence of Michigan jack pine stands. Poster Presented at the 2008 Soil Science Society of America Meeting, Houston TX.
- Rumburg, Moskalenko, Muska. Horton. The Invasive Orchid *Epipactis Helleborine* is Associated with Truffle spp. (Tuber -- Ascomycota) in New York State. April 2009. Spotlight in Student Research. SUNY-ESF.
- Sztechmiller, Horton. Who is there now? A look at the fungal community on *Pinus resinosa* planted on iron mine tailings 20 years ago. April 2009. Spotlight in Student Research. SUNY-ESF.

### **Robin W. Kimmerer**

- Keynote Address: International Society for Environmental Philosophy, Pittsburgh, PA 10/19/08

### **Karin E. Limburg**

- Hyde K, Hall MH, Hong B, Luo LL, Mountrakis G, Groffman PM, Myers SJ, Limburg KE.  
Transdisciplinary Approaches to Understand and Manage Spreading Impervious Surface Areas, Part

I: Assessing the Causes of Sprawl. Poster presentation, Syracuse Center of Excellence 8th Annual Conference on Energy and Environmental Systems, Sept. 29-30 2008, Syracuse, NY.

Hong B, Hyde K, Hall MH, Groffman PM, Kelly V, Luo LL, Mountrakis G, Limburg KE. Transdisciplinary Approaches to Understand and Manage Spreading Impervious Surface Areas, Part I II: Modeling the Impacts on Streamflow and Water Quality. Poster presentation, Syracuse Center of Excellence 8th Annual Conference on Energy and Environmental Systems, Sept. 29-30 2008, Syracuse, NY.

Limburg KE, Groffman PM, Hall MH, Hong B, Hyde K, Luo L, and Mountrakis G. An Integrated Monitoring/Modeling Framework for Assessing Human-Nature Interactions in Urbanizing Watersheds: Onondaga and Wappinger Creeks, New York. December 4, Syracuse Center of Excellence, Syracuse, NY

Limburg, KE. Overview for Workshop on Nitrogen Loading, Hypoxia, and Fisheries. American Society of Limnology and Oceanography, Ocean Sciences Meeting, January 25 2009, Nice, France.

Limburg, KE. Migration patterns in anguillid eels. Presented at ICES Study Group Meeting on Eels in Saltwater, March 16-17, Sackville, New Brunswick, Canada.

Limburg KE, and JR Waldman. Dramatic declines in North Atlantic diadromous fishes. Oral presentation, North American Benthological Society, May 18 2009, Grand Rapids, MI.

### **Mark V. Lomolino**

“The Reticulated Phylogeny of Island Biogeography Theory.” Harvard University – Island Biogeography at 40 Symposium, 2008.

“The Elder’s Parable: Biogeography and Conserving the Natural Character of Species.” Annual Sheppe Lecture, University of Akron, April, 2008.

“On the Origin, Evolution and Preservation of Island Life: an Historical and Prospective Overview.” Keynote Address in Honor of Charles Darwin’s Bi-Centennial – Evolutionary Islands 150 Years after Darwin, Leiden, Netherlands, 2009.

### **Kathleen E. McGrath**

Dittman, D.E., K.E. McGrath, and M. Chalupnicki. 2008. “Lake sturgeon distribution, population dynamics, and habitat use in the Oswego River Basin,” Poster presentation, Annual Finger Lakes Region Research Conference, October 18, 2008, Geneva, NY.

### **Stacy A. McNulty**

Signell, S.A., S.A. McNulty, and W.F. Porter. Establishing a relational database for the Adirondack Region. Adirondack Research Consortium, May 21, 2009, Lake Placid, NY.

### **Myron J. Mitchell**

Plenary Talk at CARTI and TAD Project Presentations and SAC Meetings on “Characterization of Ambient Air Quality in Syracuse, NY and Identification of its Origins. Syracuse, NY. December 5, 2008.

Invited talk at American Geophysical Union in San Francisco, CA on “Discrepancies in Watershed S Budgets in Southeast Canada and Northeast U.S.: A Comparative Mass-Balance Approach”. San Francisco, CA, December 19, 2008.

Center of Excellence Symposium, Syracuse, NY Sept. 29-30, 2008.

Posters:

(1) Mark Omara, Edmund McAddy, Philip Hopke, Thomas Holsen, Myron Mitchell, Shannon Buckley, Patrick McHale, David Lyons, K. Max Zhang, and Glen Lewis. Characterization of the Ambient Air Quality in Syracuse, NY: Monitoring Towers in Residential and Urban Environments

(2) Shannon Buckley, Myron Mitchell, Patrick McHale, Philip Hopke, Max Zhang, Tom Holsen, Edmund McAddy, and Mark Omaram. History of Syracuse Air Quality



(3) Jennifer Ehrhardt, Philip K. Hopke, Thomas Holsen, Edmund Mc-Addy, Xing Wang, K. Max Zhang, Myron Mitchell. Temporal and Spatial Characterization of Ambient Air Quality Near the Syracuse CoE HQ Site in Syracuse, NY

### **Roy A. Norton**

This alkaloid's for you: systematic, evolutionary and ecological aspects of opisthotal gland chemistry in oribatid mites. 16 Nov 2008. Entomological Society of America annual meeting (Reno, NV).

Invited principal speaker at symposium on Advances in Soil Acarology.

Ecology and evolution of animal parthenogenesis: still more questions than answers. 21 May 2009.

Invited plenary talk at conference entitled "Contemporary issues in Biology and Biotechnology", Adam Mickiewicz University, Poznan, Poland.

Two seminars at the National Research Institute of Amazonia (INPA), in Manaus, Brazil, June 2008:

a. "The evolution and consequences of morphological, behavioral and chemical predator-defense systems in oribatid mites"

b. "Evolutionary plasticity of reproductive mode in a group of soil animals: oribatid mites"

### **Dylan Parry**

Invited Symposia Paper: D. Parry. Ghosts of Invasions Past: Non-target Acquisition of Native Lepidoptera by Parasitoids Released to Combat Exotic Tussock Moths in North America. XXIII International Congress of Entomology, Durban, South Africa. July 12-18, 2008.

Invited Symposia Paper: D. Parry, G. Boettner, J. Selfridge, B. Hoven, J. Elkinton. The legacy of Melrose Highlands: Parasitoid drift and its unintended consequences for lepidopteran diversity in New England forests. XXIII International Congress of Entomology, Durban, South Africa. July 12-18, 2008.

J. Elkinton, D. Parry, G. Boettner. Why the browntail moth went extinct in much of its invasive range in North America. XXIII International Congress of Entomology, Durban, South Africa. July 12-18, 2008.

Werner NA, Parry D, Fierke MK, Allen DC. Assessing Native Parasitoid Influences on an Introduced Woodwasp, *Sirex noctilio*. ESF Spotlight on Research. April 13, 2008. Syracuse, NY

Phillips, M. and D. Parry. Has adaptation driven the spread of the invasive gypsy moth? ESF Spotlight on Research. April 13, 2008. Syracuse, NY

### **William F. Porter**

Dechen Quinn, A.C., D.M. Williams, and W.F. Porter. Evaluation of habitat use and availability among GPS collared deer in central New York: Implications for disease spread. Presented at the 2008 Annual Wildlife Society Conference in Miami, FL. November 2008.

Dechen, A.C., D.M. Williams, and W.F. Porter. Habitat use among GPS-collared white-tailed deer in Central New York: Evaluating the parameters that influence the spread of chronic wasting disease. Presented at the 2008 Annual Wildlife Disease Conference in Edmonton, Alberta. August 2008.

Dechen, A.C., D.M. Williams, and W.F. Porter. Habitat use among GPS-collared white-tailed deer: implications for disease spread. Presented at the 2008 Northeast Natural History Conference in Albany, NY. April 2008.

Dechen, A.C., D.M. Williams, and W.F. Porter. Habitat use among GPS-collared white-tailed deer in central NY: Implications for disease management. Invited speaker for Animal Movements in Heterogeneous Landscapes symposium at 2008 US-IALE conference in Madison, WI. April 2008.

Dowling-Danks, E. and W. Porter. Assessment of the impacts of residential development on small mammal communities in the Adirondacks. Annual Conference of the Wildlife Society, Miami, FL. September 10, 2008.

Porter, W. J. Erickson and R. Whaley. Voices from the Adirondacks. Adirondack Research Consortium Conference, Lake Placid, NY. May 19, 2009.

- Williams, D. M., A.C. Dechen, and W.F. Porter. Impact of GPS location error on detected scales of animal movement. Invited speaker for Animal Movements in Heterogeneous Landscapes symposium at 2008 US-IALE conference in Madison, WI. April 2008.
- Williams, D. A Dechen Quinn and W. Porter. Impact of GPS error on detected scales of animal movement. Annual Conference of the Wildlife Society, Miami, FL. September 10, 2008.
- Zuckerberg, B. and W. Porter. Long-term thresholds in responses of breeding birds to a changing landscape. Annual Conference of the Wildlife Society, Miami, FL. September 12, 2008.
- Zuckerberg, B and W. F. Porter. Long-term responses of breeding birds to habitat loss and fragmentation. New York State Biodiversity Research Institute, Biology and Conservation Lecture Series, Albany, NY. April 22, 2009.

### **William A. Powell**

- Progress on genetic engineering of American chestnut. Jan. 28-29, 2009, Forest Health Initiative (FHI), advancing forest health through biotechnology Research Triangle park, NC.

### **Neil H. Ringler**

- Waladt, Emily, Anthony Siniscal, Neil Ringler and Chris van Maaran. 2008. Fish community ecology of Cranberry Lake and Oswegatchie River, NY. Presented at 138th Annual Meeting, American Fisheries Society, Ottawa, Canada. August 17-21, 2008.
- Johnson, Stephanie., Lucas Kirby and Neil Ringler. 2008. Changes in the Onondaga LKake Macroinvertebrate community and shifts in pumpkinseed (*Lepomis gibbosus*) diet. Presented at 138th Annual Meeting, American Fisheries Society, Ottawa, Canada. August 17-21, 2008.
- Kirby, Lucas, Anthony Siniscal and Neil Ringler. 2008. Fish community and habitat assessment of a recovering urban lake in anticipation of habitat remediation. Presented at 138th Annual Meeting, American Fisheries Society, Ottawa, Canada. August 17-21, 2008.
- Brown, Brandeis, Kimberly Schulz and Neil Ringler. 2008. Both sediment and water quality affect survivorship of the mayfly *Stenonema femoratum* in Onondaga Lake, NY. Poster presented at Onondaga Lake Scientific Forum, Liverpool, New York. November, 2008

### **Martin A. Schlaepfer**

- “Tadpole Defenses and Non-native Sunfish Predators: Does Experience Confer Survival Advantage?”, Poster by Amanda Lea and Martin Schlaepfer, International Society for Behavioral Ecology, Ithaca NY 13 August 2008

### **Kimberly L. Schulz**

- Schulz, K.L. and C.M. Mayer. 2009. Mussel power and oligotrophication: Integrating experiments and field observations to isolate mechanisms changing lake ecosystem properties. International Association of Great Lakes Research 52nd Annual Conference on Great Lakes Research, May 2009, Toledo, Ohio.
- Limburg, K.E., V.A. Ludzadis, M. Ramsey, K.L. Schulz and C.M. Ramsey. 2009. The good, the bad, and the algae: Perceiving ecosystem services and disservices generated by zebra and quagga mussels. International Association of Great Lakes Research 52nd Annual Conference on Great Lakes Research, May 2009, Toledo, Ohio.
- Holeck, K.T., E.L. Mills, L.G. Rudstam, K.L. Schulz and R. O’Gorman. 2009. Zooplankton as indicators of ecosystem change in Lake Ontario. International Association of Great Lakes Research 52nd Annual Conference on Great Lakes Research, May 2009, Toledo, Ohio.
- Schulz, K.L., J. Gillette and M.A. Teece. PUFAs in pelagic food webs: Plankton population responses and phylogenetic constraints on composition. 2009. Poster presentation at “100 years of Limnology at Cornell Symposium”, 18 April 2009, Ithaca, N.Y.

Brown, B.L., K.L. Schulz and N.H. Ringler. 2008. Both sediment and water quality affect survivorship of the mayfly *Stentonema femoratum* in Onondaga Lake, N.Y. Poster presentation at the annual Onondaga Lake Forum, November 2008, Syracuse, N.Y.

Schulz, K.L. and M.A. Teece. 2008. Can fatty acid composition be used to determine diet? Recommendations in light of phylogenetic constraints. June 9-13, 2008. American Society of Limnology and Oceanography Annual Meeting, St. John's, Newfoundland, Canada.

Gillete, J.P., K.L. Schulz, and M.A. Teece. 2008. Using stable carbon isotope analysis to quantify feeding by the mixotrophic phytoplankton *Dinobryon cylindricum*. June 9-13, 2008. American Society of Limnology and Oceanography Annual Meeting, St. John's, Newfoundland, Canada.

### **William M. Shields**

Forensic DNA Technology: Promise and Peril, Monroe County Public Defender, October 2008.

### **Lawrence B. Smart**

Smart, L.B., Cameron, K.D., Serapiglia, M.J., Stipanovic, A.J., Volk, T.A., and Abrahamson L.P. "Genetics of yield and biomass composition of shrub willow bioenergy crops for North America". Short Rotation Crops International Conference, Minneapolis, MN, August 19, 2008. Invited oral presentation (also session chair).

Pulley, E.E. and Smart, L.B. "Characterization of arsenic uptake under phosphorus sufficient and deficient conditions in shrub willow (*Salix* spp.) clones of differing As sensitivities". Short Rotation Crops International Conference, Minneapolis, MN, August 18-22, 2008. Poster presentation.

Smart, L.B., Cameron, K.D., Serapiglia, M.J., Volk, T.A., and Abrahamson L.P. "Breeding, selection, and commercialization of shrub willow bioenergy crops in North America" Pan-American Congress on Plants and BioEnergy, Mérida, Mexico, June 25, 2008. Invited mini-symposium talk (also mini-symposium chair) and poster presentation.

### **Stephen A. Teale**

Teale, S.A. Chemical attractants in the management of non-native forest insects. October 30, 2008. Invasive Non-Native Forest Pest Conference, Ithaca, NY.

Wickham, J.A. and S.A. Teale. Field Response of the Asian Longhorn Beetle to Host and Female Volatiles (Poster). 20th USDA Interagency Research Forum on Invasive Species. Annapolis, MD, January 13-16, 2009.

### **J. Scott Turner**

Extended Organisms. Presented at the European Science Foundation Workshop on the Future of the Extended Phenotype. Copenhagen, Denmark. 2-5 November 2008.

### **Christopher M. Whipps**

Apr 27-30, 2009. 34<sup>th</sup> Annual Eastern Fish Health Workshop, Lake Placid, NY. *The curious case of fish apicomplexa; molecular systematics shed light on this enigmatic group.*

April 24, 2009. NCCR-NIH Workshop: Detection, Impact and Control of Specific Pathogens in Animal Resource Facilities. Bethesda, MD. *Specific Infectious Disease Agents and Their Impact on Research: Mycobacterial Infections in Fish.* (Invited speaker)

February 20, 2009. The Wildlife Society, New York Chapter Annual Meeting, Syracuse, NY. *Status of Wildlife Diseases.* (Invited speaker)

## Appendix F. Faculty Grants (active during reporting period)

### Lawrence P. Abrahamson

- Program for wood bioenergy farming research, development and technology transfer in New York (USDA –CSREES), \$130,000 - 200,000/yr 14 years (helps supported Thomas Buchholz, and others) (1996-2010)
- Support for willow biomass commercialization: Operations, \$380,000 (2/00-12/09), NYSERDA
- Support for willow biomass commercialization: Land restoration, \$398,000 (2/00-12/09) NYSERDA.
- New York State Energy Research and Development Authority, “Biomass Crops as a Source of Locally Produced Renewable Fuels in Northern New York State” Co-PI with T.A. Volk, PI and L.B. Smart, Co-PI, Total award: \$191,013, Total project: \$444,936, Start date: 1/11/2006; End date: 12/31/2008
- New York State Dept. of Agriculture and Markets, “Growing willow biomass crops in the Tug Hill Region” T.A. Volk, PI; co-PI with L.B. Smart, E.H. White, Total award: \$60,000, Total project: \$144,759, Start date: 5/8/2006; End date: 12/2008.
- New York State Energy Research and Development Authority, “Reducing the cost of willow biomass by improving harvest system efficiency and reducing harvesting costs” T.A. Volk, PI; co-PI with L.B. Smart, Total award: \$126,688, Start date: 8/16/2006; End date: 12/31/2009.
- NYC Department of Environmental Protection award to SUNY-Delhi, “Center of Excellence in Watershed Application and Technology - Willow Biomass Project” T.A. Volk, PI; co-PI with L.B. Smart, Total award for task: \$384,615, Start date: 7/1/2006; End date: 6/30/2009
- Support for 9th ROW Conference in September, 2009, \$29,000 (various).
- Growing Willows as an Alternative Cover for the Solvay Wastebeds. Co-Principal Investigator with Dr. Tim Volk and Doug Daley (4/1/03 – 12/31/08, \$965.834). Honeywell Inc.
- NYSERDA. Reducing the Cost of Willow Biomass by Improving Harvester Efficiency – Phase II. Co-Principal Investigator with Dr. Tim Volk (06/01/2005 – 12/31/09, \$250,000).
- \$85,000 from Case New Holland support for development and demonstration of a willow harvesting system (2005-2008 with continuing support through 2009-10 with donated use of an FX45 forage harvester for willow harvesting).
- USDA Rural Development (USDA-DOE Biomass R&D Program), “Overcoming Barriers to Facilitate the Commercialization of Willow Biomass Crops as a Feedstock for Biofuels, Bioenergy, and Bioproducts” T.A. Volk, PI; Co-PI with L.B. Smart and E.H. White, Total award: \$813,415 (\$220,000 of subcontracts; \$324,000 for breeding tasks; current year ~\$100,000) Research Scientist: Kim Cameron, Start date: 11/8/2006; End date: 2/7/2010
- Multiple sponsors, Total budget: \$60,000 plus (with T.A. Volk), Start date: 1/1/2005; End date: 12/31/2009
- NY Farm Viability Institute, Inc, “Demonstrating Improved Yield and Encouraging Adoption of New Varieties of Fast-Growing Shrub Willow Bioenergy Crops” with co-PIs T.A. Volk and L.B. Smart, Total award: \$125,000; Current year: ~\$15,000; Research Scientist: Kim Cameron, Start date: 4/1/2008; End date: 9/30/09
- NYS Department of Transportation, “Developing Living Snowfences in New York” T.A. Volk, PI; co-PI with L.B. Smart, Total request: \$280,253, Start date: 9/1/2008; End date: 8/31/2011
- USDA McIntire-Stennis Program, “Applying Genomic Approaches to the Improvement of Shrub Willow Bioenergy Crops” with co-PIs T.A. Volk, C.A. Maynard, and L.B. Smart, Total request: \$58,720, Start date: 8/15/2008; End date: 9/30/2010
- NYSTAR – “Development of willow production and harvesting demonstration” with T. A. Volk and Catalyst Renewables, \$500,000, Start date: 1/1/09 – 3/30/10.
- USDA Forest Service. The role of *Glyeobius speciosus* in sugar maple decline, with D. Allen (6/30/2006 – 4/30/2008) \$25,000.
- USDA Forest Service. The economic effects of ambrosia beetles and round headed borers on black cherry blow down at the Kane Experimental Forest, with D. Allen (8/29/2006 – 12/31/2008) \$36,000.

**Guy A. Baldassarre**

New York Department of Environmental Conservation, Origins, Fate, and Movements of Captive-reared Mallards Released in New York , \$99,629; 2006-2009

**Jesse L. Brunner**

NIH R03, Overwintering Mortality of *Nymphal Ixodes scapularis*, Lyme Disease Vector, in a Changing Climate, \$162,507. PI: Richard S. Ostfeld (CIES); coPIs: Jesse Brunner (SUNY-ESF) and Mary Killilea (CIES). 22 May 2009 – 30 April 2011.

SUNY-ESF Seed grant: Fluorescent frogs and Viruses: Developing Novel Methods for Studying Pathogen Transmission, \$8000, March 2009 – March 2010.

EPA-G2007-STAR-F1, Mechanisms Linking Host Biodiversity to Lyme Disease Risk, \$750,000. PI: Richard S. Ostfeld (Cary Institute of Ecosystem Studies); coPIs: Felicia Keesing (Bard College), Charles Canham (CIES), Jesse Brunner (SUNY-ESF / CIES), and Mary Killilea (CIES). 1 May 2008 – 30 April 2011

NSF COLLABORATIVE RESEARCH: The Ecology of *Anaplasma phagocytophilum*: Reservoirs, Risk, and Incidence, \$1,971,613. PI: Felicia Keesing (Bard College), Mike Tibbetts (Bard), Ken Schmidt (Texas Tech), Kathleen LoGiudice (Union College), Rick Ostfeld (CIES), and Jesse Brunner (SUNY-ESF / CIES). 1 September 2008 – 31 August 2013.

**Martin Dovciak**

NSRC, Importance of calcium-rich substrates for supporting refugia of biodiversity and productivity in an increasingly acidified landscape, \$48,173; 2009-2010; C. Beier, M. Mitchell, J. Gibbs, D. Leopold, M. Dovčiak

**John M. Farrell**

Farrell, J. M. 6/2007-6/2009. Development of the Fish Habitat Conservation Strategy: An Evaluation of Toolkit Implementation, Fish Enhancement, Research and Mitigation Fund, National Fish and Wildlife Foundation, Two Years, \$563,836

Farrell, J. M. and K. Kapuscinski. 5/2009-4/2011. Muskellunge *Esox masquinongy* Genetic Structure, Reproductive Ecology, and Interaction with the Fish Community: Acquiring Information Needed for Successful Management. Niagara Greenway Commission, Ecological Greenway Fund, \$148,000.

Farrell, J. M. (and 7 co-investigators) Great Lakes Aquatic Community Pathogens Task Group. Great Lakes Research Consortium Small Grants Program \$1,000.

Farrell, J. M. 4/2005-6/2010. Development and Management of St. Lawrence River Fisheries. Federal Aid in Sportfish Restoration, NYS Department of Environmental Conservation. \$958,184.

Farrell, J. M. 6/2007-6/2009. A Conservation Strategy for Enhancement of St. Lawrence River Native Fish Populations, Fish Enhancement, Research and Mitigation Fund, National Fish and Wildlife Foundation, Two Years, \$298,341.

K. Schulz, M. A. Teece, J. M. Farrell, and Karin Limburg 2003-2009. Can Fatty Acids Improve Our Ability to Trace Food Web Processes? National Science Foundation, \$639,688.

P. Bowser, J. Casey, R. Getchell, and J. M. Farrell 2006-2008 (completed May 2009). Viral Hemorrhagic Septicemia Infection in Round Goby and Muskellunge in New York State, NY SeaGrant, \$131,662, via Cornell University, subcontract to ESF \$3,400.

J. Farrell, J. H. Johnson, T. David, and D. Dittman. 12/2007-12/2008 (no cost-extension granted - completed May 2009). Lake Sturgeon Population Enhancement as a Strategy for Improvement of Ecosystem Function and Controlling Invasive Species Fish Enhancement, Research and Mitigation Fund, National Fish and Wildlife Foundation.

**Melissa K. Fierke**

USDA Forest Service, Survey of Siricidae (Sirecinae) and their parasitoids in the pine forests of central New York state, with special emphasis on the exotic *Sirex noctilio*; Doug Allen and Melissa Fierke; \$47,074, 08/07 - 08/10, Patrick Eager

SUNY-ESF Seed Grant. Dendroentomology and oviposition scars of *S. noctilio*; Melissa Fierke; \$3,200, 01/08-06/09

**Jacqueline L. Frair**

Population Status and Foraging Ecology of Eastern Coyotes; NYS-DEC, \$670,000; 2007-11; J. Frair and J. Gibbs.

Sustainable Reuse Remedy Demonstration; Honeywell, \$354,974; 2008-09; T. Volk, D. Daley, J. Frair, J. Gibbs.

Conservation Research on the Chittenango Ovate Amber Snail; US Fish & Wildlife Service, \$60,000; 2007-09; J. Frair and J. Gibbs.

Determination of Factors Affecting Hellbender Status in Susquehanna River Watershed (NYS-DEC, \$30,000, 2007-09; J. Gibbs and J. Frair.

**James P. Gibbs**

Sloan Foundation, "Professional Science Masters Program at the SUNY College of Environmental Science and Forestry," Scott Shannon, Gary M. Scott; James P. Gibbs; Kenneth J. Tiss; Shijie Liu; Susan E. Anagnost. \$15,000. 5/09-5/10

American Bird Conservancy, "Restoring Espanola Island as Nesting Habitat for Waved Albatross -- Phase I: Establishment of Baseline to Measure Albatross Nesting Response to Experimental Vegetation Manipulation and Refinement of Rapid Nesting Population Survey Methods," J.P. Gibbs \$3,750, 5/08-1/10.

Honeywell International, Inc., "Sustainable Reuse Remedy Demonstration," T. Volk, D. Daley, J. Frair, and J. P. Gibbs, \$369,227, 3/08-2/09.

U.S. Fish and Wildlife Service, "Conservation Research on the Chittenango Ovate Amber Snail," J. Frair and J. P. Gibbs, \$60,000, 6/07-5/09.

New York State Department of Conservation: "Survey of Hellbenders in the Upper Susquehanna Watershed," J. P. Gibbs and J. Frair. \$30,000. 1/07-12/08.

New York State Department of Conservation: "Population status and foraging ecology of eastern coyotes in New York State." Jacqueline L. Frair, James P. Gibbs, Gordon R. Batcheller, \$678,704, 1/06-9/11.

New York State Department of Conservation: "Bog Turtle Dispersal and Population Monitoring," J. P. Gibbs and L. B. Smart. \$155,000. 4/06 - 3/09.

New York State Department of Conservation: "Status Assessment and Evaluation of Habitat Quality of the Bog Brook Unique Area for the Bog Turtle and Spotted Turtle," J. P. Gibbs, \$60,000, 4/06 - 3/09.

National Science Foundation, "Biodiversity dynamics and land-use changes in the Amazon: Multi-scale interactions between ecological systems and resource-use decisions by indigenous peoples," J. M. V. Fragoso, J. P. Gibbs, K. Silvius, L. Martins, J. Read. \$1,650,001. 9/05-8-09.

New York State Departmental Environmental Conservation: "The Status, Distribution and Life History of the Eastern Spiny Softshell Turtle, *Apalone spinifera*, in central New York," J. P. Gibbs. \$80,000, 1/06-12/09.

New York State Department of Transportation/University Transportation Research Center: "Effects of New York State roadways on amphibians and reptiles: A research and adaptive mitigation program," J. P. Gibbs, D. J. Leopold, and P. Ducey, \$253,000. 5/05-4/09.

National Science Foundation: "Land-Use Practices and Persistence of Amphibian Populations," R. D. Semlitsch, M. L. Hunter, J. W. Gibbons, and J. P. Gibbs. \$1,200,000, 3/03-3/09.

Northern States Research Cooperative, "Importance of calcium-rich substrates for supporting refugia of biodiversity and productivity in an increasingly acidified landscape," Colin Beier, Myron Mitchell, James Gibbs, Donald Leopold, Martin Dovciak, \$41,543, 2009-2010/

SUNY-ESF McIntire-Stennis Research Program Proposal, "Restoring Small, Ephemeral Wetlands in Forested Landscapes of New York State: Initiating a Large-scale, Long-term Collaborative Research Program Based at the Heiberg Forest," James P. Gibbs, John C. Stella, Kimberly L. Schulz, Donald J. Leopold, 1/09-12/12, \$89,850.

National Fish and Wildlife Foundation, "Golf Course Wetlands as Refuges for Turtles," J. P. Gibbs, \$60,000, 12/08-12/11.

U.S. National Park Service: "Vital Signs Monitoring of the Northeast Temperate Parks," J. P. Gibbs and G. Tierney (since 2001); current projects as follows:

"Phase III: Development of Terrestrial and Related monitoring Protocols for High Priority NETN Vital Signs," 7/1/03-12/3/107, \$83,729 (augmented \$28,931 1/09, and extended 12/10).

"Monitoring Ecological Integrity of Forest Ecosystems: Evaluation and Implementation of the NETN Forest Condition Protocol" 7/1/2009-6/30/2010. \$49,493

### **Charles A.S. Hall**

National Science Foundation; \$5,000,000 (my share \$152,000); Long Term Ecosystem Research in the Luquillo Forest; 2006-2012

US Forest Service; Energy and economic analysis for the Caribbean; \$20,000.

Santa Barbara Foundation; \$5,000

Various private sources: Multiple Sponsors, \$4000

Predicting Future Water Quality from Land Use Change Projections in the Catskill- Delaware Watersheds" funded by the New York State Department of Environmental Conservation, August 2004 – December 2007, for \$272,000 (ESF portion, \$222,000); Myrna Hall, Rene Germain, and Charles Hall.

### **Thomas R. Horton**

Operation Wallacea; Biodiversity of ectomycorrhizal fungi in native pine stands of Honduras; ~\$8000/year

USDA-CREES; Evaluating environmental impacts of transgenic American chestnut trees to chestnut trees produced by conventional breeding. Powell, Maynard, Leopold, Horton, Parry; \$380,00; 10/1/08-9/30/11.

Mianus River Gorge Preserve. Facilitated succession towards a climax community at MRGP. \$21,000/\$7000. 2007 – 2009.

Collaborative Research: Relationship Between Carbon Allocation to Mycorrhizal Fungi and Organic Nitrogen Use in Temperate Forests. \$165,000. 2006 - 2009.

Fungal Biodiversity and Community Dynamics in the Oregon Coastal Dune Ecosystem. \$30,000. 2006 - 2009.

Fungal environmental sampling information network (FESIN) – Travel grant for the 2008 Ecological Society of America annual meeting and FESIN workshop. \$1227.

Fungal environmental sampling information network (FESIN) – Travel grant for the 2009 Mycological Society of America annual meeting and FESIN workshop. \$300

ESF Faculty travel grant to attend the 2009 Mycological Society of America annual meeting. \$800.

### **Robin W. Kimmerer**

National Science Foundation, Undergraduate Mentoring in Environmental Biology, \$600,000 June 2006-August 2011.

Biodiversity Research Initiative, New York State Museum Effects of habitat fragmentation on bryophytes of Northern White Cedar Swamps May 2007-May 2009.

United States Department of Agriculture, Minority Scholarship Program, \$144,000, January 2007--June 2011.

National Science Foundation, Summer Science Camp for Native Youth, \$147,000, August 2008-August 2010

SUNY Conversations in the Disciplines grant \$5000  
 CSTEP, \$57,000. May 2005-2008

### **Donald J. Leopold**

- Honeywell, Restoration of inland salt marsh, marl fen, and select woody species: Short-term goals of the native species component of the SWRS demonstration plan; \$421,976; April 2008 to August 2009; D.J. Leopold.
- National Science Foundation, Environmental science to promote sustainable urban, rural and indigenous communities; \$1,605,000; March 2007 to February 2010; D.J. Leopold, R. Beal, C.M. Spuches, and D.J. Raynal; nine ESF graduate students supported each year.
- Biodiversity Research Institute, Inventory and analysis of vegetation in remnant inland salt marshes of New York; \$39,467; April 2007 to August 2009; D.J. Leopold.
- Biodiversity Research Institute, Environmental influences on plant diversity in rich fens of central New York: A multiscale analysis; \$18,014; November 2006 to March 2009; D.J. Leopold.
- NYS-DEC, Invasive plants program coordinator; \$143,052; January 2006 to December 2009; D.J. Leopold.
- US EPA, Onondaga Creek Habitat Restoration Demonstration Initiative; \$347,900; August 2004 to July 2010; T.A. Endreny and D.J. Leopold.
- US EPA, STAR Fellowship to Sara Scanga; \$38,519; January 2006 to December 2009.
- US EPA, STAR Fellowship to Anthony Eallonardo; \$21,824; August 2007 to August 2009.
- US EPA, GRO Fellowship to Matthew Distler; \$27,314; August 2006 to August 2009.
- NSRC, Importance of calcium-rich substrates for supporting refugia of biodiversity and productivity in an increasingly acidified landscape, \$48,173; 2009-2010; C. Beier, M. Mitchell, J. Gibbs, D. Leopold, M. Dovčiak
- USDA CSREES (SUNY ESF McIntire-Stennis program), Restoring small ephemeral wetlands in forested landscapes of New York State; \$89,850; August 2009 to September 2012; J.P. Gibbs, J.C. Stella, D.J. Leopold, and K.S. Schulz.
- NYS-DEC, Student internship program; \$24,297; March 2008 to February 2013; J.P. Gibbs and D.J. Leopold.
- USDA CSREES Biotechnology Risk Assessment Grants (BRAG) program, Evaluating environmental impacts of transgenic American chestnut trees to chestnut trees produced by conventional breeding; \$380,000; September 2008 to August 2011; W.A. Powell, C.A. Maynard, T.R. Horton, D. Parry, and D.J. Leopold.
- National Science Foundation, Environmental scholars: A scholarship program in Environmental Chemistry, Biology, and Engineering; \$600,000; March 2009 to February 2013; K. Donaghy, D.J. Leopold, J.P. Hassett, J.M. Hassett, and J.E. Turbeville.

### **Karin E. Limburg**

- National Science Foundation: "CAREER: Watersheds and fisheries as foci of human impacts and ecological responses: a research and teaching agenda" (4/1/03 – 3/31/09, \$600,000) no-cost extension.
- Syracuse Center of Excellence: "An Integrated Monitoring/Modeling Framework for Assessing Human-Nature Interactions in Urbanizing Watersheds: Wappinger and Onondaga Creek Watersheds," \$299,882, 7/01/06 – 6/30/09 (no-cost extension)
- Syracuse Center of Excellence: "Bridging the Temporal Mismatch between Remotely-Sensed Land Use Changes and Field - Based Water Quality/Quantity," \$99,999, 8/5/08 - 7/31/09. G. Mountrakis is PI, Myrna Hall and I are co-PIs.
- Cornell High Energy Synchrotron Source (CHESS; In-kind grant award): Beam time at the synchrotron for X-ray fluorescence analyses: April 2009 (1 week)
- National Science Foundation: "MRI: Acquisition of a Laser-Ablation System for High Resolution, Micro-Scale Analysis of Environmental Materials," \$202,929, 7/01/07 – 6/30/10.



NOAA: “Effects of Land Use on Alewife Growth Rates and Recruitment Using Biogeochemical Tracers in New England,” \$60,000, 3/3/07 - 5/31/10.

National Science Foundation: “IBDR: Workshop on Transformative Instrumentation for Biological Research - A Vision for the Future,” \$25,000.

Ben and Jerry Foundation, the Union of Concerned Scientists, and The Energy Foundation: \$3,500 to support the US Society for Ecological Economics conference (to US Society for Ecological Economics).

Pew Charitable Trusts (to US Society for Ecological Economics). \$1,500 to support my fisheries symposium at the USSEE conference.

### **Kathleen McGrath**

NYSDEC, “Assessment of Lake Sturgeon Stocking in the Oswego River Basin”; \$133,261 total/2 years to begin ~7/1/09, PI with co-PIs D. Carlson (NYSDEC), D. Dittman (USGS)

Syracuse Center of Excellence, “Life Down Under: the Forgotten Hyporheic Zone in Stream Restoration and Development of a BioIndicator of Subsurface Recovery” \$100,000/1 year to begin ~7/1/09 PI with Co-PI L. Lautz (SU).

NSF, “Collaborative Research: Impacts of In-Stream Restoration On Hydrological, Chemical, and Biological Heterogeneity in the Hyporheic Zone”, \$ 463,056/5 yrs; to begin ~1/1/10; PI with PI L. Lautz (SU), Co-PI T. Endreny).

### **Stacy A. McNulty**

Hai, P.B., S. McNulty, and W. F. Porter. National Science Foundation Field Stations and Marine Labs. \$150,000 (est.) 9/2008 start.

Kimmerer, R. and S. McNulty. National Science Foundation Undergraduate Mentoring in Environmental Biology Program. Integrating Science and Stewardship in the Adirondacks. \$591,925, \$150,830. 6/1/06 -5/31/10.

Porter, W., S. McNulty and A. Dechen. New York State Department of Environmental Conservation, A Risk Assessment of a Chronic Wasting Disease Outbreak in New York, \$1,008,190; 8/1/05-12/31/09.

Porter, W. and S. McNulty. New York State Department of Environmental Conservation, Application of GIS to Resource Inventory for Unit Management Planning, \$511,431, \$103,897 plus \$45,000 for 6 months extension, 6/1/03 – 12/31/09.

### **Myron J. Mitchell**

Co-Investigator. Importance of calcium-rich substrates for supporting refugia of biodiversity and productivity in an increasingly acidified landscape. Northern States Research Cooperative (Theme 4: Biodiversity and Protected Area Management). \$41,543. 2009-2010.

Principal Investigator. Collaborative Research: Evolution of Dissolved Organic Nitrogen (DON) from the Headwaters to the Catchment Outlet: Sources, Variation with Scale, and Differences with DOC. NSF-Hydrology. \$70,256.00. 2008-2011

Principal Investigator. Evaluation and Protection of Adirondack Ecosystems: Impacts of Acid and Mercury Deposition on Watersheds. NYSERDA-EMEP. \$378,568. 2008-2011.

Principal Investigator. Hydroclimatic effects on ecosystem response: A synthesis of long-term results from watersheds in the northeastern United States and southeastern Canada. NSRC/NERC U.S. Forest Service. \$146,000. 2007-2010.

Principal Investigator. Characterization of ambient air quality in Syracuse, NY and identification of its origins. CARTI -Collaborative Activities for Research and Technology Innovation. Total \$600,000 (\$200,000 SUNY-ESF). 2007-2010.

Consultant. PIRE: Ecological and evolutionary effects of climate change and anthropogenic influences in Mongolia. NSF. Total \$2,469,634 (\$47,465 SUNY-ESF) 2007-2012.

Co-Investigator. The Impact of Changing Climate on Winter Nitrogen Export from a Forested Watershed of the Adirondack Mountains. McIntire-Stennis (\$81,230) 2007-2010.

Co-Investigator. Water flux and nutrient cycling in the hyporheic zones of a semi-arid watershed. NSF-Hydrology (Total \$730,000; subcontract \$139,424) 2005-2008.

Co-investigator. Long-term ecological research at the Hubbard Brook Experimental Forest. NSF. (Total: \$4,920,000; subcontract \$167,784). 2004-2009.

### **James P. Nakas**

Antek, Incorporated hydrogen research, J. Nakas and A. Terrinoni; \$29,064; July 2006 to December 2009.

NYSERDA, Novel PHA's from New York's Renewable Resources; J. Nakas, R. Francis, and S. Tanenbaum; \$40,000; January 2007 to December 2009.

NYSERDA, Production of value-added biodegradable plastics from NYS's low-value biodiesel process-glycerin; C. Nomura and J. Nakas; 79,983; July 2007 to July 2010.

US DOE, Hot water extraction of hardwood chips and utilization of the residual chips and wood; T. Amidon, J. Nakas and S. Liu; \$1,488,000; October 2007 to September 2009.

O'Brien & Gere, Lyonsdale biorefinery/ethanol pilot plant; T. Amidon, S. Liu, and J. Nakas; \$1,000,000; January 2007 to June 2009.

Hillard Corporation, The use of microporous ceramic composite membrane technology in the improvement of biofuels and bioproducts; J. Nakas and J. Fieschko; \$190,000; July 2007 to July 2009.

Blue Highway LCC, Biodegradable plastics from renewable sources for manufacturing medical products in CNY; J. Nakas, D. Danna, A. DiRienzo, J. Fieschko, and C. Nomura; \$350,000; October 2008 to December 2011.

### **Roy A. Norton**

NYS-BRI. Monograph of *Hydrozetes* (Acari: Oribatida) and computerized key to aquatic oribatid mites of New York. 2007-2009; \$25,110.

### **Dylan Parry**

USFS, 2009-2012. Fierke, M., D. Parry and D. Allen. Evaluating Impacts of Native Parasitoids on *Sirex noctilio* in New York; \$75,000

USDA Biotechnology Risk Assessment Grants (BRAG) program. 2008-2011. W. Powell, C. Maynard, D. Leopold, T. Horton, and D. Parry. Evaluating Environmental Impacts Of Transgenic American Chestnut Trees To Chestnut Trees Produced By Conventional Breeding \$399,985.

McIntire-Stennis. Cold tolerance and local adaptation to native hosts drives range expansion of an invasive tussock moth, \$55,609; D. Parry, 2007-2009.

### **William F. Porter**

Montrakis, G., W. Porter, B. Zuckerberg and C. Beier. National Aeronautics and Space Administration. Using LIDAR to assess the roles of climate and land-cover change as drivers of biodiversity. \$709,682 (\$230,124), 9/1/09 – 8/31/12.

Porter, W. National Wild Turkey Federation. Regional strategies for harvest management based on landscape-scale habitat and weather effects on wild turkey populations, \$73,716, 3/1/09 – 12/31/11.

Porter, W. NYS Chapter – National Wild Turkey Federation. Regional strategies for harvest management based on landscape-scale habitat and weather effects on wild turkey populations, \$5,000, 3/1/09 – 12/31/11.

Porter, W. and S. McNulty. New York State Department of Environmental Conservation, Application of GIS to resource inventory for unit management planning, \$507,794 (\$103,897), 6/1/03 – 8/31/09.

Porter, W., S. McNulty and A. Dechen. New York State Department of Environmental Conservation, A risk assessment of a chronic wasting disease outbreak in New York, \$1,008,190 (\$162,755), 8/1/05 – 12/31/08.

- Porter, W. F and A. C. Dechen. USDI – Geological Survey. Risk assessment of chronic wasting disease outbreak in New York. \$31,517, 6/1/07 – 9/30/08.
- Porter, W. USDA Cooperative State Research Education and Extension Service/McIntire Stennis. A risk assessment for the spread of chronic wasting disease in the Adirondack Park, \$100,659 (\$22,899), 10/1/06 – 5/31/09.
- Porter, W. New York Department of Environmental Conservation. Fall and winter survival of ruffed grouse in different landscapes of New York. \$168,103 (\$84,050), 7/1/07 – 6/30/10.
- Porter, W. G. Cox and A. Woods. University of Vermont Northeastern State Cooperative Research. Survey of public priorities as a guide for future sustainable investment strategies. \$40,545, 8/1/07 – 7/31/08.

#### At Adirondack Ecological Center

- Canon, G., R. Quinn, W. Porter and P. Hai. USDA – Environmental Protection Smart Growth Grant Program. Business Planning for the Northern Forest Institute at the Adirondack Ecological Center. \$50,000, 7/1/08 – 6/30/08.
- Martens, J., W. Porter and P. Hai. Empire State Development Corporation, Masten House and Northern Forest Conservation Education Institute. \$1,000,000, 6/1/07 – 6/1/12.
- Porter, W. and J. Farrell. US Dept of Housing and Urban Development. Acquisition, renovation and construction of facilities in the North Country for Economic Development and Improvement, \$347,935, 6/1/04 – 1/22/09.
- Porter, W., P. Hai and S. McNulty. National Science Foundation High speed Internet installation at the Adirondack Ecological Center. \$154,700, 9/1/08 – 8/31/09
- Porter, W. and P. Hai. New York State Construction Fund. Renovation of the Carriage House Teleconference and Distance Learning Center. \$2,500,000, 7/1/08 – 6/30/13.
- Porter, W. and P. Hai. New York State Department of Environmental Conservation. Northern Forest Conservation Education and Leadership Training. \$125,000, 7/1/08 – 6/30/09
- Porter, W. and P. Hai. Town of Newcomb. Infrastructure Development at Huntington Wildlife Forest. \$91,000, 5/1/09 – 1/31/11.
- Porter, W. R. Quinn and P. Hai. Town of Newcomb Development of Infrastructure and Expansion of Programs at the Adirondack Ecological Center. \$159,000, 5/1/09 – 1/31/11.

#### **William A. Powell**

- Consortium on Plant Biotechnology Research (CPBR). Collaborative research: Developing blight resistance in transgenic American chestnut for agroforestry and restoration. \$100,000 (1/1/09-12/31/09) PI with Dr. Maynard and Dr. Merkle (Univ. of Georgia) as co-PIs.
- USDA-Biotechnology Risk Assessment Grant program (BRAG), Evaluating Environmental Impacts Of Transgenic American Chestnut Trees To Chestnut Trees Produced By Conventional Breeding. \$380,000 (10/1/08-9/30/11). PI with co-PIs, Dr. Maynard, Dr. Horton, Dr. Parry, and Dr. Leopold.
- ArborGen LLC/IFB, Transformation of American chestnut with genes encoding transcription factors. \$460,000 (1/1/02 – 12/31/09, final year. PI with Dr. Maynard and Dr. Merkle as Co-PIs. Current year: \$50,000.
- The New York Chapter of The American Chestnut Foundation. Testing Transgenic Events for Gene Copy Number, Gene Expression, and Blight Resistance. \$100,000 (5/08-6/10). PI with Dr. Maynard as co-PI.
- The New York Chapter of The American Chestnut Foundation. Regenerating Transformation Events into Whole Plants and Expansion of Field Trials. \$300,000 (5/08-6/11). Co-Director with Dr. Maynard.
- Consortium for Plant Biotechnology Research (CPBR) fellowship. \$60,000 (6/1/08-5/31/09). PI with Dr. Maynard as Co-PI.

**Neil H. Ringler**

U.S. Environmental Protection Agency \$1,500,000 Central New York District Cooling Project 1/1/07 – 12/30/09 (Neil Ringler as Co-PI; Kim Schulz Co-PI; Dr. James Hassett as PI.  
Honeywell, Inc. \$175,121 5/28/09 – 05/300. Onondaga Lake Biological Assessment and Monitoring.

**D. Andrew Saunders**

John Ben Snow Foundation: Title: Naturally New York: Connecting children and communities to the natural history of Central New York. Amount: \$11,000 (2008-2009).  
Ed Smith School – PTO. Phase I: Morningside Nature/Science Trail \$750 (2008-2009)

**Martin A. Schlaepfer**

McIntire-Stennis with Valerie Luzadis, “Assessing Private Landowner Knowledge of and Attitudes Towards Invasive Species in the Adirondack State Park”; \$73,507; start 2009-end 2011  
SEED grant “Predicting methyl-mercury concentrations in NY Lakes”; \$8000.00; start 2008-end 2009.

**Kimberly L. Schulz**

NYSERDA, “Conversion of dairy and biodiesel waste products to omega-3 fatty acids and lipids for biodiesel production using mixotrophic algae;” PI: John Fieschko, co-PI: K.L. Schulz; Amount: \$76,304; Dates: April 2009-March 2011.  
SUNY ESF Seed Grant Program, “Extending ecological stoichiometry to the salt marsh: Restoring natural Si:N:P ratios may help remediate estuarine food webs; “PI: K.L. Schulz, co-PI; Amount: \$8,000; Dates: March 2009-March 2010.  
National Science Foundation, “Can Fatty Acids Improve Our Ability to Trace Food Web Processes?” PI: K.L. Schulz. co-PIs: M.A. Teece, K.E. Limburg and J.M. Farrell. Amount: \$541,900 (all at ESF) over three years. March 2005-February 2010.  
NCEAS (National Center for Ecological Analysis and Synthesis) Center Fellowship; “Food quality effects on ecological efficiency at multiple scales in aquatic systems”. PI: \$66,784 to KLS (funded my sabbatical leave from 1 August 2007-31 July 2008).  
Environmental Protection Agency, Central New York District Cooling Project, actual funding level uncertain, P.I.: J.Hassett, co-PIs: Neil Ringler and K. Schulz (SUNY ESF). My understanding is that this grant will run through December 2009.  
Collaborator on Hatch Proposal 2006-07-097. Title: Ecological Indicators and Sustainability of the Lake Ontario Ecosystem: Melding Science and Stakeholder Involvement.. Total of \$23,500 a year (~\$2,500 annually to KLS) for a period of 3 years from CUAES (Hatch research support) and CCE (federal extension). Oct 1, 2006 – Oct 1, 2010. P.I. E. Mills (Cornell); Collaborators: L. Rudstam (Cornell), R. O’Gorman (USGS), D.B. MacNeill and D.G. White (NY Sea Grant).  
SUNY-ESF McIntire-Stennis Research Program, “Restoring small, ephemeral wetlands in forested landscapes of New York State: Initiating a large-scale, long-term collaborative research program based at Heiberg Forest” PI: James Gibbs; coPIs: John Stella, D.J. Leopold, K. Schulz Amount: \$80,000; Dates: May 2009-December 2012.

**William M. Shields**

US EPA star Fellowship (Jason Townsend) 2007-2010.

**Larry B. Smart**

T.A. Volk, T.E. Amidon, C. Baier, T. Buchholz, R.H. Germain, M. Kelleher, V. Luzadis, R.W. Malmsheimer, “Renewable Fuels Roadmap and Sustainable Biomass Feedstock Supply for New York”, New York State Energy Research and Development Authority (subcontract from Pace University), Total award: \$110,007; Start date: 12/1/2008; End date: 11/30/2009

- L.B. Smart, L.P. Abrahamson, C.A. Maynard, and T.A. Volk , “Applying Genomic Approaches to the Improvement of Shrub Willow Bioenergy Crops”, USDA-CSREES McIntire-Stennis Program, Total award: \$58,720 (direct costs only), Start date: 8/15/2008; End date: 9/30/2010
- T.A. Volk, L.P. Abrahamson, and L.B. Smart , “Developing Living Snowfences in New York”, New York State Department of Transportation, Total award: \$280,254, Start date: 8/1/2008; End date: 12/31/2011
- A.J. Stipanovic, L.B. Smart, and W.T. Winter, “Purchase of a New Thermogravimetric Analyzer for Biomass Characterization”, USDA-CSREES - National Research Initiative Competitive Grants Program, Total Award: \$50,000, Start date: 8/1/2008; End date: 7/31/2009
- L.P. Abrahamson, L.B. Smart, and T.A. Volk, “Wood Biomass as an Alternative Farm Product”, USDA-CSREES, Total award: \$133,459, Start date: 5/29/2008; End date: 5/1/2009
- L.B. Smart, L.P. Abrahamson, and T.A. Volk, “Demonstrating Improved Yield and Encouraging Adoption of New Varieties of Fast-Growing Shrub Willow Bioenergy Crops”, New York Farm Viability Institute, Total award: \$125,000; Start date: 4/1/2008; End date: 9/30/2009
- T.A. Volk, L.P. Abrahamson, L.B. Smart, and E.H. White, “Overcoming Barriers to Facilitate the Commercialization of Willow Biomass Crops as a Feedstock for Biofuels, Bioenergy, and Bioproducts”, USDA Rural Development (USDA-DOE Biomass R&D Program), Total award: \$813,415, Start date: 11/8/2006; End date: 2/7/2010
- T.A. Volk, L.P. Abrahamson, and L.B. Smart, “Reducing the cost of willow biomass by improving harvest system efficiency and reducing harvesting costs”, New York State Energy Research and Development Authority, Total award: \$126,688, Start date: 8/16/2006; End date: 6/30/2009
- T.A. Volk, L.P. Abrahamson, and L.B. Smart , “Center of Excellence in Watershed Application and Technology - Willow Biomass Project”, New York City Department of Environmental Protection (subcontract from SUNY-Delhi), Willow Biomass Task: \$384,615, Start date: 7/1/2006; End date: 6/30/2009

#### **Donald Stewart**

National Science Foundation, MRI: Acquisition of a Laser-Ablation System for High Resolution, Micro-Scale Analyses of Environmental Materials, \$202,920, Award Period 7/2007—6/2010. Co-PI's: Karin Limburg, Donald Stewart, Scott Samson (SU) and Linda Ivany (SU).

#### **Stephen A. Teale**

- Teale, S.A., Asian Longhorn Beetle Research at SUNY-ESF, Alphawood Foundation, \$85,874, 2/1/08 – 1/31/10.
- Teale, S.A., European Woodwasps (*Sirex noctilio*) in North America: Impacts and Pheromones. McIntire-Stennis, \$57,657, 08/15/2007 - 9/30/2009.
- Lindi J. Quackenbush and Stephen A. Teale, Remote Sensing Based Classification of Forests Infested by *Sirex* Woodwasp. McIntire-Stennis \$78,236 08/15/2008 to 9/30/2011.
- Teale, S.A., Asian Longhorn Beetle Research at SUNY-ESF, Alphawood Foundation, \$90,432, 2/3/09 – 2/2/11.

#### **J. Scott Turner**

- National Geographic Society, Mound building termites and the water economy of southern African arid savannas: \$19,500; Aug. 2008 to August 2009.
- US Army Research Office, Collective structural defense of the mound-building termites of the genus *Macrotermes*, \$300,000; June 2008 to May 2011
- New York State/UUP Professional Development Award, \$750, Nov. 2008

**Alexander Weir**

National Science Foundation – Monographic Approaches to the Laboulbeniales, Subtribe Stigmatomycetinae and the Genus *Stigmatomyces*. NSF PEET (Partnerships for Enhancing Expertise in Taxonomy) Program; \$750,000; Starting Date 1st January 2006 Ending Date 31st December 2010.

National Science Foundation – Research Experiences for Undergraduates (REU) program; \$7000; Starting May 2009 Ending 31st May 2010

National Science Foundation – Undergraduate Mentoring in Environmental Biology (UMEB) Program – Integrating Science and Stewardship in the Adirondacks. PIs Robin Kimmerer and Stacy McNulty; \$600,000.

**Christopher M. Whipps**

USDA-CREES/McIntire-Stennis Program (8/15/09 – 9/30/12) - \$50,500 Monitoring populations of elusive forest wildlife: a modern approach using noninvasive genetic techniques. Co-PI with J. Frair.

ESF Seed Grant Program. \$8,000 (04/01/09-03/31/10 ) PI: Whipps. Project Title: Systematics and Biodiversity of the Myxozoa

Alaska Department of Fish and Game. \$3,500 (08/01/08-04/01/09) *Ichthyophonus hoferi* in returning Alaskan Chinook salmon

## **Appendix G. Service to Department, College, and University**

### **Larry P. Abrahamson**

Continuing Education and Extension Coordinator for Faculty of Environmental and Forest Biology.  
Member, Human Subjects Committee (Institutional Review Board (IRB)) for Syracuse University and SUNY-ESF.

Pesticide Use Advisor for College

Member/Chair, College UUP Promotion Review Panel

Sergeant.-at-Arms, Faculty Governance

Member, Human Subjects Committee (Institutional Review Board (IRB)) for SUNY-RF representing SUNY-ESF.

### **Guy A. Baldassarre**

Coordinator of wildlife undergrad curriculum, which included development of assessment plan in 2008-09.

Freshman seminar

10/25 Saturday Open House

28 March ASR reception

18 April ASR reception

many meetings and phone calls with prospective EFB students

Freshman orientation on Sat, 6 Sept

10/6 tech writing seminar for CSTEP workshop

Learning Community Retreat. 6 September in Marcellus

### **Jesse L. Brunner**

Building advisory committee, member

Burgess award committee, member

Institutional animal care and use committee, chair

### **John D. Castello**

Member of EFB Promotion and Tenure Committee, December 1, 2008 for three year term.

Coordinator of EFB Forest Health major.

### **Martin Dovciak**

Chair, Committee for Robert Burgess Graduate Scholarship in Ecology

Member, Graduate Program Advisory Committee (GPAC)

Worked with Terry Ettinger to develop greenhouse collection for EFB 535 (Flowering Plants) and beyond.

Core faculty member, Center for the Urban Environment

### **John M. Farrell**

Chair of Building Advisory Committee – produce memo to EFB Chair with guidance for building improvements. Assisted with management of EFB Boston Whaler

Member, Field Programs Committee

Mentor for an Assistant Professor in EFB

Held TIBS open house for EFB faculty including tour

Served as Director of the Thousand Islands Biological Station.

Led facility improvements implementation at TIBS including Main Lodge renovations.

Worked on development initiative for new TIBS multipurpose building with Bob Quinn.

Committee member for the ESF Scientific Diving Program Chaired by Mark Teece of Chemistry

Helped secure \$40,000 in private gifts to TIBS with Bob Quinn of development office.





Committee to set up a renewable energy minor at ESF  
 Informal committee to generate a program in Ecological Economics

**Thomas R. Horton**

Early career mentor: Melissa Fierke, Martin Dovciak  
 Chair – ESF Faculty Governance Committee on Research  
 Participant in the Dubai biotech review with Powell and others.

**Robin W. Kimmerer**

EFB Spring Awards Ceremony, presenter  
 EFB Undergraduate Women of Excellence, participant  
 Mentor, Dr. Fierke  
 Acting Director, CLBS July 21-27  
 Director, Center for Native Peoples and the Environment  
 Director, NSF UMEB Program  
 Director, USDA Multicultural Scholars Program  
 Friends of Moon Library, Board Member  
 Promotion and Tenure Committee, Environmental Studies, Ad hoc  
 Co-organizer with Multicultural Affairs, Native American Feast and Film Nov. 09  
 Lunchtime Learning Program, with Multicultural Affairs  
 Meetings with ESF Foundation donor, Dr. Thomas Havill  
 Planning Committee, Native American Studies Minor  
 Search Committee, Environmental Studies, Native American Studies Instructor  
 SUNFAS, (Syracuse University Native American Faculty and Staff  
 Native American Studies department, Syracuse University  
 Fall Native Outreach Day, Syracuse University  
 Spring Native Outreach Day, Syracuse University  
 Search Committee, Director, Native American Studies, Syracuse University

**Donald J. Leopold**

Chair, Department of Environmental and Forest Biology  
 SEFA Coordinator, Fall 2008  
 Presenter at SUNY-ESF Colloquium on Teaching and Learning, August 2008  
 Participant in Freshman Retreat, September 2008  
 Presenter (twice, on campus trees and shrubs) for annual Alumni, Family, and Friends BBQ, September 2008  
 Field trip leader, Syracuse Student Chapter Society for Conservation Biology, October 2008  
 Session co-leader (with Dr. Bongarten) for annual ESF Mentoring Colloquium, January 2009  
 Presenter on GSA panel on Ph.D. Candidacy Exams, February 2009  
 Reviewer, proposal to SUNY-ESF Seed Grant program, February 2009  
 Chair, Search Committee for Director of College Libraries  
 Chair, Faculty Committee on Promotion and Tenure, October 2007 through present  
 Member, Advisory/Steering Committee for ESF Campus Master Plan Study, September 2007 through present.

**Karin E. Limburg**

Building and Space Committee (member)  
 Graduate Program Advisory Committee (chair)  
 Helped to develop pre-proposal for renovating part of Illick for aquatic sciences (CIRTAS)  
 I'm part of a group organizing a new minor and graduate option in ecological economics.

Co-wrote proposal (with Valerie Luzadis and Greg Boyer) to SUNY for a “Conversations in the Disciplines” workshop, titled “Quantification and Valuation of Ecosystem Services” – we have been awarded \$5,000 to run this in the fall of 2009.

**Mark V. Lomolino**

Advising of one UMEB student on her studies on the effects of wind turbines on bats.

**Gregory McGee**

EFB CCAC

ENB assessment team.

Began organizing Freshmen Pre-Orientation Adirondack Experience to be held August 22-25 (w/ A. Woods).

Accepted student orientation session, June 6.

Learning Community Team – contributed to coordination of freshman retreat, coordinated service activities (Guppy Farm wildflower restoration, Salmon River cleanup), summer reading selection.

South Campus Housing Task Force

Faculty Governance Committee on Instruction – Subcommittee on General Education.

Facilitator of summer reading discussion groups (twice).

ESF Graduate Assistant Colloquium – facilitated workshop on Evaluating Written Work (8/22/08), two sessions, ~ 20-30 participants each.

Provided internal review for GK-12 graduate assistant handbook on writing lab reports, testing hypotheses.

McIntire-Stennis Proposal Review

Office of Multicultural Affairs CSTEP pre-orientation program – lead woodland walk for CSTEP students (Aug. 18).

**Kathleen E. McGrath**

Member, Aquatics Major Outcome Assessment Committee, Fall 2008

Participant, EFB Outstanding Female Graduates Dinner, April 7, 2008

Accepted Student Reception, Aquatics Major Representative, April 18, 2009

Member, Selection Committee for Phyllis Roskin Award

ORP Seed Grant Ad Hoc Reviewer

**Stacy McNulty**

Editor of AEC newsletter, the Spruce Moose

Helped organize Dudley Raynal celebration and plaque presented at ESF/National Atmospheric Deposition Program meeting in Oct 2008

Council for Geospatial Modeling and Analysis (CGMA)

Organizer, Huntington Lecture Series

Served on search committee for Center for Adirondack Biodiversity director (extra-university)

**Myron J. Mitchell**

Director of Council of Hydrologic Systems Science

Consortium of Universities for the Advancement of Hydrologic Sciences, Incorporated (CUAHS), alternate representative for ESF (2001-present).

NYSTAR Team Leader for Urban Ecosystems.

Member of Board of Directors of New York Research Foundation

Chair and Member of Committee on Human Resources for New York Research Foundation

Member of Committee on Research for the New York Research Foundation

Commissioner on New York State Governor’s Commission on Higher Education (2007 - 2008)

Member of SUNY Higher Education Advisory Committee

Reviewer Committee for SUNY Distinguished Professors  
 Member of Research Foundation Strategic Planning Team (Research Foundation Board Representative)

**James P. Nakas**

Member: Promotion and Tenure Committee  
 Member: Search Committee for Cellular and Molecular Biologist  
 Still teaching English as a Second Language (to ESF international students) as a member of Literacy  
 Volunteers of Greater Syracuse  
 Member: Radiation Safety Committee  
 Member: Advisory Committee: CNY Biotechnology Research Center  
 Member: Institutional Biosafety Committee: Bristol Myers-Squibb Corp.  
 Chairperson: Institutional Biosafety Committee (ESF)

**Tsutomu Nakatsugawa**

Chair, Promotion and Tenure Committee

**Roy A. Norton**

EFB Undergraduate Curriculum Director  
 ENB Curriculum Coordinator  
 EFB Curriculum, Course and Assessment Committee (member)  
 Responsible for maintenance of departmental Invertebrate Collection  
 Member, mentoring committees for: Christopher Whipps, Gregory McGee  
 Teaching Evaluator for Lawrence Smart (effort made over two semesters and report written, but never used)  
 Member, Search Committee for Dean of Instruction and Graduate Studies (travel prevented participation in final stages)  
 Member, ESF Retention Committee  
 Member, ESF Committee on Instruction  
 Member, CoI Subcommittee on Academic Standards

**Dylan Parry**

Chair, Curriculum and Course Assessment Committee (CCAC)

**William F. Porter**

Coordinator, R. T. King Award  
 Member, Graduate Committee  
 Director, Adirondack Ecological Center  
 Director, Roosevelt Wild Life Station  
 Search Committee, ESF Vice President for Administration

**William A. Powell**

Chair of Molecular & Cellular Biology Faculty position.  
 Member of EFB's Promotion & Tenure Committee  
 Coordinator for the undergraduate Biotechnology major  
 Acting Chair when needed  
 Acting Curriculum Director as needed  
 Executive chair of Faculty Governance  
 Director of the Council on Biotechnology in Forestry  
 IBC (Institutional Biosafety Committee) member  
 Ad-hoc Dubai committee member - discuss the possibility of offering an ESF biotechnology degree through N.A.R.D. in Dubai.

**Neil H. Ringler**

Advisor, Student Chapter, American Fisheries Society

Advisor, Alpha Xi Sigma Honor Society

Host/Coordinator/Workshop leader: Faculty Mentoring Conference: "Graduate Students and Professors: Synergy-Energy-Compatibility in Research, Teaching and Service." Sheraton University Hotel  
January 8, 2009

"Research at ESF: Stimulus Responses; Global and Local Projects" Governance Presentation April 9, 2009

Coordinator of College-wide research proposals for instrumentation, infrastructure, and bio-energy programs

"Research at ESF: Diversity with Focus" Presentation to SUNY Research Foundation, Board of Trustees, Albany, NY April 2009

Host and organizer, visit of VP for Research Foundation and Vice Provost SUNY (Dr. James Weyhenmeyer): "Town Hall Meeting" and Research Poster display November 14th, 2008

Strategy for utilizing 3rd Party commercialization ESF's Intellectual Property: Start of an experiment for SUNY research campuses. April 2009

Host and organizer: ESF research presentations for scientists from Finland (September) and Japan (March)

**D. Andrew Saunders**

Produced Assessment Protocol for NHI major

Coordinator: Natural History and Interpretation major

Advisor: Environmental Interpretation Study Area

Participated in all phases of Open Houses including the development of brochures, displays, posters

Produced public relations products, education materials and supervision of GTA's

Information and Exhibits

Exhibits-designed/supervised/constructed/maintained for Illick Hall and Roosevelt Wildlife Station, e.g., publication board and additional pictures

Assisted colleague and directed undergraduate and graduate students in the design and construction of posters, brochure, and the new Docent program promoting EFB Greenhouses

Stalking Science/Roosevelt Wild Life Station projects and duties:

Continued network of regional Science Trails and associated products for: 1) APA Newcomb Visitor Interpretive Center, 2) Corcoran High School, 3) Baltimore Wood Nature Center, 4) Beaver Lake Nature Center, 5) Wayland Cohoctin Central Schools

Completed: draft edition of the Chittenango Chips Nature Trail Self-guiding Booklet; Gifford Zoo Science Trail; Phase II of the new Morningside Nature/Science trail and associated teacher/students materials at for Ed Smith Elementary School; assisted North Syracuse administrator to develop pilot Sleeth Park Nature Trail Self-guiding Booklet

Implemented Master Naturalist Program, Naturally New York, working with Virginia Collins.

Major contribution: EFB Environmental Interpretation students delivered 494 hours of community programming. This excludes the efforts of graduate students working on comparable programs and special projects.

**Martin A. Schlaepfer**

Graduate Program Action Committee (member)

Cranberry Undergraduate Research Fellowship

Represented the Conservation Biology Major at the 2009 Spring Open House

**Kimberly L. Schulz**

EFB Graduate Program Advisory Committee Member 2008-present  
 Member of Search Committee for Cellular and Molecular Biologist Position, EFB, Spring 2009  
 Participant in assessment development for both the Aquatic and Fisheries Science (AFS) major and the Environmental Biology (ENB) major, Fall 2008.  
 Coordinating effort to develop CIRTAS – Center for Integrated Research and Teaching in Aquatic Science, to find funding to develop a collaborative aquatic science experimental facility for teaching and research at ESF, and efforts to organize aquatics group in EFB  
 Member of Phyllis Roskin Award Committee  
 Faculty mentor for Jacqui Frair and Greg McGee  
 Participated in department's recruiting open house (Oct. 2008)  
 Spoke (with James Gibbs) at college's accepted student reception (Feb 2009) for EFB  
 Co-ordinate college-wide AquaBreak seminar (formerly AquaLunch) and run seminar with graduate student Jacob Gillette  
 September 23rd 2008, Graduate fellowship and grant panel participant  
 Honors Thesis faculty forum participant, 20 October 2008  
 Faculty advisor to the Nautilus Club (student marine science club)

**William M. Shields**

Field Studies Coordinator  
 Member, Graduate Program Advisory Committee  
 EFB representative to Honors Council

**Lawrence B. Smart**

Selection Committee-Lowe and Wilcox Fellowship (Chair)  
 Coordinator - Controlled temperature growth facilities  
 Supervisor, Ms. Bridget McMaster  
 Course and Curriculum Assessment Committee  
 Radiation Safety Committee  
 Institutional Biosafety Committee

**Donald J. Stewart**

Head, Aquatic Sciences and Fisheries Concentration  
 Member, Review Committee for Cranberry Lake Undergraduate Research Fellows, Summer 2008.

**Stephen A. Teale**

Chair, Field Programs Committee

**J. Scott Turner**

Served as a teaching evaluator for the promotion of Dept. of Chemistry candidate  
 SU Senator  
 Senate Committee on Appointments and Promotions

**Alex Weir**

Director, Cranberry Lake Biological Station, 08/06 –  
 Curator of the EFB Herbaria appointed 09/03-  
 Search Committee Member, Food Service Manager, CLBS/Wanakana  
 Member, Field Programs Committee EFB  
 Active participant in EFB majors for Forest Health, Conservation Biology and Natural History and Interpretation.  
 Member, Lowe-Wilcox Award Committee

Chair, Zabel Award Committee  
Chair, Morrell Award Committee  
Director, Cranberry Lake Biological Station, 08/06-  
Search Committee Member, International Education Coordinator  
Member, ESF-wide Environmental and Natural Resources Information Systems  
(ENRIS) Leadership Group.

**Christopher M. Whipps**

EFB Space Committee (Feb 2008 - present). Chair: John Farrell.  
EFB Curriculum Committee (Jan-Feb 2008, Aug2008-present). Chair: Dylan Parry.  
EFB Graduate Program Advisory Committee (Aug 2008-present). Chair: Karin Limburg  
EFB Cell and Molecular Biology Search (Feb 2009 -present). Chair: Bill Powell  
ESF Committee on Promotion and Tenure Policies and Procedures (Feb 2008 - present). Chair: Don Leopold

## **Appendix H. Unfunded Service to Governmental Agencies, Public Interest Groups, etc.**

### **Larry P. Abrahamson**

Answered numerous questions and inquiries from business people, landowners, students, and reporters regarding use of willow as a bioenergy crops and in production and use of biofuels throughout the year.

Exhibit on renewable energy and willow biomass project manned for ~16 hours at Empire Farm Days, Aug. 6-7, 2008, Seneca Falls, NY.

Exhibit on renewable energy and willow biomass project manned for ~6 hours in Horticulture Building, New York State Fair, Aug. 23, 2008. Distributed 400 rooted willow plants to the public.

Consultation (with Larry Smart) to willow growers in Laval, QC on growing our willow varieties in Quebec, Canada Sept. 29-30, 2008

Consultation (with Tim Volk) to Case New Holland in New Holland, PA on development of willow harvesting options with New Holland harvester and cutting head - Oct 31, 2008

Member of the NYS Planning Committee for Survey and Management of Pests.

Member of Renewable Resources Extension Advisory Committee (RRER) at Cornell Cooperative Extension.

Member DOE Short Rotation Woody Crops Operations Group Steering Committee

Member NYS Dept. Agric. Markets Plant Industry Advisory Committee.

Provide advice for the CTFANY New York State Fair booth and Exhibit (2-3 days)

Co-chair Steering Committee for Eighth Symposium on Environmental Concerns in ROW Management

Member Steering Committee for Ninth Symposium on Environmental Concerns in ROW Management

Many inquiries handled on insect and disease problems related to government agencies

Provided training on pesticide use and environmental effects to Syracuse University personnel at their training sessions.

### **Guy A. Baldassarre**

Board Member, Hawk Mountain Sanctuary

Board Member, Livingston Ripley Waterfowl Sanctuary

Advisory Board, Audubon Education Center, Savannah, NY

### **Martin Dovciak**

NYSDEC – consultations for prescribed fire plan for Cicero Swamp Wildlife Management Area.

Jowonio School – ongoing consulting and management of hazards posed by toxic plants (poison ivy) along the trail system used by preschool children.

Jowonio School – tree planting as a part of ESF Campus Day of Service (9/22/2008).

Answered e-mail and phone requests for information from public interested in plant related research and restoration (e.g., Syracuse Botany Club, several environmental consulting firms, SUNY-ESF Trout Bums).

### **John M. Farrell**

Thousand Islands Land Trust: Community site tour on wetlands (August 2008; 15 attendees).

Thousand Islands Land Trust Zenda Farms Picnic, Provided live fish and poster displays as part of community event (June 2008; ~250 attendees)

Save The River, Clayton, NY, Winter Environmental Weekend Invited Speaker, Board of Directors, advisory roles on environmental issues.

Other groups served:

Ontario Ministry of Natural Resources, NYS Fish and Wildlife Management Board, Cornell Veterinary College, The Nature Conservancy, US Fish and Wildlife Service, Lake Ontario Sportfish Coalition, Natural Resources Conservation Service, Ducks Unlimited, SeaGrant.

**Danilo D. Fernando**

Judge at New York State Fair Agri Science Fair. 19 posters. August 21, 2008.

**Melissa K. Fierke**

Answered questions from the public on insects/arthropods through the reporting period.  
ESF entomology display at the 2008 New York State Fair. >100 people stopped by and asked questions ranging from “do you know what this was” to very relevant questions on invasive forest insects.

**Jacqueline L. Frair**

New York State Fish & Wildlife Management Advisory Board, Science Advisor  
Consult with Fort Drum for on-base coyote research  
Consult with Finger Lakes Community College for on-going black bear research

**James P. Gibbs**

Vice Chair, Altai Assistance Project (Wadhams, NY, USA/Gorno-Altai, Altai Republic, Russia),  
(elected 3/09, 2-year term)  
Member, Chittenango Ovate Amber Snail recovery team (2002-present)  
Nine Mile Creek Conservation Council, Council Member, Camillus, New York (2001-present).

**Thomas R. Horton**

We identified mycorrhizal fungi on the root tips of commercially grown hazelnut inoculated with *Tuber melanosporum* (black truffle). Two seedlings were sent, one with the edible truffle and one with a putative contaminant, as the DNA analysis confirmed. The company is New World Tuffieres, Inc. out of Eugene Oregon. This is along the lines of service learning in that I had my EFB 428/628 students collect the genetic data for the company. In exchange, the inoculated seedlings were supplied free and the experience gave the students a look at the truffle inoculated roots and the truffle business in general.

**Robin W. Kimmerer**

National Science Foundation, URM Review Panel 12/08  
National Science Foundation, ad hoc reviewer 1/08  
Haskell Indian Nations University, Board, RED Center  
Oregon Museum of Science and Industry, advisory board, NSF proposal for teaching Traditional Ecological Knowledge  
John Burroughs Society, reviewer for John Burroughs Medal  
Burt Lake Band of Ojibwe, advisor, Traditional Ecological Knowledge program  
Central New York Native American Consortium  
Onondaga Nation School, science and traditional knowledge teaching,  
Onondaga Nation School, academic fair judge, 4/30/09  
Onondaga Nation, Advisor for Forest Management  
Fabius-Pompey School district, “Careers for the Environment” 11/08  
Editorial Board, Stone Canoe, Syracuse University  
Focal Interview, Long Term Ecological Reflections, University of Oregon

**Donald J. Leopold**

Father's Day Nature Walk at Clark Reservation State Park, June 2008  
Trees in Oakwood Cemetery, Central New York Communitree Stewards (Cornell Coop. Extension), July 2008, about 30 people in attendance.  
Co-leader, field trip, Sustainable reuse remedy for the Solvay wastebeds, Sustainable Use Renewable Energy (SURE): Moving central New York forward on the renewable energy path, Camillus, NY, November 2008



Invited Lecture: Something will actually grow there? Central New York Nursery & Landscape Association Annual Education Day, Skaneateles, NY, February 2009, about 100 people in attendance.

Invited Lecture: Natural plant communities of upstate New York, Native Plants Conference, Cornell Lab of Ornithology, Ithaca, NY, February 2009, about 100 people in attendance.

Invited Lecture: Something will actually grow there? NYS DEC Region 8 Education Day, Owego, NY, March 2009, about 30 people in attendance.

Consulting (unpaid) to Parsons on Onondaga Lake shoreline wetland restoration

Consulting (unpaid) to EDR on Onondaga Lake shoreline wetland restoration

Consulting (unpaid) to Nelson, Byrd, Woltz Landscape Architects; and, co-leader (with James Gibbs) for biological survey in Virginia to provide data prior to restoration activities.

National Technical Committee for Wetland Vegetation, northeastern U.S. representative from academia to this US Army Corp of Engineers advisory committee, January 2007 to present.

### **Karin E. Limburg**

Made a short presentation for the DEC Hudson River Estuary Program's annual meeting, June 2008, at their request.

Chaired a workshop for the Hudson River Foundation, "Hudson River Shad Recovery" to prioritize research needs for shad and river herring restoration (essentially writing an RFP), July 31 2008, Hudson River Foundation, New York, NY.

Participated in a program review of the Cornell Biological Field Station, July 1-2, 2008.

Co-organized and chaired a session within the NSF-sponsored "IDBR: Workshop on Transformative Instrumentation for Biological Research - A Vision for the Future," September 19-20, 2008, Arlington, VA. Purpose was to bring together cutting-edge science from multiple fields, in order to create an RFP for the IDBR (Instrumentation Development for Biological Research) panel. We may write a synthesis paper.

Participated in an ICES (International Council for the Exploration of the Seas) study group on anguillid eels, March 2009, Sackville, NB, Canada.

Served on NSF panel (Coupled Natural and Human Systems), March 2009.

Made a presentation to an NSF review team for the Cornell High Energy Synchrotron Source site visit in conjunction with their renewal proposal, April 28, 2009

Attended the Council of Scientific Society Presidents semi-annual meeting, May 2009

Member, Science Advisory Group, NYS Oceans and Great Lakes Ecosystem Conservation Commission (NYS DOS), Nov. 2007 –

### **Gregory G. McGee**

Preserve Management Advisory Committee, Finger Lakes Land Trust.

### **Kathleen E. McGrath**

Member, NYSDEC Fish Diversity Committee/Endangered Species Expert Panel

ESF representative, Onondaga Lake Partnership Project Committee

Member, Nonpoint Source Coordinating Committee, NYSDEC

Taught aquatic macroinvertebrates class at Women In Nature Workshop, Elbridge, NY

Member, Northeast Rivers and Streams Committee

### **Myron J. Mitchell**

Board of Directors of Upstate Freshwater Institute

Commissioner on NYS Commission on Higher Education (2007-2008).

### **James P. Nakas**

On the advisory committee for the central New York Biotechnology Research Center (CNYBRC) soon to be located at the Kennedy Square complex on Fayette Street.

Invited member of panel discussion group on sustainability for Cayuga-Onondaga BOCES, April 3, 2009, Auburn, New York.

### **Tsutomu Nakatsugawa**

Delivered a featured talk (20 min) “Language and culture” to Baobab Society meeting at Nifkin Lounge on 3/21

Gave a 1-hour talk “Living with hazardous heritage: a biologist’s view of the toxic world” to a group of high school teachers in a “STANYS conference, Environmental Chemistry: Effects and Detection of Small Chemical Quantities” at Chenango Forks High School, Binghamton, NY on 4/23.

### **Roy A. Norton**

24-hr consulting specialist on venomous arthropods for Syracuse Poison Information Center.

Extension: regular fielding of calls and inquiries from general public and businesses regarding mites, spiders, ticks, and other pest arthropods.

Collaborating specialist, USDA Insect Identification Service: mite identifications and dispensing of biological information.

Collaborating specialist, USDA-APHIS: identification of mite specimens taken during routine quarantine inspections of plants.

Complementary mite identifications and/or extended consultations relating to the following ecological/evolutionary/taxonomic studies of mites: (researcher, institution, project)

- a. V. Behan-Pelletier – Agriculture Canada: Oribatid mites in the family Ceratozetidae of North America.
- b. S. Seniczak - Univ. of Techn. & Life Sciences, Poznan, Poland: European species of the semi-aquatic oribatid mite family Malaconothridae.
- c. S. Seniczak and A. Seniczak - Univ. of Techn. & Life Sciences, Poznan, Poland: European species of the semi-aquatic oribatid mite superfamily Protoplophoroidea.
- d. S. Seniczak and A. Seniczak - Univ. of Techn. & Life Sciences, Poznan, Poland: European species of the semi-aquatic oribatid mite family Limnozetestidae.
- e. J. Mourek – Dept of Zoology, Charles University (Prague): Feeding biology of oribatid mites
- f. M. Colloff – CSIRO Department of Entomology, Canberra, Australia: Species-groups and biogeography of the oribatid mite family Crotoniidae in South and Central America.
- g. M. Lepping – University of Maryland: Predation by carabid beetles on oribatid mites.
- h. K. Young – Univ. of Washington: Oribatid mites in gut contents of NWn US salamanders.
- i. S. Daino – Syracuse University: Identification of local ticks.
- j. L. Miko – European Commission, DG Environment, Brussels, Belgium: Revision of oribatid mite family Oppiidae.
- k. O. Koukol – Charles University, Prague: Feeding preferences in oribatid mites.
- l. J. Philips – Babson College, Boston: Mites associated with trogid beetles.
- m. D.E. Walter – Royal Alberta Museum, Edmonton: Almanac of oribatid mites of Alberta
- n. M. Murvanidze – Georgian Academy of Science, Tbilisi: Effects of urbanization on soil organisms.
- o. S. Ermilov – Nizhniy Novgorod Medical Academy, Russia: Identity of immature oribatid mites
- p. M. Presthus – University of Bergen, Norway: Subfossil oribatid mites of Greenland.
- q. C. Groehn – Glinde, Germany: Oribatid mites from Baltic amber

### **Dylan Parry**

Member, New York State Invasive Species Advisory Council

Albany Pine Bush Preserve. I have continued a long-standing relationship with the Albany Pine Bush preserve. The director, Neil Gifford, and I have collaborated on numerous projects, and I provide consultation on the effects of management on insect species that are of conservation concern.

Although there is no direct compensation, we benefit through free labor from preserve staff and occasional housing for graduate students.

NY DEC. I share ecological information on insect defoliators and exotic forest pests with Jerry Carlson, head of Forest Protection for NY-DEC. In addition, I have been running a pilot study on the use of forest tent caterpillar pheromone as a monitoring tool and coordinating sites with the DEC so that we can compare their traditional sampling methods with this new tool. The DEC will fund trapping costs (fuel, pheromone, traps, etc.).

**William F. Porter**

National Park Service, Haleakala National Park, Hawaii

**William A. Powell**

Advisor to the NY chapter of The American Chestnut Foundation

**Neil H. Ringler**

NYDEC Onondaga Lake Technical Committee (Littoral Habitat)

**D. Andrew Saunders**

Service to:

- Gifford Zoo
- Chittenango Falls State Park
- Jewish Community Center
- Great Swamp Conservancy
- Green Lakes State Park
- Jamestown Audubon Society
- Clark reservation State Park - Council of Park Friends
- Onondaga County Public Libraries
- Town of North Syracuse
- National Audubon Society – Project Puffin
- Adirondack Park Agency Visitor Interpretive Centers
- Beaver Lake Nature Center
- Baltimore Woods Nature Center
- Syracuse City School District – Ed Smith Elementary School
- Wayland-Cohoctin Central School
- NYSDEC

**Martin A. Schlaepfer**

Member of Advisory Board for the New York State Invasive Species Research Institute (ISRI) 2008-2011, which included full-day meeting with Board and DEC biologists in February, April

**Kimberly L. Schulz**

Advised resident at Song Lake, Tully, NY and representative from the Kettle Lakes Association of New York about Cyanobacteria blooms in Song Lake.

**William M. Shields**

Board of Directors (1996- ) and Treasurer (1996-2001), Melinda Gray Ardia Environmental Education Foundation, P.O. Box 621, Skaneateles, New York 13152.

Pro Bono consulting and expert witness for various individuals and entities including the Alliance of Families of MIA's and POW's, the Russian Orthodox Church, and the Innocence Project.

**Lawrence B. Smart**

Empire Farm Days – three-day exhibit in August 2008.

New York State Fair – two-day exhibit in Horticulture Building in August 2008.

Perennial Bioenergy Feedstock Day – Field tour – USDA Big Flats Plant Material Center – July 29, 2008  
- 105 guests.

**Stephen A. Teale**

Insect identification services to the Onondaga County Medical Examiner

Interview with Channel 9 TV re: Asian longhorned beetle, May 2009

Interview with Channel 9 TV re: NYS-DEC restrictions on total release foggers (flea bombs), October 2008

**J. Scott Turner**

Member, Science Advisory Board. Nidiant Corporation.

Moderator, OCM Boces Science Decathlon.

**Alexander Weir**

Poison Control Center, consultation with local physicians re: identification and treatment of mushroom poisonings (2 cases, one fatality; Fall 08)

National Science Foundation Grant Application Reviewer (3 applications fall 2008/spring 2009)

Continued Liaison with Central New York Mycological Society

Participant NSF funded Assembling the Fungal Tree of Life (AFTOL) Program

## Appendix I. Unfunded Service to Professional Societies and Organizations

### Larry P. Abrahamson

Participated in the NY Christmas Tree Grower's Association Winter Convention; January, 2009.

Co-Chair, IUFRO group on short-rotation forestry (2006-2009).

Member, Christmas Tree Farmers Association of NY (CTFANY) Winter and Summer Meeting Program Committees.

Member, Christmas Tree Farmers Association of NY (CTFANY) Board, 2008-2010.

Member, Steering Committee of the Short-Rotation Woody Crops Operations Working Group.

Member, Steering Committee, 9th International Symposium on Environmental Concerns in Rights-of-Way Management to be held September 27- October 1, 2009.

### John M. Farrell

Associate Editor, *Wetlands* (resigned 1/09).

Board of Directors, Save The River Inc. – 1200 member Environmental Advocacy organization on the St. Lawrence River.

Chair, International Esocid Working Group – Fisheries Management group created under the Great Lakes Fisheries Commission

Advisory Board Member, Central Michigan University Biological Station – Worked with committee of noted scientists in development of recommendation document at request of CMU Dean.

Advisory Board Member, Cornell University Biological Station – Met in April to discuss future of the CBFS.

### Jacqueline L. Frair

Vice-President, NY State Chapter, The Wildlife Society

Faculty Advisor, ESF Student Chapter, The Wildlife Society

### James P. Gibbs

Elected Member of the Board, North American Section of the Society for Conservation Biology (3 year term, elected 5/07, starting 5/07)

### Thomas R. Horton

Program Committee, Mycological Society of America (2006 - 2009)

Chair - Program Committee, Mycological Society of America (2009 - 2010)

Counselor – Ecology and Pathology (elected position, August 2009 - July 2011)

Co-Organized Behavioral Ecology and Evolution Research Seminar series with Kari Segraves, a joint seminar series between EFB and SU Biology (Spring and Fall semesters).

### Robin W. Kimmerer

John Burroughs Association, Judge, Selection Committee, John Burroughs Medal Competition

SACNAS, Society for Advancement of Chicanos and Native Americans in Science, Editorial Advisory Board

Past President, Traditional Ecological Knowledge Section, Ecological Society of America

Central New York Native Educators Association, Member

Indigenous Women's Science Network, founding member

### Karin E. Limburg

I served as Past President of the U.S. Society for Ecological Economics; I also serve as the head of the fundraising committee and am on the program committee for the 5th biennial conference that takes place at the end of the month.

**Mark V. Lomolino**

Advisor, International Biogeography Society; development of a new journal – *Frontiers of Biogeography*

**Stacy McNulty**

Adirondack Research Consortium Board Member (2009-2012)

**Dylan Parry**

Member, New York State Invasive Species Advisory Council

**William F. Porter**

President, Adirondack Research Consortium

**William A. Powell**

I am the Chairman of the Symposium on transgenic research in Fagaceae. This is part of an upcoming meeting (Nov. 10-13, 2009) entitled, “Genomics of forest and ecosystem health in the *Fagaceae* (Beech Family) to be held at the Research Triangle park in NC.

**Kimberly L. Schulz**

Member of a subcommittee of the Education Committee of the American Society of Limnology and Oceanography. Participating in developing the ASLO Education website – particularly the image library and helping organize the first ASLO photo contest and calendar

**Larry B. Smart**

Executive Committee, Northeast Section American Society of Plant Biologists Northeast Section Representative to National Executive Committee, American Society of Plant Biologists Membership Committee, American Society of Plant Biologists

**Alex Weir**

Member, Mycological Society of America Distinctions Committee.

**Christopher M. Whipps**

Member – 2009 Henry Baldwin Ward Award Committee, American Society of Parasitologists.

## **Appendix J. Funded Service to Governmental Agencies, Public Interest Groups, etc.**

### **Larry P. Abrahamson**

Niagara Mohawk/ National Grid, Provide advice on herbicide use on ROW in New York State.  
 Environmental Consultants, Inc., Provide advice on herbicide use on ROW in the Northeast.  
 Syracuse Environmental Research Associates, Inc., Provide advice on insecticide and herbicide use on forest and ROW areas.  
 Christmas Tree Judge for New York State Fair

### **John D. Castello**

Member of Expert Blue-Ribbon Panel to conduct on-site review of NSF, EPS-COR program for the state of Oklahoma by the American Association for the Advancement of Science. November, 2008.

### **John M. Farrell**

IJC St. Lawrence River Board of Control – invited expert to workshop regarding development of criteria for water levels regulation for environmental interest.  
 NYSDEC Great Lakes Water Levels Management- advised DEC on issues related to IJC Water Levels management and effects on public resources, produced proposal for monitoring wetlands with Gibbs, Leopold, Distler, Schulz and Mitchell.  
 NY Power Authority – assisted on walleye spawning habitat enhancement project by providing resources and laboratory space at ESF to process samples taken at recently created spawning bed.

### **James P. Gibbs**

National Environmental Management Council, United Republic of Tanzania/World Bank, Training program in “Principles of ecological monitoring” for Mr. Wilirk Ngalason and Mr. Dismas Mwikila (10/12-10/19), SUNY-ESF.  
 Member, Isle Royale National Park “Blue Ribbon Panel” of science experts assessing Park’s research programs (1 week site visit August, 2008, final report delivered Jan 09).  
 General Electric Corporation, Inc.: Herpetological and colonial waterbird assessment on the Upper Hudson River (5/06 - present)  
 Nelson Bird Woltz Landscape Architects, Ecological survey of land holding, Charlottesville, VA, May 18-22, (co-organized w/ Leopold, work completed by 12 EFB undergrads, grads and affiliates).

### **Gregory G. McGee**

Reviewed National Park Service National Capital Region Network Vegetation Monitoring Protocol.  
 Completed production and public roll-out of the Salmon River Watershed Viability Analysis (McGee, 2008) and Salmon River Watershed Natural Resource Assessment (McGee, 2008) for the New York State Tug Hill Commission.

### **Myron J. Mitchell**

Member of the EPA’s Clean Air Scientific Advisory Committee (CASAC)  
 Reviewer for European Commission (Water Resources and Climate Change)

### **James P. Nakas**

Member, Institutional Biosafety Committee, Bristol-Myers Squibb Corp.

### **Martin A. Schlaepfer**

Population dynamics of Jolleyville Plateau Salamanders (Austin Community Foundation (\$104,000; my share: ca. \$5000), Endangered Species Research, Co-PI with Drs. Gluesenkamp and Poteet, 2007-2009)

## Appendix K. Presentations to the Public

### Lawrence P. Abrahamson

- Presentation on willow production to a NYDOT training session on living snowfences held at Tully (Heiberg Forest), May 26, 2009.
- Presentation on willow biomass program at SUNY-ESF to Expert Workshop – Initiating a Short Rotation Forestry Strategy for Eastern Ontario – Mar 10, 2009 Kemptville, Ontario.
- Meet with University of Chile visitors to talk about growing willow energy crops in Chile, Mar 18, 2009.
- Presentation on willow project at SUNY-ESF to the Central and Western Industry Liaison Group on campus Mar 19, 2009.
- Presentation on Renewable/Sustainable Energy – Energy 101 to SUNY system VP’s of student Life on campus Mar 19, 2009.
- Field demonstration of harvesting willow crops with New Holland forage harvester in Bellville, NY, Nov 12, 2008
- Presentation to Marcellus Rotary on willow biomass crops - May 27, 2008.
- Presentation on willow biomass crops to Green Grand Prix Speakers Form, Watkins Glen, NY – May 3, 2008.
- Empire Farm Days – manned booth with Larry Smart to discuss willow crops and willow planting and harvesting equipment. Aug 5-7, 2008.
- NY State Fair – manned booth with Larry Smart and Kim Cameron to discuss willow crops. Aug 23-24, 2008

### Jesse L. Brunner

- Brunner, J.L. Scaling up disease ecology from individuals to landscapes. Department of Biology, University of North Carolina Greensboro, NC. February 2009

### John M. Farrell

- J. M. Farrell, The Thousand Islands Biological Station: A Great Lakes Research Link in the upper St. Lawrence River. SeaGrant, Lake Guardian Class. (July 2008, 25 attendees).
- J. M. Farrell, The Thousand Islands Biological Station: A Great Lakes Research Link in the upper St. Lawrence River. Antique Boat Muesum Board of Directors Meeting, Chippewa Bay, NY (September 2008, 20 attendees)
- J. M. Farrell. Update on VHSV effects on muskellunge and status in the St. Lawrence River: Save The River 18th Annual Winter Weekend Conference (February 2009; 60 attendees).
- J. M. Farrell, G. Avruskin, and J. Hughes. A Conservation Strategy of Enhancement of St. Lawrence River Native Fish Populations. US Fish and Wildlife Service, Cortland Field Office, Informational Session, Cortland, NY (March 2009; 15 attendees).
- G. E. Eckerlin, P. Bowser, J. M. Farrell, and G Grocock, Round Goby Mediated Viral Distribution among Smallmouth Bass in the St. Lawrence River. Save The River 18th Annual Winter Weekend Conference (February 2009; 60 attendees).

### Melissa K. Fierke

- M.K. Fierke. Forest entomology presentation at Clark Reservation. 8/08.
- M.K. Fierke. Impacts of emerald ash borer and Sirex noctilio. SU-ESF ENSPIRE seminar series. 10/08. Syracuse, NY.
- N.A. Werner, M.K. Fierke. Ecological and socio-economic aspects of emerald ash borer. Cornell University, Agricultural and Food Systems In-Service. 11/08. Ithaca, NY.
- WSYR Channel 9 television interview about Galapagos research on anniversary of Charles Darwin. 2/09.
- WCNY radio interview about Galapagos research on anniversary of Charles Darwin. 2/09.
- M.K. Fierke. Entomology: The study of Insects – with a focus on invasive forest pests. Naturally New York, Envir. Interp. Prog.



Presentation 5/28/09 and field trip 5/30/09 to Clark Reservation.

**Jacqueline L. Frair**

NY State Conservation Council, Albany, NY (~60 people)

Provided poster on coyote study for Syracuse University Library Associates Spring Luncheon

**James P. Gibbs**

“Evolution, ecology and conservation of giant Galapagos tortoises,” Department of Entomology & Wildlife Ecology, University of Delaware, 10/8,08 (~50 attendees).

“Evolution, ecology and conservation of giant Galapagos tortoises,” Biology Department, Villanova University, 2/12/09 (~75 attendees).

“Small wetland science,” Plenary speaker, Conference: “Falling Through the Cracks: The Science and Policy Challenges of Conserving Small Wetlands in the Hudson Valley,” Hudson River Estuary Program and the Hudson River Environmental Society, Norrie Point Environmental Center, Staatsburg, NY, 10/28/08. ~60 attendees.

“Small wetland science,” New York State Wetlands Forum, Poughkeepsie, NY, 4/7/09. ~50 attendees.

“Effects of New York State roadways on amphibians and reptiles: a research and adaptive mitigation program,” NYSDOT Annual Environmental Program Meeting, White Eagle Conference Center, Hamilton, NY, 18 June 08. ~45 attendees

“Reptiles and amphibians”, Naturally New York/SUNY-ESF, lecture 9/19 and field trip 9/20. ~15 attendees

**Charles A.S. Hall**

Peak oil, EORI and your financial future Colgate University 2008 (40)

Peak oil, EORI and your financial future US Military Academy, West Point February 2008 (40)

Peak oil, EORI and your financial future Ohio State Univ. April 2009 (60)

Peak oil, EORI and your financial future Kenyon College. April 2009 (60)

Peak oil, EORI and your financial future SUNY Albany April 2009 (30)

Peak oil, EORI and your financial future Wesleyan College April 2009 (60)

**Thomas R. Horton**

Central New York Mycological Society: Attended numerous monthly meetings on Monday evenings and Sunday mushroom gathering forays around central New York as the ESF representative for the group.

Ethnomycology – Lecture to about 25 attendees, Mid York Mycological Society, September 2008

Attended the annual Peck Foray with my students, hosted this year by Tim Baroni – SUNY Cortland.

**Robin W. Kimmerer**

Long Term Ecological Reflections Meeting, Oregon State University, 10/24/08

Washington and Lee University, “Mishkos Kenomagwen”:the teachings of Grass 5/12/09

Syracuse University, Traditional Knowledge Colloquium 10/06/08

SUNY ESF, Lunchtime Learning Program, 4/7/09 80 attendees

LeMoyne College Symposium for Focus the Nation, 3/17/09, “Gifts and Responsibilities” 60 attendees

Northern Arizona University, Ecological Restoration Seminar 3/09/09

Northern Arizona University 3/10/09 Environmental Philosophy Seminar

Northern Arizona University 3/11/09 Environmental; Literature Seminar

SUNY ESF, Conversations in the Disciplines 11/07/08

Ithaca College, Sustainability Café 1/09

**Donald J. Leopold**

Naturally New York Group – lecture on Native Plants (Sept. '08) and Field Trip at Clark Reservation (Oct. '08), about 20 attendees.

Syracuse Botanical Club, Inland salt marsh restoration; Syracuse, NY; December 2008, about 40 people in attendance

Unique native plants of central New York, Habitat Gardening Central New York, February 2009, about 50 people in attendance.

Something will actually grow there? Syracuse University 5th Annual Bookstore Break, about 25 people in attendance, March 2009.

NY State-protected species: Why they are listed and how to use these species in the landscape, CNY Blooms, Keynote Speaker, Syracuse, NY, March 2009. About 200 people in attendance

Pawpaws, shooting stars, and other terribly neglected native plants for the landscape, CNY Blooms, Keynote Speaker, March 2009. About 150 people in attendance

From pawpaws to shooting stars and prickly pears: Excellent and often under utilized native plants for Northeastern gardens, Watnong Chapter North American Rock Garden Society, Frelinghuysen Arboretum, Morristown, NJ, March 2009. Over 100 people in attendance

### **Karin E. Limburg**

“Invasive Species of the Hudson River Estuary.” Presented at Cornell Cooperative Extension In-Service Training, November 12, Ithaca, NY. Circa 60 in attendance.

“Neolithic vs. Modern Baltic sea fisheries: Evidence of a shifting baseline?” Presented twice: November 4 at SUNY Oswego as part of their “Science Today” series; and April 29 at the Lake Erie Research Center, University of Toledo (co-sponsored by Bowling Green State University). Circa 30-40 in attendance both times.

“Evolution and fisheries: Do fisheries constitute an evolutionary force?” Presented to the Biology, Ecology and Evolutionary Research Seminar, February 16 2009, Syracuse University. Circa 25 in attendance.

“What’s beneath the surface of Onondaga Creek: What the EcoBlitz and other studies tell us about stream ecology.” Presented to the Dewitt Community Church Men’s Group, February 18 2009, Dewitt Community Church. Circa 25 in attendance.

### **Stacy A. McNulty**

Ukrainian tour group, HWF, June 2008

Huntington Lecture Series (beech nuts’ importance to wildlife), VIC, July 2008

Teddy Roosevelt Days Ecology Hike, HWF, September 2008

Presentation to Adirondack Landowners’ Association, May 2009

Presentation to Conservation Fund Advisory Board, HWF, August 2008

Adirondack GIS User’s Group, November 2008

### **James P. Nakas**

Invited by Cayuga-Onondaga BOCES as a participant on a panel discussion on sustainability, Friday, April 3, 2009, Auburn, New York, attendance approximately 50.

### **Dylan Parry**

D. Parry. Conserving Barrens Buck Moth in Pine Barrens Habitats. State Museum Lecture Series. Oct. 22, 2008. Albany, NY. (~75 + simultaneous webcast to multiple colleges and other museums throughout the state)

D. Parry. Aliens Among Us: The Unnatural History of Invasive Species. Wanakena Aug. 13th, 2008

### **William F. Porter**

Dechen Quinn, A.C, W.F. Porter. Movement patterns and habitat use among GPS-collared white-tailed deer in Central New York: Evaluating the parameters that influence the spread of chronic wasting

disease. Presented at SUNY-Plattsburgh, Plattsburgh, NY. November 2008 (invited symposium speaker).

Dechen Quinn, A.C., D.J. Quinn. Wildlife ecology: an occupational odyssey. Presented to Rutland City Intermediate School, Rutland, VT. March, 2009 (invited speaker).

### **William A. Powell**

Update on transgenic American chestnut. Oct. 18-19, 2008. New York State Chapter of The American Chestnut Foundation. Hosted by us on the ESF Campus with tours of the research labs, greenhouses, and field plantings. ~40 attending.

### **Neil H. Ringler**

Siniscal, Anthony, Lucas Kirby, Stephanie Johnson and Neil Ringler. Fisheries and invertebrate life in Onondaga Lake and Tributaries: Current Status. Onondaga Lake Partnership, METRO facility, May 22, 2009. (25 attendees)

### **D. Andrew Saunders**

Naturally New York: Educating Entertainingly.

1) Basic Methods for Connecting Audiences to Natural Resources; 2) The Dynamics of a Professional Interpretive Walk; 3) Going Nuts...an interpretive experience with the Black Walnut. December 18, 2008. 18

Healthy Steps to Albany Kick-Off Expo. Program for Syracuse Area Teachers and Students. March 16, 2009. 300

St. Alban's Earth Day Go Green Festival.

Reconnecting Kids and Communities to Nature, averting the calamity. April 25, 2009. 25

### **Martin A. Schlaepfer**

"Population dynamics of lizards and amphibians in fragmented forests." Tropical forest restoration workshop, 30 July 2008, Las Cruces, Costa Rica

"The behavioral and evolutionary responses of native tadpoles to introduced predators". Young Investigator Seminar Series, University of Washington, School of Aquatic and Fishery Science. Oct 2 2008 Seattle WA,

"The behavioral and evolutionary responses of native tadpoles to introduced predators". Asa Gray Student-invited seminar, Utica College, NY 10 November 2008

"The behavioral and evolutionary responses of native tadpoles to introduced predators". University of Neuchatel, Switzerland 20 November 2008

"The behavioral and evolutionary responses of native tadpoles to introduced predators". Clarkson University, Potsdam NY 16 January 2009

"Professional choices in the field of conservation biology". SUNY-ESF Student Society for Conservation Biology, CNY chapter, 4 February 2009

"The behavioral and evolutionary responses of native tadpoles to introduced predators". Adaptive Peaks Seminar, SUNY-ESF, Syracuse NY 5 March 2009

"The behavioral and evolutionary responses of native tadpoles to introduced predators". University of Zurich, May 19<sup>th</sup> 2009.

### **Kimberly L. Schulz**

"Nutrition and food webs: Food quantity, food quality, diet determination, and phylogenetic constraints." SUNY Albany and Wadsworth School of Public Health, 14 April 2009. Approximately 50 people in attendance.

Stakeholder's Workshop in Oswego sponsored by the Cornell Biological Field Station at Shackelton Point, Cornell College of Agriculture and Life Sciences, and N.Y. Sea Grant entitled "The Future of

the Lake Ontario Ecosystem: Is there a Crystal Ball?” Invited topic, “Nutrients, Algae, and Zooplankton and Food Quality - new insights on balancing nutrition and ecosystem health in the Lake Ontario Food web.” 8 November 2008. Approximately 75 attendees.

#### **Lawrence B. Smart**

Smart, L.B. “Genetics of yield and biomass composition of shrub willow bioenergy crops for North America”. Dept. of Horticulture, Cornell University, Ithaca, NY. Mar. 9, 2009. Invited departmental seminar.

Smart, L.B. “Development of Fast-Growing Shrub Willow Crops for Heat, Power, and Biofuels” New York State Maple Producer’s Winter Conference, Vernon-Verona-Sherrill High School, Verona, NY, January 10, 2009. Invited session speaker.

Smart, L.B. “Genetics of yield and biomass composition of shrub willow bioenergy crops for North America”. Dept. of Horticultural Sciences, Cornell University, NYS Agricultural Experiment Station, Geneva, NY. Nov. 4, 2008. Invited departmental seminar.

Smart, L.B. “Genetic improvement of shrub willow for bioenergy in North America” Rothamsted Research, UK, June 3, 2008. Invited seminar.

#### **Steve A. Teale**

Teale, S.A. Chemical ecology of recent invasive forest insects in New York. March 24, 2009, Department of Entomology, NYS Agri. Expt. Sta., Cornell Univ. Geneva, NY.

Teale, S.A. Forest Health and Wildlife Populations. NY Chapter of The Wildlife Society Annual Meeting, February 20, 2009 Syracuse, NY

#### **J. Scott Turner**

Otjiwarongo, Namibia. 22 May 2009. About 30 people attended.

Beyond biomimicry: What termites can tell us about realizing the living building. Namibia Institute of Architecture, Windhoek, Namibia. 31 May 2009.

#### **Alex Weir**

Naturally New York Group – lecture on Fungal Biodiversity and Field Meeting at Clark Reservation – 9 attendees

## Appendix L. Miscellaneous Publications and Outreach Activities and Materials

### Lawrence P. Abrahamson

Smart, L.B., Cameron, K.D., Volk, T.A., and Abrahamson, L.P. (2008) Breeding, selection, and testing of shrub willow as a dedicated energy crop. NABC Report 19 Agricultural Biofuels: Technology, Sustainability, and Profitability, National Agricultural Biotechnology Council, Ithaca, NY, pp. 85-92.  
Willow Economic Model Fact Sheet - authored by T. Buchholz, T. A. Volk, L. P. Abrahamson, and L. B. Smart  
Fact sheet: "EcoWillow v 1.0 (Beta) – An Economic Analysis Tool for Willow Short-Rotation Coppice for Wood Chip Production" - published 5/2008 with a new version in 2009

### Jesse L. Brunner

Hemmingway, V., J. Brunner, L. Berger, and R. Speare. 2009 in press. Viral and bacterial diseases of amphibians. in Heatwole, H., and J. W. Wilkinson, editor. Amphibian decline: Diseases, parasites, maladies, and pollution. Surrey Beatty Pty. Ltd., Baulkham Hills, NSW, Australia.

### John M. Farrell

Farrell, J.M. 2009. Research at Governors Island. Thousand Islands Life Magazine. March 2009. [www.thousandislandslife.com](http://www.thousandislandslife.com).

Farrell, J.M., R.T. Colesante, D.E. Dittman, and J.H. Johnson. 2009. Lake sturgeon population enhancement as a strategy for improvement of ecosystem function and controlling invasive species. Final Report. Fish Enhancement Mitigation and Research Fund, US Fish and Wildlife Service, New York Field Office, Cortland NY.

### Melissa K. Fierke

W.E. Hellman and M.K. Fierke. 5/09. 2009 *Philornis downsi* trapping and rearing report. Charles Darwin Research Foundation.

### Jacqueline L. Frair

Zuckerberg, B., Huettmann, F., and Frair J. (in review) Data management as a scientific foundation for reliable predictive modeling. Chapter 3 in Drew, A., Huettman, F., and Wiersma, Y., eds., Predictive Modeling in Landscape Ecology. Springer Verlag, NY.

### Thomas R. Horton

Horton, van der Heijden (2008) The role of symbioses in seedling establishment and survival. In: Seedling Ecology and Evolution. Leck M, Parker VT, Simpson B, Eds. Cambridge University Press.

### Donald J. Leopold

Leopold, D.J., The Bristlecone Book: A Natural History of the World's Oldest Trees, invited book review for *Journal of Forestry*, April 2009

### Karin E. Limburg

Limburg, K.E. 2009. Aquatic Ecosystem Services. In Gene E. Likens (editor) Encyclopedia of Inland Waters, Vol. 1: 25-30. Elsevier Publishers, Oxford.

Limburg, K.E. 2008. Quantifying the ecological effects of Hudson Valley sprawl. *News from Hudsonia* 22(2): 1-3.

Cairns, D., J. Clark, M. Clément, M. Dionne, J.-D. Dutil, D. Fox, J. Hallett, B. Jessop, L. Lee, K. Limburg, J. Mailhiot, S. Proulx, and D. Secor. 2009. Report of the Study Group on Anguillid Eels in Saline Waters (SGAESAW). ICES Diadromous Fish Committee. ICES CM 2009/DFC-XXX. International Council for the Exploration of the Sea, Copenhagen, Denmark.

Breitburg, D., K. Limburg, L. Davias, and D. Swaney. 2009. Hypoxia, Nutrients, Fisheries, and their Ecosystems. Article for INPRINT (newsletter of LOICZ, the Land-Ocean Interactions in the Coastal Zone – a program of the IGBP). In press.

### **Mark V. Lomolino**

Lomolino, M. V. 2008. The Temporal and Taxonomic Breadth of Biogeography – review of BIOGEOGRAPHY, TIME, AND PLACE: DISTRIBUTIONS, BARRIERS AND ISLANDS, Edited by Willem Renema. The Netherlands: Springer. *Journal of Mammalian Evolution* 10.1007/s10914-008-9094-6

### **Stacy McNulty**

Allen, E., R. Curran, S. Halasz, J. Barge, S. McNulty, A. Keal, and M. Glennon. 2009. Adirondack GIS: Resources, Wilderness, and Management. Marguerite Madden, ed. Pages 1135-1168 in the ASPRS Manual of Geographic Information Systems. American Society of Photogrammetry and Remote Sensing, Bethesda, MD. 1352pp.

### **Myron J. Mitchell**

Driscoll, C.T., K.M. Driscoll, M.J. Mitchell, D.J. Raynal, K. Roy. Impacts of Long-range Emissions of Air Pollution on Adirondack Ecosystems. 2009. In: W.P. Porter, R.S. Whaley & J. D. Erickson (eds.). *Light from an Adirondack Prism: The Great Experiment in Conservation* Syracuse University Press, Syracuse, NY (In Press)

### **Roy A. Norton**

Norton, R. A. and Behan-Pelletier, V. M. 2009. Oribatida. Chapter 15 (pp. 430-564) in: *A Manual of Acarology* (G.W. Krantz and D.E. Walter, eds). Texas Tech Univ. Press, Lubbock.  
Norton, R.A. 2008 (2009). Systematic relationships of Lohmanniidae (Acari: Oribatida). *Proceeding of the International Congress of Acarology, Amsterdam 2006*. (Accepted Aug 28 2008)

### **Dylan Parry**

Book Chapter: Parry, D. 2009. Quantitatively Assessing Non-Target Effects of Parasitoids Released for Biological Control. Pp. 57-68, In D.W. Langor and J. Sweeney (eds), *Ecological Impacts of Non-Native Invertebrates and Fungi on Terrestrial Ecosystems*. Springer.  
Parry, D. and H.B. Underwood. 2008. A Quantitative Comparison of Pollard-Yates Counts and Distance Sampling for Monitoring Populations of an Endangered Butterfly, *Lycaeides melissa samuelis*. Final Report to the State of New York Department of Environmental Conservation. 32pp.

### **William F. Porter**

Porter, W. and B. Zuckerberg. 2008. Long-term Responses of Breeding Birds to Habitat Loss and Fragmentation. Final Report to the NYS Biodiversity Research Initiative. 66 pp.  
Porter, W. 2008. Adirondack Research Consortium – President’s Message. *Adirondack Journal of Environmental Studies*. In press.  
Porter, W. and E. Dowling-Danks. 2008. Assessment of residential development impact on the integrity of small mammal communities in New York. Final Report to the NYS Biodiversity Research Initiative. 82 pp.

### **D. Andrew Saunders**

The Science Trail: Investigations into Ecology and Conservation Biology for Students at the Intermediate Level in New York State. 30 pp. Elizabeth Schmidt and D. Andrew Saunders. 2009  
Science Trails: Connecting Classrooms to Nature. The Morningside Nature-Science Trail, Syracuse, NY. Activity Booklet for students and teachers. 70 pp. Robert Kiley, Anne Schlesinger, and D. Andrew Saunders 2009.

Exploring Morningside Nature-Science Trail: Multidisciplinary Activities for Teachers and Students. 19 pp. Anne Schlesinger and D. Andrew Saunders. 2009.  
 Illustrated Self-guiding Faust Trail Booklet for Clark Reservation State Park, Revised. 2009.  
 Illustrated Morningside Nature/Science Trail Self-guiding Booklet. 2009  
 Illustrated Sleeth Park Nature Trail Self-guiding Booklet. Pilot Edition. 2009.  
 Large Format Interpretive Posters, etc.  
 Mosses of New York State. (Robby Carr, Jessica Bohn, Robin Kimmerer, Keith Bowman, Donald J. Leopold, D. Andrew Saunders, and Virginia Collins)  
 Natural History Interpretation at ESF, (Anne Schlesinger and D. Andrew Saunders)  
 Stalking Science Opportunities in EFB's Environmental Interpretation Program (Frank Morehouse and D. Andrew Saunders)  
 CDs: Morningside Nature-Science Trail Digital Resources. Winter Tree Identification Guide and Nature Jeopardy  
 EFB's Greenhouse Poster Series, Brochure

### **Kimberly L. Schulz**

Schulz, K.L. 2009 accepted. Chemically-induced defenses in phytoplankton. In D. Muller-Schwartz (editor) Chemical Ecology Exercises.

### **Lawrence B. Smart**

Smart, L.B. and Cameron, K.D. (2008) Genetic improvement of willow (*Salix* spp.) as a dedicated bioenergy crop. In Vermerris, W. E. (ed.) Genetic Improvement of Bioenergy Crops, Springer Science, NY, 347-376.  
 Smart, L.B. and Town, C. (2009) Shotgun sequencing of the willow (*Salix purpurea* L.) genome. Submitted to the DOE Joint Genome Institute on Feb. 20, 2009. (white paper).

### **Stephen A. Teale**

Wickham, J.A. and S.A. Teale. In press. Field Response of the Asian Longhorn Beetle to Host and Female Volatiles. in McManus, K. and K.W. Gottschalk, Proceedings 20th USDA Interagency Research Forum on Invasive Species, Forest Service Northern Research Station, General Technical Report.

### **J. Scott Turner**

J S Turner. 2008. Signs of design. The Best American Spiritual Writing of 2008. Jimmy Carter and Philip Zaleski (ed). Houghton-Mifflin, New York.  
 J S Turner. 2008. Termites. Friend or Foe? Pamphlet for the series Spotlight on Agriculture. Ministry of Agriculture. Republic of Namibia. In press.  
 The Air Conditioned Termite Mound Revisited. Cheetah Conservation Fund.

**Appendix M. Theses and Dissertations completed  
(i.e., all requirements met and degree awarded)**

**M.S. Theses**

- Dodge, Shannon. 2009. The effects of old-growth fragment area on bat activity in the modified landscape of Olympic National Forest (M. Lomolino).
- Eckerlin, Geof. 2008. Viral haemorrhagic septicaemia virus type VIb among smallmouth bass *Micropterus dolomieu* (Lacepède) in the St. Lawrence River: An invasive species mediated pathogen? (J. Farrell).
- Hough, Michael. 2008. Possible limiting agents to the early establishment and growth of understory herbs in post-agricultural forests in central New York (G. McGee and T. Horton).
- Johnson, Stephanie. 2009. The littoral zone macroinvertebrates in Onondaga Lake and the influence of invertebrate drift (N. Ringler).
- Kaczmar, Nicholas. 2008. Field testing of transgenic American elm (*Ulmus americana* L.) expressing an antimicrobial peptide transgene: Vascular anatomy and resistance to *Ophiostoma novo-ulmi*, 131 p. (W. Powell).
- Kirby, Lucas. 2009. Nesting characteristics of centrarchid fishes and the oligotrophication of Onondaga Lake, New York (N. Ringler).
- Landis, Catherine L. 2008. Initial riparian restoration along an urban stream gradient, Onondaga Creek, New York, 100 p. (D. Leopold).
- Lash, Whitney. 2008. Abundance, growth, and reproduction of *Cyrilla racemiflora* as a function of environmental gradients in the Luquillo Mountains of Puerto Rico (C. Hall).
- Letkowsky, Steve. 2009. Beech bark disease: The relationship between scale infestation and *Neonectria* formation in an aftermath forest (J. Castello and S. Teale).
- McGohan, Kathryn. 2009. Allochthonous matter processing along the urban-rural gradient in Onondaga Creek (Syracuse, NY) (K. Limburg).
- O'Brien, Michael. 2009. Examining the role of ectomycorrhizal and arbuscular mycorrhizal communities on soil inoculum potential and hemlock seedling establishment (T. Horton).
- Osborne, Carrie. 2008. Fate of captive-reared mallards released on Long Island (G. Baldassarre).
- Page, Erin. 2008. Above and below ground characteristics of reference and restored wetlands of central New York with an emphasis on mycorrhizal ecology (T. Horton and R. Smardon).
- Post, Keith. 2009. Non-target effects of transgenic pathogen-resistant American heritage trees on insect herbivores (D. Parry).
- Pulley, Emily. 2008. Molecular basis for differential uptake and sensitivity to arsenic among clones of shrub willow (L. Smart).
- Rogers, Tanya. 2008. Liquid petroleum gas (LPG) as a fuelwood substitute in the Western Ghats of India: Effectiveness and influence of socioeconomic characteristics (W. Shields).
- Siniscal, Anthony. 2009. Characterization of the fish community of a recovering ecosystem, Onondaga Lake, New York (N. Ringler).
- Woodside, Katie. 2009. Development and application of models predicting young-of-the-year muskellunge presence and abundance from nursery features (J. Farrell).

**Ph.D. Dissertations**

- Hughes, Monica. 2008. Laboulbeniales of New Zealand: Biodiversity, systematics, and host utilization (A. Weir).
- Prasad, Ayesha. 2009. Invasion by the exotic plant *Lantana camara* in a tropical deciduous forest landscape (W. Shields).
- (Nowack) Smith, Juliette., 2008. Bioavailability and toxicity of microcystins in the aquatic food web: Estimation and implication (K. Schulz and G. Boyer).



Sopacua, Ansye. 2009. Watershed characterization, management and policy implications: Towards a resilient human-ecosystem community with a case study from Krueng Aceh watershed, Aceh, Indonesia (GPES, K. Limburg).

**Appendix N. MPS students who completed degree requirements**

Patricia Cole (A. Saunders)  
Virginia Collins (A. Saunders)  
Robert Kiley (A. Saunders)  
Frank Morehouse (A. Saunders)  
Liz Schmidt (A. Saunders)  
Emily Waldt (N. Ringler)

## Appendix O. Faculty and Student Awards

### FACULTY – REGIONAL, NATIONAL AND INTERNATIONAL RECOGNITION

Jacqueline Frair: *Journal of Applied Ecology* paper (45:1504) was identified as “Editor’s Choice”  
 Charles Hall: Distinguished Speaker, Wetlands Laboratory, Ohio State University  
 Thomas Horton: Elected Ecology/Pathology Counselor for the Mycological Society of America.  
 James Gibbs: University of Maine, Dept Wildlife Ecology, “Award for Professional Excellence,” 2008  
 James P. Gibbs and co-authors of *The Amphibians and Reptiles of New York State* (Oxford University Press, 2007):  
 Outstanding Conservationist Award, NY Chapter of The Wildlife Society  
 Robin Kimmerer: Accepted as Writer in Residence at Mesa Refuge, Point Reyes, CA

### GRADUATE STUDENTS – DEPARTMENT AND COLLEGE RECOGNITION

Daniele Baker	Edna Bailey Sussman Foundation Fellowship
Keith Bowman	NSF GK12 Fellowship (award determined by campus committee)
Brandeis Brown	Edna Bailey Sussman Foundation Fellowship
Shannon Buckley	NSF GK12 Fellowship (award determined by campus committee)
Katherine D’Amico	Josiah L. Lowe-Hugh E. Wilcox Graduate Scholarship
Anthony Eallonardo	Maurice and Annette Alexander Wetlands Research Award
Joseph Gawronski-Salerno	Edna Bailey Sussman Foundation Fellowship
Lisa Giencke	Robert A. Zabel Award
Catherine Haase	Alumni Association Memorial Scholarship, Honorable Mention (Graduate Student, US citizen)
Catherine Haase	Edna Bailey Sussman Foundation Fellowship
William Helenbrook	Leroy C. Stegeman Award
Kevin Jablonski	Edna Bailey Sussman Foundation Fellowship
Jaime Jones	Edna Bailey Sussman Foundation Fellowship
Catherine Landis	NSF GK12 Fellowship (award determined by campus committee)
Andrew Myers	Edna Bailey Sussman Foundation Fellowship
Patrick Raney	Edna Bailey Sussman Foundation Fellowship
Kathleen M. Pitcher	Josiah L. Lowe-Hugh E. Wilcox Graduate Scholarship
Yazmin Rivera	NSF GK12 Fellowship (award determined by campus committee)
Katherina Bendz Searing	Alumni Association Memorial Scholarship (Graduate Student, US citizen)
Michelle Serapiglia	Dorothy Bertine Internship
Michelle Serapiglia	Edna Bailey Sussman Foundation Fellowship
Michelle Serapiglia	Josiah L. Lowe-Hugh E. Wilcox Graduate Scholarship
Caitlyn Snyder	Edna Bailey Sussman Foundation Fellowship
Anna Stewart	Alumni Association Memorial Scholarship, Honorable Mention (Graduate Student, US citizen)
Anna Stewart	NSF GK12 Fellowship (award determined by campus committee)
Madeline Turnquist	Edna Bailey Sussman Foundation Fellowship
Cynthia Watson	Robert L. Burgess Graduate Scholarship in Ecology
Nicole Werner	NSF GK12 Fellowship (award determined by campus committee)
Brigham Whitman	Edna Bailey Sussman Foundation Fellowship

### GRADUATE STUDENTS – REGIONAL AND NATIONAL RECOGNITION

Katherine D’Amico	FESIN Karen Hughes Award
Amy Dechen	Honorable Mention, paper presented at International Conference of the Wildlife Disease Association
Matthew Distler	US EPA GRO Graduate Fellowship (renewal)
Tony Eallonardo	US EPA STAR Graduate Fellowship (renewal)
Geoffrey Eckerlin	Outstanding Student Poster, Great Lakes Research Consortium Albany Day 2009
Tera Galante	FESIN Karen Hughes Award
Katie Haase	Sigma Xi Grant-in-Aid of Research
Rita Monteiro	NOAA National Estuarine Research Reserve Graduate Fellowship (renewal)

Kathleen Pitcher	FESIN Karen Hughes Award
Keith Post	Entomological Society of America's Kenneth and Barbara Starks Award for Research in Plant Resistance to Insects
Yazmin Rivera	PLACA (Program in Latin America and the Caribbean) summer research grant
Sara Scanga	US EPA STAR Graduate Fellowship (renewal)
Juliette Smith	US EPA STAR Graduate Fellowship (renewal)
Anna Stewart	AIBS Emerging Public Policy Leader Award
Jason Townsend	US EPA STAR Graduate Fellowship (new)
Jake Wickham	NSF International Research Fellowship

### **UNDERGRADUATE STUDENTS – DEPARTMENT, COLLEGE, AND SUNY RECOGNITION**

Jorge G. Barbosa	Distinguished Biology Scholar Award – Aquatic & Fisheries Science
Jorge G. Barbosa	Maple Leaf Award
Jorge G. Barbosa	Robin Hood Oak Award
Jorge G. Barbosa	SUNY Chancellor's Award for Student Excellence
Lynne E. Beaty	Cranberry Lake Biological Station Undergraduate Fellowship
Jordan Brown	Second Place (for undergraduates), SUNY-ESF Spotlight on Research Poster Session
Anna Conrad	Alumni Association Class of 1951 Scholarship
Alyssa M. DeLeon	Distinguished Biology Scholar Award – Biotechnology
Carla DiStefano	Alumni Association Class of 1951 Scholarship
Lydia Faller	Alumni Association Class of 1951 Scholarship
Lydia Faller	Melinda Gray Ardia Scholarship
Shaina Gerstenslager	Robin Hood Oak Award
Cassandra Glen	Robin Hood Oak Award
William Harbold	Alumni Association Memorial Scholarship (Junior class)
Shavaun Jenkins	Robin Hood Oak Award
Anastasia Krainyk	Phyllis Roskin Memorial Award
Jessica G. Lambert	Distinguished Biology Scholar Award – Conservation Biology
Jessica G. Lambert	Distinguished Biology Scholar Award – All Majors
Jessica G. Lambert	Co-valedictorian, SUNY-ESF class of 2009
Alison Oakes	First Place (for undergraduates), SUNY-ESF Spotlight on Research Poster Session
Eli L. Polzer	Distinguished Biology Scholar Award – Forest Health
Eli L. Polzer	Co-valedictorian, SUNY-ESF class of 2009
Derek C. Proulx	Joseph and Ruth Hasenstab Memorial Scholarship
George S. Prounis	Cranberry Lake Biological Station Undergraduate Fellowship
Madeline R. Ryan	Patricia D. and Jeff J. Morrell Scholarship
Jonathan S. Reynolds	Distinguished Biology Scholar Award – Wildlife Science
Jonathan S. Reynolds	Ralph T. King Memorial Award
Ashley R. Thomas	Distinguished Biology Scholar Award – Natural History & Interpretation
Stephanie T. VanKempen	Distinguished Biology Scholar Award – Environmental Biology

#### Honors Program Medal

Alyssa M. DeLeon, *Molecular analysis of genes related to arsenic uptake and detoxification in sensitive and tolerant varieties of shrub willow (Salix spp.)* (Dr. Lawrence B. Smart, Honors Advisor)

### **UNDERGRADUATE STUDENTS – REGIONAL & NATIONAL RECOGNITION**

Jordan Brown	First Place, poster presentation at CSTEP Annual Statewide Student Conference
Kean Clifford	NOAA Hollings Scholarship
ESF Student Chapter of The Wildlife Society	Third place, Student Quiz Bowl, Annual National Meeting of The Wildlife Society (Miami, Florida); Cassandra Glen, Jessica Grottanelli, Elizabeth Trotter, and John Vanek

## **Appendix P. Status of Student Learning Outcomes Assessment**

(by major; written by Curriculum Coordinator, Undergraduate Curriculum Director, and others)

### **AQUATIC AND FISHERIES SCIENCE**

#### **History**

Between 1965-2002, the Bachelor of Science in Environmental & Forest Biology was the single undergraduate program offered by the Department of Environmental & Forest Biology. Because students believed their investments in specialization were not rewarded with an appropriate degree title, and to increase visibility and recruitment potential in traditional or growing fields, six specialized programs were initiated in 2004, Aquatic and Fisheries Science among them.

#### **Assessment cycle.**

Data used to assess each learning outcome will be collected annually, beginning in 2009. Full program assessment will occur at 3-year intervals, beginning in 2012, but we will evaluate our assessment methods in 2010.

#### **Results of previous assessment.**

Formal learning outcomes were established only recently, so no assessment has yet focused on them. Based on unstructured assessments including faculty discussion and feedback from students, we have implemented or initiated the following changes.

### **1. Revision of courses**

#### **A. Limnology requirement**

When the AFS major was formulated, two courses (EFB 421 or EFB 524) could be used to satisfy the general limnology/aquatic systems science requirement. However, EFB 421, The Ecology of Fresh Waters, a three-week field course taught at the college's Cranberry Lake Field Station, is offered irregularly, and is not as comprehensive as we now believe is necessary for training AFS majors. Therefore, we are initiating a revision and re-description of EFB 524 as a shared-resource 4XX/6XX course (with a separate graduate student module); this revised Limnology course includes more hands-on activities, applied problems, and case study exercises than had been utilized in EFB 524. All undergraduate AFS majors will now be required to take this new Limnology course, EFB 4XX (likely EFB 424). This will permit more uniform and complete training for AFS students, as well as allowing this class to be used in various assessment activities.

#### **B. Ichthyology requirement**

Originally, two courses (EFB 388 and EFB 486) could be used to satisfy the Ichthyology requirement. EFB 388 is a two-week intensive field course taught at the college's Cranberry Lake Field Station. All undergraduate AFS majors will now be required to take the semester-long Ichthyology (EFB 486), although EFB 388 will satisfy the second field course requirement (directed elective) and is still likely to be highly subscribed by AFS students.

Previously, the use of the important Limnology and Ichthyology courses in program assessment was hampered in that students had different experiences; these changes will make the AFS curriculum, and therefore its assessment, more uniform.

### **2. Addition of a senior synthesis seminar**

Other successful majors at ESF have implemented a capstone experience for their students, or have taken steps to initiate one. In conversations with faculty and students, we realized that a similar synthetic course would benefit AFS students for several reasons. First, along with the above changes, all students will now share three core aquatics courses: EFB 424, EFB 486, and the new capstone Aquatic Senior

Synthesis Seminar EFB 497; this ensures that our curricular goals are met and can be assessed. Second, the capstone seminar will offer the opportunity for AFS majors to practice and synthesize their diverse experiences at ESF by following the full scientific process from hypothesis development through testing and final analysis, and then presenting their work to classmates and the AFS faculty. Finally, students in this capstone seminar will take a comprehensive e program.

## **BIOTECHNOLOGY**

**History.** Between 1965-2002, the Bachelor of Science in Environmental & Forest Biology was the single undergraduate program offered by the Department of Environmental & Forest Biology. Because students felt that their investments in specialization were not rewarded by an appropriate degree title, and to increase visibility and recruitment potential in this field, the Biotechnology major was established in 2003 as the first of 6 specialized undergraduate programs (five others were added in 2004).

**Assessment cycle.** Data used to assess each learning outcome will be collected annually, beginning in 2009. Full program assessment will occur at 3-year intervals, beginning in 2012, but we will evaluate our assessment methods in 2010.

### **Results of Prior Assessment.**

Formal learning outcomes have been established only recently, so no assessment has yet focused on them. Based on unstructured assessments, involving faculty discussions and feedback from students, the following changes have been completed or initiated.

**1. Maximum credit for BTC497, Research Problems in Biotechnology, was increase from 3 to 9 credits.** From feedback from students and faculty, it was found that limiting the research projects to 3 credits per semester often did not allow enough time for completion of a project or limited the depth of the research. Therefore the credit limit for BTC497 was increased to 9 per semester. This gives students more hours during a given semester to complete a research project and allows for more in-depth projects to be accomplished. The minimum research credit requirement for the major is still 3 credits, but the students now have a better opportunity to go beyond the minimum.

**2. Changes were made in BTC132, Orientation Seminar in Biotechnology, BTC497, Research Design and Professional Development, and BTC499, Senior project synthesis to accommodate the new assessment plan.** During the development of a new assessment strategy, we found that several of the outcomes needed new tools for useful assessment. Therefore we are now including some of these assessment tools, such as addition of ETS Major Field Exam in Biology supplemented with questions relevant to several outcomes in biotechnology, along with other embedded exam questions in the normal exams for the courses, and/or additional evaluations of current projects, to help with program assessment.

**3. Other small adjustments have been made to the curriculum.** Since the establishment of the Biotechnology major in 2003, many undergraduate courses have been discontinued and many new courses have been added to the offerings. These changes did not affect the required courses in biotechnology, but we found that the directed elective list had to be periodically changed to reflect the addition of new courses relevant to the biotechnology major and the discontinuation of old courses. Changes in the directed list have occurred three times and will continue to be updated periodically as needed.

## CONSERVATION BIOLOGY

**History.** The B.S. in Conservation Biology was first offered to ESF students in the Fall semester 2004 in response to (1) an increased desire among undergraduates for training focused on conservation of biological diversity, (2) increased recognition at the societal level of the need to address the biodiversity crisis and (3) realization that EFB was somewhat uniquely positioned at the national level in terms of existing capacity to mount a new undergraduate major in this area.

**Assessment cycle.** Data used to assess each learning outcome will be collected annually, beginning in 2009. Full program assessment will occur at 3-year intervals, beginning in 2012, but we will evaluate our assessment methods in 2010.

**Results of previous assessment.** Formal learning outcomes have been established only recently, so no assessment has yet focused on them. However, we have undertaken unstructured assessments involving faculty discussions and received much feedback from students. Based on this feedback a few minor changes have been made or are being made:

**1. Dropped freshman seminar in conservation biology.** At its inception the conservation biology major had as a requirement a 1-hour freshman seminar intended to introduce new students to the topic area and facilitate them establishing relationships with other students enrolled in the major. After two years we determined that the seminar competed and was somewhat redundant with the EFB-wide freshman seminar (EFB 132) that also was initiated at the same time and that our enrollees were also required to take. Therefore we decided to drop the freshman seminar in conservation biology as a requirement and to discontinue offering it, thereby also freeing up the faculty member teaching the course to offer another advanced course suitable for many students in the major.

**2. Developed a more structured evaluation procedure for required internship/research experience.** The required internship/research experience has unique assessment value in that outside practitioners can objectively judge the professional capacities of our students. However, no formal procedure for obtaining and comparing such information has existed. Now, field supervisors of all students enrolled in credit-bearing internship or research experiences must complete a detailed evaluation form that is designed with assessment in mind.

**3. Developed detailed grading rubrics for each exercise in the Problem-solving in Conservation Biology course.** The Problem-solving in Conservation Biology course is an integrative experience based on a series of exercises that cover a wide-range of topics and focuses on skill-development in many different areas relevant to conservation biology. After 5 years of teaching the course we realized that a carefully structured assessment of student performance on each of the subcomponents of every exercise could provide us with much useful information on student learning gains. Therefore two years ago we developed detailed grading rubrics for each exercise that we can now summarize by student or by skill/knowledge area and thereby provide feedback about student performance useful for adapting our teaching program to benefit students' progress. These will be first used during the Spring 2009 semester, giving us the requisite stability to generate comparative assessment data about student performance by skill and knowledge area for use in the 2012 assessment.

## ENVIRONMENTAL BIOLOGY

**Assessment cycle.** Data used to assess each learning outcome will be collected annually, beginning in 2009. Full program assessment will occur at 3-year intervals, beginning in 2012, but we will evaluate our assessment methods in 2010.

**Results of previous assessment.** Between 1965-2002, the Bachelor of Science in Environmental & Forest Biology was the single undergraduate program offered by the Department of Environmental & Forest Biology. It was renamed Environmental Biology (ENB) in 2004, as part of the overall curricular revisions noted below. From 2004-2005 the program was the focus of a structured assessment that is mandated by SUNY at 5-7 year intervals; reports of the associated self-study and external review are available in the online Appendix at **XX and XX**. This was preceded by unstructured, *ad hoc* assessments of curricular structure (2002-2004). The principal findings and subsequent adjustments based on these collective assessments were as follows:

**1. The single major was too constraining.** Although 11 program options were identified, students felt that their investments in specialization were not rewarded by an appropriate degree title. Additional incentives were to increase visibility and recruitment potential in traditional or growing fields like wildlife biology, conservation biology and biotechnology. As a result, the broad, flexible curriculum was retained (as ENB), but six specialized programs were added, most of which grew from the popular program options. Biotechnology was first offered in 2003, and the other five (Wildlife Science, Aquatic & Fisheries Science, Conservation Biology, Forest Health and Natural History and Interpretation) were initiated in 2004.

The 2005 external review team felt that our ENB curriculum was somewhat over-structured and could be made more flexible by reducing core requirements. Core courses now comprise slightly less than half of the credit requirements for graduation, which we feel is sufficient to maintain our distinction from the traditional biology curricula of other SUNY units. With the introduction of a new freshman biology sequence (below), we will reconsider second-level biology offerings in 2009; part of this will relate to directed-elective requirements (see online Appendix, Curriculum Plan Sheet at **XX**), which could be altered to slightly increase curricular flexibility.

**2. Freshman biology was non-traditional in scope and had significant gaps in content.** Since the inception of the program in 1965, freshman biology has comprised two courses, General Botany and Principles of Zoology. While the courses evolved over several decades to be more inclusive than their names suggest, class time was insufficient for presenting some important material that is usually included in modern introductory biology courses. Since we admit many transfer students, the absence of a more traditional sequence also created problems with articulation. Beginning in 2008, freshman biology now comprises four courses: General Biology I and II, and associated laboratory courses (EFB 101-104). Coverage is now equivalent to that of most major universities, and of community colleges that serve as major sources of transfer students. The 2005 review team recommended that our better teachers be assigned to the first-year classes: now, each of the three faculty members assigned to freshman biology is a dedicated, highly student-oriented teacher.

**3. Insufficient hands-on experience in some classes, and problematic timing of EFB 202.** The 2005 review team responded to student interviews by recommending that courses with field trips be less focused on “note-taking in the field” and more on hands-on exercises. This critique was shown to all biology faculty members, who were asked to evaluate the perceived problem and correct any shortcoming. But in general, ENB students spend much time in the field engaged in activities other than note-taking, and we feel that an examination of syllabi, rather than relying on several student interviews, would have provided a different picture.

The review team also recommended increasing the flexibility of our required 3-week summer field course (EFB 202) at our Cranberry Lake Biological Station. They felt that the student body is too heterogeneous: while the course is scheduled after the freshman year, many take it after the sophomore or even junior years. The review team recommended allowing alternative field experiences, particularly for transfer students. We have increased our efforts to promote post-freshman year scheduling and encourage transfer



students to take EFB 202 as early as possible. Transfers increasingly enter ESF with little or no science background, and while they may be more personally mature than post-freshmen, they are no more advanced in biology.

**4. Competencies in areas other than science and analytical skills are weaker.** The 2005 review team suggested – based on several student interviews, not course content analysis – that competencies in writing, mathematics, and group-dynamics were not stressed sufficiently, or not sufficiently reinforced. The college has since implemented standardized math-placement examinations prior to enrollment, with the results being used to recommend appropriate mathematics classes to incoming freshman or transfer students. The college has added two levels of remedial mathematics classes to aid deficient students. Now, most freshmen students join a residential Learning Community, one focus of which is to improve communication skills; associated with this is a “writing across the curriculum” project, in which students complete writing assignments that span certain shared, required courses (e.g. CLL 190, EFB 101, FCH 150). Beginning in 2009 we will have specific assessments of writing, math and group-dynamic skills in several required courses, as indicated in the matrix above.

## **FOREST HEALTH**

**History.** Between 1965-2002, the Bachelor of Science in Environmental & Forest Biology was the single undergraduate program offered by the Department of Environmental & Forest Biology. Because students felt that their investments in specialization were not rewarded by an appropriate degree title, and to increase visibility and recruitment potential in traditional or growing fields, six specialized programs were initiated in 2003-2004, Forest Health among them.

**Assessment cycle.** Data used to assess each learning outcome will be collected annually, beginning in 2009. Full program assessment will occur at 3-year intervals, beginning in 2012, but we will evaluate our assessment methods in 2010.

### **Results of Prior Assessment.**

Formal learning outcomes have been established only recently, so no assessment has yet focused on them. Based on unstructured assessments, involving faculty discussions and feedback from students, the following changes have been completed or initiated.

**1. The addition of an internship/research experience (EFB 420/498).** It is clear that two important experiences would significantly improve the Forest Health program; each type has been a successful part of other specialized majors in our department. The first is the added requirement of a professional-level independent study; each student is required to choose either an outside internship (EFB 420) or an internal research experience (EFB 498). EFB 420 will be a field or lab-oriented internship designed to provide students with a real-world work experience in forest health with private industry, NGO, or government agency. EFB 498 will be a field or lab-oriented research experience designed to provide students with an opportunity to conduct research in forest health. Credit for such courses is variable, according to the individual experience.

**2. The addition of a senior synthesis seminar (EFB 497, one credit).** This is the second of the experiences noted above, which itself has two components. The first involves presentation of a seminar based on their internship or research experience, and will integrate that experience with the coursework they have taken to address a current problem in forest health. The second component of the course involves answering a set of questions (survey/exam) designed by the forest health faculty to assess the students' basic knowledge and skill set in forest health after completion of the program. The answers to the questions will be evaluated as follows for the exclusive purpose of assessing the success of the major:

59% correct or below does not meet the standard; 60-74%% quartile are approaching the standard; 75-85% meet the standard; 86% or above exceed the standard.

**3. The addition of Forest Health Monitoring (EFB 439).** Much effort is expended by the USDA Forest Service to monitor the health of the nation’s forests. Therefore, any academic program in forest health should train its students in this activity. EFB 439 is currently a directed elective, but will be revised and added to the core requirements in 2010.

**4. Other small adjustments have been made to the curriculum.** Various circumstances—including new course offerings, deletion of previously existing courses, changing course schedules, and adjustments necessitated by other curricular changes—have required that we regularly review the course offerings in our directed elective categories. Recent changes include: moving EFB 439 to the core from the directed elective ‘technology’ category (see above); adding dendrochronology to that latter category; shifting calculus (APM 105) from the core to the ‘Math/Phy. Sci.’ directed elective category; moving cell physiology (EFB 325) from the core to the ‘Anatomy/Physiology’ category; and adding invertebrate zoology (EFB 355) to the ‘biodiversity’ category.

## NATURAL HISTORY AND INTERPRETATION

**History.** Between 1965-2002, the Bachelor of Science in Environmental & Forest Biology was the single undergraduate program offered by the Department of Environmental & Forest Biology. Because students felt that their investments in specialization were not rewarded by an appropriate degree title, and to increase visibility and recruitment potential in traditional or growing fields, six specialized programs were initiated in 2003-2004, Natural History and Interpretation among them.

**Assessment cycle.** Data used to assess each learning outcome will be collected annually, beginning in 2009. Full program assessment will occur at 3-year intervals, beginning in 2012, but we will evaluate our assessment methods in 2010.

**Results of Prior Assessment.** Formal learning outcomes have only recently been established, so no assessment has yet focused on them. Based on unstructured assessments, including interactions between faculty and students, we have taken steps to remove problems associated with the two choices for the “Advanced Interpretation” directed elective, which currently requires students to chose between EFB 521, *Principles of Interpretive Programming* and EFB 417, *Perspectives of Interpretive Design*. The distinction between these courses has become less in recent years and we have initiated changes that eliminate EFB 521 and make EFB 417 a core course, with removal of the associated directed elective requirement. All critical components of EFB 521, namely those treating program development and evaluation, will now be taught in EFB 417. Removed from the latter course are environmental communication topics and methods that are obsolete or redundant. This change is desirable because of the increased technology proficiency of today’s student, and because it will enhance the professional skill component of EFB 417.

## WILDLIFE SCIENCE

**History.** Between 1965-2002, the Bachelor of Science in Environmental & Forest Biology was the single undergraduate program offered by the Department of Environmental & Forest Biology (EFB). The B.S. in Wildlife Science was first offered to ESF students in the Fall semester 2004 in response to an increased desire among undergraduates for a wildlife specialization, and to increase the visibility of the long-standing and successful wildlife component of our undergraduate offerings. The degree was immediately popular and has grown each year as follows: 60 in 2004, to 124 in 2005, to 143 in 2006, to 152 in 2007,

and 166 in 2008. Wildlife Science is now the second most popular major on campus after Environmental Biology, which had a 2008 enrollment of 170.

**Assessment cycle.** Data used to assess each learning outcome will be collected annually, beginning in 2009. Full program assessment will occur at 3-year intervals, beginning in 2012, but we will evaluate our assessment methods in 2010.

**Results of previous assessment.** Formal learning outcomes have been established only recently, so no assessment has yet focused on them. However, unstructured assessments involving faculty discussions and feedback from students have been significant and resulted in the following changes being completed or initiated.

**1. Changes to EFB 490.** The preexisting course EFB 490 (Wildlife Ecology and Management) became the entry-level wildlife science course taken by students in spring of the sophomore year, but was originally proposed as a senior-level offering. After instituting the new major, the course was adjusted and the number changed to EFB 390, to reflect its position in the curriculum as the foundational wildlife science course. Because of the increased importance of the course, and the need for a more interactive component, a 1-hour recitation was added and thus credit hours increased from 3 to 4.

**2. Formalized prerequisite for EFB 491.** The preexisting course EFB 491 (Wildlife Practicum) had no prerequisites, and some students were enrolling without proper preparation. In order to establish a logical sequence, we formalized EFB 390 (Wildlife Ecology and Management) as the prerequisite for EFB 491.

**3. Formalized prerequisite for EFB 493.** The need for a more structured sequence of coursework in wildlife science became apparent early, and the preexisting course EFB 493 (Wildlife Habitats and Populations) became, in effect, the capstone course for wildlife science majors. Since it had no formal prerequisites, and some students were unprepared, EFB 491 (Wildlife Practicum) has been established as a prerequisite for EFB 493. This change properly aligned and formalized a three-course sequence in wildlife science, and eliminated confusion and conflicts among both students and advisors.

**4. Instituted new GIS course, ESF 300.** Knowledge of Geographic Information Systems (GIS) is critical for wildlife resource managers. However, our only choice on campus was ERE 450, which was a specialized GIS course taught in the Forest Engineering Department. As this course did not meet the needs of wildlife science students (and those in other resource-oriented professions), senior wildlife faculty interacted with other ESF faculty to establish ESF 300, which was substituted for ERE 450 in the Wildlife Science curriculum in 2008.

**5. Dropped EFB 413 from curriculum.** Initially, EFB 413 (Introduction to Conservation Biology) was a core requirement for Wildlife Science, but it became apparent that the material in this course significantly overlapped with that in EFB 390 (>50%). A proposal has been submitted to drop EFB 413 from the core requirements, but it will be among a list of recommended electives.

**6. Changed Policy and Communication Requirement.** As originally conceived, one of the Direct Elective categories required 6 credit hours in the areas of Policy and Communication. It has become apparent that by the time of graduation students were significantly exposed to Communication subjects via the core courses CLL 190 and 290, as well as the many reports and presentations they are required to produce across the curriculum. However, the same is not true for Policy in the natural resources area. We have therefore reduced this Directed Elective requirement to 3 credits of Policy, and provided students with an updated list of courses that will satisfy same.

**7. Added Elements of Organic Chemistry to Core Requirements.** The original curriculum of the Wildlife Science program included a one-year sequence in General Chemistry (FCH 150-153) but no organic chemistry, a subject that is required in four of the seven biology programs at ESF. The original decision was controversial within the EFB department, and now several program deficiencies or functional problems have been identified through faculty discussions that seem related to the omission of organic chemistry. A) Organic chemistry is central to all life processes and thus its addition would provide further basic science strength to the curriculum. B) Many professional wildlife biologists are called upon to evaluate the environmental impacts of pollution, for which knowledge of organic chemistry is important. C) A foundation in organic chemistry would be helpful to WS students in certain other core courses, such as Genetics and Animal Physiology. D) Lastly, anecdotal information indicates that some students were selecting the wildlife science major (versus the more general Environmental Biology program) solely because organic chemistry was not in the wildlife curriculum. Therefore, we have begun the process of adding a one-semester survey course, FCH 210 Elements of Organic Chemistry, to the core curriculum. This is the default organic chemistry course for four other programs in EFB.