DEPARTMENT OF ECOLOGY & EVOLUTIONARY BIOLOGY

8 YEAR PROGRAM REVIEW

SELF-STUDY

2012
Executive Summary
Highlight the most salient points of this self-study. Place particular emphasis on new directions and remediation of existing problems. (*OIR program review data are attached in Appendix ES1*)

The goal of Ecology and Evolutionary Biology (EEB) at the University of Connecticut (UConn) is for its Faculty members to be the leaders of their fields. As evidenced by our enhanced standing in the recent NRC rankings relative to previously designated peer and target institutions, our program has improved substantially since our last review (Appendix ES2). EEB is a strong, vital, and professionally active group of committed researchers, teachers, graduate students and post-docs. Members of the Department are highly productive and influential scholars. Since 2005 EEB faculty have published 658 peer-reviewed articles in leading journals and 111 book chapters. They have authored 16 books and edited another 13 and have garnered more than 53,000 citations to their work. Active extramural awards during this period totaled $28,363,819 (~$75,000,000 if non-UConn funds are included)—a 63% increase in external support over the review period.

EEB engages in research collaborations with colleagues across multiple UConn Colleges, Schools and Departments, and at institutions across the U.S. and the world. Our commitment to professional service is extensive, with faculty members holding an unusually large number of influential positions in professional societies and journals, as well as a major presence on federal review panels. EEB faculty members are routinely selected for leadership roles within the University. Since 2005, these have included Vice Provost for Research and Graduate Education, Interim Dean of the Graduate School, Chairs of 11 University Committees and as members of dozens of other University and College committees.

Nearly all of our mid- and upper-level courses are taught by tenure-track faculty. Departmental means on student evaluations, particularly in upper division courses, are routinely above those of the University. We maintain a significant investment in time-consuming laboratory courses, believing strongly that organismal biologists should be broadly trained. We contribute significantly to courses fulfilling the General Education mission of the University. EEB is responsible for the majority of the introductory biology lab courses, providing 55% of all introductory biology seats offered by the 3 biology departments since 2005 and teaching 55% of all “W”-students in the life sciences (W-courses fulfill the University’s writing requirement). We have responded proactively to an unprecedented increase in the total number of students majoring in biology, generally, and in our own major, as well (both of which have doubled since 2005). EEB is heavily invested in undergraduate research and the Honors program, with faculty members having supervised over 300 research undergraduates in their laboratories (56 completing theses, 49 of them Honors) and many of them co-authoring publications. Comparisons with peer and target institutions, and the other biology departments at UConn, indicate that our teaching commitments are large.

We are particularly proud of our graduate program. Feedback from graduate students suggests that our graduate teaching (combining individual mentorship with seminars and lecture courses) is highly successful. NRC data show that the completion rate and time to degree of our graduate students exceeds that of almost all of our peer and target institutions. 82% of our Ph.D. students graduating since 2005 hold professional positions related to their field. Since 2005 our graduate students have earned 25 extramural awards, including NSF Pre-doctoral, EPA Star, NASA and Switzer Fellowships, plus Fulbright awards, NSF Doctoral Dissertation Improvement grants and numerous professional society awards. The Department is home to an average of 20 post-docs per year, 55 in total since 2005; 91% of the 35 no longer in residence have gone on academic or other positions in science.

Public engagement activities range from local and regional efforts to high-profile projects in South America and Africa. While active and successful in traditional outreach venues, EEB has also established a significant presence in cyberspace, educating the public via blogs, social media and numerous websites.

Space has improved substantially for a subset of our faculty since our last review, with 15 faculty members now housed in the new Pharmacy/Biology building. Unfortunately, the rest remain in poor space within the Torrey Life Sciences building (see below).
Our Vision and its Limitations: We feel that EEB is at a cusp. To this point the faculty have been sincere, united and energetic in their efforts to make the Department an international leader in organismal biology. We have shared a vision of excellence as something always to strive for, but never quite attain, and thus we rise towards an ever-higher bar. As individuals we feel empowered, not diminished, when each new hire is better than we are, and thus we as a whole are better. By many of the metrics used to evaluate scholarship and productivity, we exceed our peers. But we are exhausted. Our investment in the University has not been matched by the University’s investment in us. Structural problems identified in the previous review remain. Faculty effort and workloads are approaching an asymptote and morale is eroding. Without a serious University commitment to our program, the progress we have made will stall and we fear we will regress towards the mean. The principal outcomes of this self-study have been the documentation that we truly are doing more than ever and the revelation and clarification of impediments to our further advancement. If we are to move to the level of our target institutions we need to resolve several issues, some raised by the previous review and some newly emerged. Principal among these are (1) a steadily increasing administrative load, (2) an alarmingly top-heavy faculty, (3) inequitable and inadequate space, (4) constraints on graduate recruitment, and (5) an unsupportive environment for the care of our non-model research animals.

(1) The time available to faculty members for innovative and competitive research is steadily eroding owing to excessive ‘businessification’ of University practices. Responsibility for paperwork (e.g., travel, purchasing and grant accounting) continues to shift from staff to faculty while requirements for more reports, more explicit accounting for time, more mandated training sessions and more emphasis on contractual agreements, skyrocket. This wasteful use of faculty members’ time diminishes their ability—and commitment—to making EEB and UConn the best they can be. The return of a lost office staff position would help to relieve this administrative strain.

(2) The number of tenured faculty members has decreased by 2 since 2005, despite substantial increases in undergraduate enrollments, with the student-to-faculty ratio rising from 71:1 to 103:1. Two new hires (one starting 2013, one search ongoing) will return us to our 2005 number, but given the impending retirement of 2 senior faculty members, improvement will be very short-term. Multiple years of University hiring freezes, have left our faculty exceptionally top-heavy (76% are, or will soon be, Full Professors and only two—including our newest hire—are Assistant Professors). Implementation of our cluster hire proposal for 6 junior faculty members in Biodiversity and Global Change would help to return balance to departmental demographics.

(3) The quality and quantity of EEB space is starkly dichotomous, with half the department in the new Pharmacy/Biology building (PBB) and the other half in the decaying Torrey Life Sciences building (TLS). The last minute, unannounced elimination of a planned bridge between PBB and TLS has fragmented the department, causing an erosion of departmental cohesion. We are encouraged by the President’s recent efforts to obtain funding for a new building, but also recognize that even if successful, it cannot address departmental space needs for many years.

(4) Our graduate program has remained static at ~48 students and the number of TAs has not kept pace with the doubling of undergraduate enrollment. NRC data show that EEB’s average number of University-supported students per faculty member (0.63) is lower than 5 of 9 peer and target institutions. We continue to see a decline in our ability to recruit some of our best applicants because our competitors offer evermore attractive support packages. Enhancement of our graduate program requires additional student support, particularly the availability of full fellowships, summer support and a larger TA pool. But, we are about to implement a new model of TA assignments in introductory biology that we believe will help to mitigate our present shortage.

(5) EEB experimentalists often study non-model species requiring animal care. The Office of Animal Care (OAC) continues to impede work on such ‘exotic’ animals. Three faculty members have now been forced to change their research programs as a result of this lack of support.
A. Unit Description, Mission, Goals, and Recent History

Note: Relevant data are provided in the Appendices associated with detailed descriptions Scholarly Productivity (Section B), Undergraduate Program (Section C), Graduate Program (Section D), Assessment (Section E), Outreach (Section F), Collaborations (Section G), and University-wide support (Section H).

1. Describe briefly (with summary tables):
   a. the profile of full-time and part-time faculty, including adjuncts and graduate assistants in the teaching programs of the unit. Clarify the primary campus appointment of each instructor.

EEB is one of 3 departments in the biological sciences at UConn, the others being Molecular & Cell Biology (MCB) and Physiology & Neurobiology (PNB). Tenure-track biology faculty members at Storrs total 73, with 6 searches underway. MCB is the largest department with 33 faculty (3 searches underway), followed by EEB with 26 faculty (1 search underway), and PNB with 15 faculty (2 searches underway). EEB is responsible for the biology courses offered at 3 of the 4 regional campuses that offer biology, with one tenured faculty member based at each of the Hartford, Stamford, and Waterbury campuses (Appendix A2).

The Storrs EEB faculty (Appendix A2) currently includes 17 Professors, 7 Associate Professors (2 of whom are up for promotion this year) and 2 Assistant Professors including our new plant genomicist who arrives in Fall 2013. There is a search currently underway for a junior tenure-track faculty member. In addition, EEB has 2 Lecturers, and 1 Assistant Professor in Residence (APR). Two emeritus Professors remain research-active, and a Distinguished Research Professor (and member of the National Academy of Sciences) (Likens) joined EEB in 2004 and teaches a regular variable topics seminar course, as well as serving on graduate committees and as Environmental Advisor to the President. One additional faculty member (Willig) was hired as Director of the Center for Environmental Sciences and Engineering (CESE) in 2005 and thus does not have undergraduate teaching duties, but contributes to our research and graduate programs. Of the 25 departments across campus that are home to the University’s 45 Board of Trustees Distinguished Professors, EEB has a greater number than all but one (4 vs. 5 in Psychology). Based at the regional campuses EEB are 1 Associate Professor (Hartford), 2 Professors (1 each at Stamford and Waterbury), 5 Lecturers (3 at Stamford, 2 at Waterbury), and 1 APR (at Avery Point); courses at Torrington are handled by Lecturers from one of the other regional campuses.

In response to the Administration’s recent call for cluster hire proposals as part of the President’s initiative to hire ~290 new faculty University-wide, EEB submitted a request for 6 new faculty working in the area of Biodiversity and Global Change. The Dean has approved a search for the first of these lines and we anticipate hiring a junior faculty member to begin in Fall 2013.

The number of EEB tenure-track faculty has declined from a high of 27 in 2005. One faculty member (Cardon) left for a position at Woods Hole, 4 have retired (Anderson, Rich, Schaefer, Taigen), and 1 (Holsinger) currently serves full-time as the Interim Provost for Graduate Education and Dean of the Graduate School. The decline in tenure-track faculty was slightly offset by 2 new hires (Bush 2005, Urban 2008) so that we are now at 25 (Appendix A3). Our newest hire (Yuan) and the Biodiversity and Global Change biologist will return us to 27 in Fall 2013, but we will soon return to 25 faculty with the imminent retirement of 2 senior professors.

Departmental staff includes 2 office personnel, 2.2 collections managers who oversee the Biodiversity Research Collections, 3 greenhouse staff, and a professional academic advisor who, in addition to advising all of our EEB majors and well over one-third of the upper division Biological Sciences majors, provides some support for the Department’s upper division courses.

Since 2005, the Department’s graduate program includes an average of ~48 students per year (on average, 44.8 Ph.D., 4 M.S., 6 B.S./M.S.), with little deviation from this number over the last 8 years.

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1 We have not included the prodigious record of Gene Likens in any of our metrics.
2 Because he will not join our faculty until Fall 2013, we have not included Yaowu Yuan in our calculations.
Annually, an average of 6.5 of these are supported on competitive fellowships and 12.9 on external grant funds. The number of graduate teaching assistantships was 29 in 2005 and has fluctuated around an average of 26.5 since then. With the exception of summer intensive field courses, graduate students assigned teaching assistantships oversee the laboratory components that complement lecture courses, or they assist faculty with large-enrollment courses. EEB has also sponsored 55 post-doctoral associates since 2005, generally about 20 per year. Of the 35 no longer in residence, 91% have gone on in science; 74% hold academic positions; 8.5% work for government agencies; 8.5% are currently in a second post-doc (Appendix A4).

Enhancing diversity within organismal biology has long been a central goal of the Department. We have been reasonably successful in recruiting women to EEB, with 28% of the faculty and 60% of the graduate students female. One tenured faculty member is a member of a minority group and our new hire (Yuan) represents the first Asian member of the Department. Nevertheless our multicultural diversity remains poor despite the fact that we have explicitly included specialty advertising venues in all our searches, specifically to attract more minority candidates—something the Dean of CLAS strongly advocates. Unfortunately, as those who work in the fields of organismal biology know, the minority candidate pool is embarrassingly small. We attempt to address this concern by promoting diversity among our undergraduate and graduate students, areas in which we have been far more successful. Our graduate student population is more ethnically diverse, with 10% minority and 17% International students at present. The Graduate School has been particularly supportive of the recruitment and retention of minority students; since 2005 we have had 6 students supported through its Multicultural Fellowship and recently established Outstanding Multicultural Fellowship programs. We are very active, and have had some success, in recruiting and encouraging multicultural undergraduates to work in our labs for independent or honors studies (Appendix C6).

b. the instructional offerings associated with the unit, including graduate and undergraduate degrees and certificates.

EEB is a major contributor to the Biological Sciences degree—the degree of choice for the majority of the students in biology. Because we are committed to a well-rounded education, the Biological Sciences degree is the major we recommend to all but the most focused of students. Students electing to pursue this degree are required to take classes in all 3 biology departments (EEB, MCB, and PNB). EEB also offers both B.S. and B.A. degrees in Ecology & Evolutionary Biology and a minor as well. The number of Biological Sciences majors has more than doubled from 611 students in Fall 2004 to 1,319 at present, accounting for 65% (vs. 58%) of all majors in the biological sciences (Appendix C8). The EEB major remains the smallest among the 3 biology departments; it has increased from 47 students in the Fall 2004 to 68 at present. However, our courses are major components of several other degrees in CLAS and other Colleges, including Agriculture and Natural Resources, and Education, as well as for the B.S. degree in Environmental Science. Some of our courses will be available to students enrolled in the new Environmental Studies major as well.

EEB staffs 3 of the 5 (4 given that BIO 1103 is no longer offered) introductory biology courses: Foundations of Biology for non-majors (BIO 1102), Principles of Biology II (BIO 1108), and Introduction to Botany (BIO 1110); MCB and PNB are responsible for the remaining 2 courses (BIO 1107). In total 22,027 seats have been offered in these 5 courses since Fall 2004; EEB has provided 12,142 (or 55%) of them (Appendix C1). All 3 courses fulfill the University’s General Education Science and Technology laboratory course requirement. A fourth course, EEB 2202 (Evolution and Human Diversity), fulfills the University’s General Education Multiculturalism & Diversity content area requirement. Its enrollment has doubled to 150 since it was first offered in 2008 and is now being offered every year, rather than every other year.

EEB offers 35 upper division courses (Appendix C5), many of which include a laboratory component designed to provide students with hands-on experience in the relevant subject area. These include: 6 (lecture only) at the 2000 level, 17 (12 with labs) at the 3,000 level, and 11 (8 with labs) at the 4000 level. Several
of the 3000 and 4000 level courses are cross-listed as graduate courses (5000 & 6000 level). Ten of our regularly offered courses fulfill the University’s General Education Writing Competency (i.e., “W”) requirement for more than half of all biology students. Since 2005 the Department has provided 1,653 (~55%) of the 3,029 W-seats offered across the 3 biology departments (Appendix C10). As enrollments have increased, we have reluctantly moved towards having introductory courses taught by Lecturers to enable tenure-track faculty to accommodate increased enrollments in upper division courses. At the regional campuses, EEB offers 12 courses (i.e., 6 each at the 2000 and 3000 level, each) including one W-course (Appendix C3).

The 3 biology departments contribute to a combined Honors program with a large proportion of the biology faculty supervising independent study and honors theses. Biology Faculty, including EEB, advise a larger percentage of honors student projects and University Scholars (the most exclusive and prestigious undergraduate program at the University), than any other group on campus. EEB also offers a course targeting freshman honors students aimed at assisting them to identify a research lab. Since 2005 EEB faculty have supervised the completion of 49 honors theses.

In response to the departmental vision developed in our previous self-study, in which Conservation Biology emerged as a new area of interest, a 5-year B.S./M.S. program in Biodiversity and Conservation Biology, emphasizing internships over research, was established in 2003. To date, 27 students have graduated from this program and 6 are currently enrolled.

Following a streamlining of the University’s graduate programs over the last decade, the Department consolidated several Fields of Study (Botany, Zoology, Ecology, and Entomology) and now grants M.S. and Ph.D. degrees in the single Field of Ecology and Evolutionary Biology. In total, the Department offers 30 courses that can be taken for graduate credit (Appendix D3). These cover a range of theoretical and conceptual topics, but also include many of the fundamental “-ology” courses. Graduate seminars provide more in-depth coverage of special topics and recent advances. Most of these are offered voluntarily by faculty, as an addition to their required teaching load. Typically, at least 3 such seminars are offered each semester.

c. the areas of scholarly productivity and creative performance associated with the unit.

Research in EEB is directed towards understanding the processes responsible for the origin and maintenance of biological diversity. Faculty, staff, and students employ a wide range of analytical and conceptual techniques in their research. At many U.S. universities, traditional taxon-based departments (e.g., botany and zoology) were replaced with an interdisciplinary, hierarchically-based organization such as ours (MCB, PNB, EEB). This restructuring left many interdisciplinary programs in ecology, systematics, and evolutionary biology strongly zoology (especially vertebrate) biased. EEB is unusual in maintaining a faculty balanced between traditional botany (12—with research on angiosperms, bryophytes and protists) and zoology (17, divided between 8 vertebrate and 8 invertebrate biologists). EEB faculty members have a wide range of research interests. We do not have formal subdivisions within the Department, but several overlapping areas of strength can be identified: Ecology, including physiological ecology, behavioral ecology, population and community ecology, landscape ecology and paleoecology; Evolution and Systematics, including both plant and animal taxonomy and systematics, molecular systematics, speciation, population genetics, and genomics; Functional Biology of Organisms, including behavior, physiology, functional morphology, and development.

d. the outreach, service, public engagement, and clinical activities of the unit.

Outreach and public engagement activities of the Department extend from local and regional efforts to those that extend to high-profile projects in South America and Africa. While active and successful in traditional outreach channels, EEB also has established an important presence in cyberspace, educating the public via blogs, social medial, and numerous websites.

Service: In large part because of their research and scholarly reputations, department faculty members play a major role in service to their professional societies and granting agencies. Since 2005 EEB faculty members have served as Presidents of 5 major professional societies, and as Editors, Associate Editor, or
Editorial Board member of 50 major journals. In addition, over that time. Department faculty members have also served on 31 grant and program review panels at Federal granting agencies (especially the National Science Foundation). Many faculty members are similarly engaged in service to the University through participation in University, College, and department level committees.

2. What are the major goals of the unit? How have these evolved through recent years with respect to the unit's mission statement? How are they expected to change in the future?

Consistent with the spirit of the University’s Academic Plan, EEB intends to further improve on its status as one of the leading programs nationally and internationally in the areas of systematics, biodiversity, ecology and evolution, and conservation biology, as well as to enhance its reputation in global change biology. Research programs that focus on integration of systems within organisms, relationships among organisms, the functioning of organisms in communities, and the conservation of the earth’s living mantle are centerpieces of EEB. We are excited about developing the areas of Biodiversity and Global Change if our cluster hire proposal is realized because it will build on the Department’s existing strengths, provide synergisms between our evolutionary biologists and ecologists, and will help the University to realize its goal of building strength in environmental research and education. With this cluster, we specifically plan to build in the areas of the genetics of adaptation, interactions among coevolving organisms, evolutionary processes, and disease ecology and evolution.

EBB is dedicated to the best possible teaching, both formally in the classroom and informally through mentorships, at the undergraduate and graduate levels. The faculty, staff, and graduate students of the Department commit themselves to service to the University, the profession, and to the general public through consulting, service as officers, editors and committee members.

3. How do these goals relate to the mission and plans of the university as expressed in the University of Connecticut Academic Plan?

The Department’s mission aligns beautifully with the Academic plan’s emphasis on building the University’s strengths in environmental research and education. Our faculty are directly involved in multiple endeavors that “Leverage our emerging excellence in environmental studies to offer focused programs that will enhance the ability of our students to understand and solve critical environmental and ecological issues” (Academic Plan, p. 9). All 4 of our current research areas and our teaching expertise (i.e., systematics, ecology, evolution, and conservation) lie directly within the context of the environment, as does much of our public outreach. Other initiatives include creation of our vocational B.S./M.S. degree in Biodiversity and Conservation Biology and our participation in the 4 interdisciplinary programs in environmental sciences detailed below (see G.5). The focus of our proposed cluster hire in Biodiversity and Global Change was inspired in part by the emphasis on the environment in the Academic Plan.

4. Describe the process for reviewing the unit's strategic plan and assessing its achievements and goals.

Since it was established in 1985, the Department of Ecology and Evolutionary Biology has undergone one external review (2001). Our current strategic plan has largely been guided by the results of that review. The external review committee found the faculty to be high-performing, with outstanding records of scholarly productivity, external funding, teaching and advising effort with scholarly output that was greater than faculty at our peer institutions. Especially noteworthy were the many editorships and offices held in organizations. The committee also lauded the strengths of our graduate program and undergraduate research endeavors. Areas it identified as needing attention included a number of infrastructural issues such as space and the poor condition of our physical plant, potential separation of the faculty into different buildings, the fate of the EEB greenhouses, and poor support for non-model research animals. The committee considered our faculty teaching loads to be high relative to peer institutions. Other areas of concern were the lack of a coordinator for our upper division courses, small size of our graduate student population, a poor system for advising undergraduate majors, and faculty losses at the regional campuses.
We are pleased to report that a number of these concerns have now been addressed, such as new space in the Pharmacy/Biology building for 15 of our faculty, upcoming greenhouse renovations, and the hire of a professional advisor (albeit in place of a member of our office support staff), who also provides some support for upper division courses. Furthermore, in response to our previous self-study, we have succeeded in building strength in Conservation Biology.

Given our existing heavier commitments to research and teaching, we have had little time for reflection and planning as a department. Nonetheless, the decision to focus our cluster hire proposal on the area of Biodiversity and Global Change emerged from discussions at a series of faculty meetings.

5. What peer units at other universities provide targets of aspiration for this unit?

Peer institutions are the Universities of Arizona, Massachusetts-Amherst, and Tennessee, as well as Rutgers, SUNY Stony Brook, and Florida State University. Target institutions are the Universities of California-Berkeley, Kansas, and Texas-Austin, Indiana University and Michigan State University.

B. Scholarly Productivity and Creative Performance

1. Include a list of recent intellectual contributions in an Appendix

A list of our intellectual contributions since 2005 is provided in Appendix B1.

2. Evaluate the level of scholarly activity in the unit. Address the quality and quantity of the unit's publications, presentations at academic and/or professional forums, and performances, as appropriate.

Members of EEB are highly productive scholars. Taken together, our creative work places the Department at the forefront of the disciplines within our purview (evolutionary biology, systematics, ecology, and conservation biology), while maintaining an unusual balance of strength among them. Since 2005, members of the Department have authored 658 peer-reviewed articles, 111 book chapters and 16 books, and have edited another 13 (Appendix B2). This represents a substantial increase in productivity since 2005 (Appendix ES2). Many of these publications have appeared in the leading national and international professional journals in our fields and multiple have appeared in some of the most influential journals in science: *Nature, Proceedings of the National Academy of Sciences USA*, and *Science*. Faculty members have, in addition, developed 5 widely-adopted software packages for ecological and phylogenetic research (Appendix B1).

In total, publications by EEB faculty have been cited 105,202 times, 53,906 since 2007. Every tenure-track faculty member in the Department has at least 1 publication cited 50 or more times, 22 have at least 1 paper with 100+ citations, 10 have at least 1 paper with 500+ citations, and 6 members of EEB have 1 or 4 papers with 1,000+ citations. The mean (Google Scholar) h-index for the Department is 24.23 overall and 17.53 since 2007; the mean i 10-index overall is 42.03 and 28.43 since 2007 (Appendix B2). Data generated for this self-study indicate that our record of scholarship has substantially improved since the NRC study (2006) (Appendix ES2).

Members of the Department were invited as plenary or featured speakers at 30 national and international symposia in addition to contributing nearly 500 oral presentations at annual meetings, have accepted almost 200 invitations for seminars at other institutions (Appendix B3), and have received numerous honors and awards (Appendix B6a).

3. Evaluate the level of internal and external funding for research, performance, or creative activity in the unit. Is the unit competing effectively for external support?

Since 2005 EEB has received ~$21 million in external grant funds of ~$28 million awarded (Appendix B4) (~$75.6 million when allocations to co-PIs at other institutions are included), with a dramatic increase of 62% in external grant revenue between 2008 and 2012 (Appendix ES2). The Division of Environmental

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3 This number represents unique publications; the number given in Appendix B2 is higher (i.e., 692) reflecting publications co-authored by 2 or more members of EEB, and every co-author being credited for the publication.
Biology (DEB) at the National Science Foundation has been the primary source of external support for research activities in the Department since 2005, funding most of the approximately 170 projects (Appendix B5). Faculty have been supported by awards from the various incarnations of 11 DEB programs: Assembling the Tree of Life, Biotic Surveys and inventories, Dimensions in Biodiversity, Ecological Statistics and Geography, Ecological Studies, Ecological Biology, Long Term Ecological Research, Long Term Research in Environmental Biology, Partnership for Enhancing Expertise in Taxonomy, Planetary Biodiversity and Inventory, Population Biology, and Systematic Biology. Additional support has come from 7 other NSF Divisions: Biological Infrastructure, Major Research Instrumentation, Integrated Organismal Systems, International Science and Engineering, Earth Sciences, and the “Cross Cutting” divisions of Dynamics of Coupled Natural and Human Systems and Information Technology Research. Our awards also have supported improvement of UConn facilities such as digitizing of the herbarium in our EEB Biological Research Collections and purchase of a new Scanning Electron Microscope for the combined biology Electron Microscopy facility. Beyond NSF, activities in the Department are also supported by grants from other external sources, most notably NASA Exobiology, the MacArthur Foundation, the James S. McDonnell Foundation, and the U.S. Department of Agriculture. We note that the number of faculty with proposals pending (Appendix B5) is down considerably from all previous years; we attribute this largely to NSF’s recent reconfiguration of its submission process requiring pre-proposals and a single, rather than 2, annual competitions.

4. Describe any significant research interactions with external entities (public or private) developed by the unit. What have been the benefits of these interactions and the drawbacks, if any? How do they contribute to the unit's research goals?

The broad interests and overlapping research agendas of EEB faculty stimulate many interactions and collaborations. Most members of our faculty collaborate with colleagues from other departments in the University and from other institutions in the U.S. and around the world. EEB faculty have done particularly well with large collaborative awards and are currently involved in 7 such projects, each with budgets of over $1 million; in most cases the lead PI is the UConn faculty member:

(i) Three awards from NSF’s Assembling the Tree of Life program have been made to EEB faculty since 2005: L. Lewis (http://marple.eeb.uconn.edu/gratolwww/); 2010-2015) leads efforts among colleagues from 5 institutions to reconstruct the evolutionary history of green algae. B. Goffinet contributed organellar genomes to the liverwort tree of life (http://biology.duke.edu/bryology/LiToL/); 2005-present) led by Shaw (Duke) and involving 7 institutions. He now leads a recently funded project aimed at resolving relationships within the crown group of 600 moss genera, in collaboration with Duke and the Chicago Botanical Garden.

(ii) J. Caira leads a Planetary Biodiversity Inventory program collaborative award with K. Jensen (University of Kansas) and co-PIs T. Littlewood (London) and J. Mariaux (Geneva) to “Survey the Tapeworms of Vertebrate Bowels of the Earth” (http://tapeworms.uconn.edu); 2008-2014). The project includes Cestodologists from institutions in 21 countries and is aimed at expanding knowledge of tapeworms globally through examination of previously unexplored hosts and geographic regions, generation of a comprehensive phylogeny and expansion of the Global Cestode Database.

(iii) 4 EEB faculty members (K. Holsinger, C. Jones, C. Schlichting and J. Silander) were awarded a Dimensions of Biodiversity grant, investigating parallel evolutionary radiations of two South African plant genera, Protea and Pelargonium. Collaborative proposals were funded for research at Univ. of Chicago (J. Borevitz) and U.C. Davis (A. Latimer). Additional collaborators are from the Univ. of Cape Town, Univ. of Wageningen, Australian National Univ. and South African National Biodiversity Institute.

(iv) M. Willig participates as senior personnel and in various leadership roles in the Luquillo Long Term Ecological Research Program (http://www.lternet.edu/) in Puerto Rico. The program involves over 50 collaborators from Universities or federal agencies throughout the U.S. He is currently a member of the Luquillo Executive Committee and is a co-PI on the recently recommended renewal NSF proposal. His
primary focus is on the role of disturbance and environmental gradients in affecting the spatio-temporal dynamics of populations, communities, and metacommunities.

(v) J. Silander leads a citizen science project, called the Invasive Plant Atlas of New England (IPANE) that focuses on gathering information and field data on the occurrences of invasive plant species across the New England landscape and developing predictive models of their current and future distributions (http://www.eddmaps.org/ipane). This collaborative project involves researchers from UConn and other institutions from the East Coast.

5. To the extent data are available; briefly describe how the research, performance, or creative activity in your unit compares nationally with respect to these activities.

Criteria for judging the quality and impact of scientific research are notoriously subjective. Even judging the quantity of research produced is difficult because single papers might consist of a short note describing a simple empirical observation, a 100-page monograph describing a decade of observational or experimental research, a journal article developing sophisticated mathematical models for evolutionary or ecological processes, or a lengthy synthetic review involving several years of library research, to pick just a few examples. Moreover, taxonomic papers and monographs describing species, defining genera, and providing keys that are of critical importance to everyone who must identify plants or animals in the field, are used much more frequently than they are cited, meaning that citation analyses strongly underestimate their contribution to the field. Despite the larger amount of taxonomic work taking place in this department compared to peer and target institutions (with the exception of the University of Kansas), our analysis shows that EEB is comparable to, or better than, all peer programs, and not far behind those we identified as targets, which are the leading programs in the country.

Based on the most recent NRC data EEB’s standing has improved significantly since our previous self-study. Appendix B7 provides NRC data for the 5 peer and target institutions identified for the earlier review, plus the addition of Michigan State University. Both the NRC “R” rating (i.e., Research: derived from faculty publications, citation rates, grants and awards) and “S” rating (i.e., Scholarly reputation: derived from criteria scholars consider most important) suggest that (a) our program now ranks considerably above those of 2 of our previous peer institutions, Univ. Tennessee and Florida State, (b) that 2 of our previous target institutions, Univ. Arizona and Stony Brook, are now more appropriately considered peers. The University of Kansas (now home to several of our graduate student and post-doc alumni) has risen from peer to target status, and we have added the Michigan State to our list of target institutions for additional comparison. Among the 94 institutions with equivalent programs included in the NRC study, our program ranks as high as 14th in the “R” ranking, and as high as 22nd in the “S” ranking—despite the fact that our core faculty was smaller than all but one of our target institutions and 2 of our peer institutions at the time the NRC data were generated. Furthermore, based on data obtained from NSF DEB, EEB ranks 4th among its peer and target departments in terms of research funds per faculty. Overall, these data suggest that the Department is at least as productive and influential as its peer programs at other institutions and not far behind those it has identified as targets. Given the time and infrastructure constraints under which EEB operates, we regard our research productivity and impact as very good.

With respect to the other biology programs at UConn (Appendix B8), EEB ranks well above PNB and all 3 MCB programs considered by the NRC in 6 of the 7 metrics used to assess research and scholarship. The exception is percent of faculty with grants, in which we (74.2%) are exceeded by the smaller programs of Microbiology (80.3%) and Cell Biology (85.9%).

6. Indicate what the unit does to encourage and develop research, performance, or creative activity?

The Department recognizes that it is especially important to help its newest members to establish independent, productive research programs. To this end, all newly-hired Assistant Professors are assigned fewer teaching responsibilities in their 4th or 5th year to give them additional time to focus on their research as they prepare for tenure evaluation. The Department also seeks to accommodate unusual research
opportunities or needs (e.g., seasonal fieldwork) by flexibility in teaching assignments, but this has become more difficult as enrollments have grown.

EEB’s annual discretionary budget consists of an operating budget allocation from the Dean of CLAS and a return of 5%, and more recently 10%, of the indirect costs recovered from faculty grants (Appendix H1) as specified by a formula developed by the Research Advisory Council (RAC) (see section H1b below). As mandated by the RAC, the latter funds are to be used solely to support research and scholarship. The Department Head allocates these funds on an ad hoc basis as needs arise. These funds have been used to purchase new equipment, maintain and repair existing equipment, purchase computers for faculty members, to provide support for our weekly seminar speaker program, and to fund miscellaneous research costs for faculty members and students. The most important thing the Department does to encourage research activity is to provide an environment in which faculty, staff, and students feel that they are part of a larger effort to make the Department its best. Collaborations and lab interactions are encouraged by providing shared research space, and by supporting the development of common space and equipment such as our molecular systematics lab which houses a shared ABI capillary sequencer, PCR cyclers, centrifuge and imaging systems. When possible, exceptional faculty contributions are recognized through the annual merit award process. In this context, the freeze of Connecticut State Employee salaries and suspension of merit allocations for multiple years has removed one of the few mechanisms in place to reward productivity. This has had a strong, negative effect on faculty morale. There is growing concern that unless this situation improves, our newest hires and most productive faculty may be lost to other, more well-supported institutions.

EEB and the University have invested heavily in our research support facilities, specifically the greenhouses and Biodiversity Research Collections. Most of our staff are involved in the activities of these entities. This strategy has not only aided existing research programs, but the high quality research greenhouses on the roof of the BPS building likely contributed to our ability to out-compete several other institutions in hiring the top candidate in our recent plant genomicist search. As of 2003, the Biodiversity Research Collections are housed in a state-of-the-art facility in the Biology/Physical Sciences building that has resulted in 2 awards totaling ~$1 million from NSF’s Biological Infrastructure program. Furthermore, the Dean has recently committed funds in the amount of $1 million for the renovation of the dilapidated ground-based greenhouses attached to the aging Torrey Life Science building, which house the largest live-plant collection at a public institution in New England. Such investments will further strengthen the quality of our support facilities and thereby our ability to recruit top notch scholars.

7. Describe and evaluate the unit's participation, leadership, and influence in the academic profession through such avenues as professional associations, review panels, and advisory groups.

EEB faculty members provide leadership and service to many professional societies, editorial boards, review panels and advisory groups (Appendix B6). Since 2005, EEB faculty members have served in editorial positions for 45 scientific journals, including both those with topic or taxon-based foci, as well as many leading journals in our fields (e.g., Evolution, Ecology, The American Naturalist, BioScience); 5 faculty members served as Editors (Biotropica, The Bryologist, Cliodynamics, Annals of the New York Academy of Science), 21 as Associate or Subject Editorships, and 24 as Editorial Board members. Beyond editorial service, faculty in EEB have served as Presidents of 5 major scientific societies (American Institute for Biological Sciences, American Society of Parasitologists, Botanical Society of America, International Society of Limnology, and Society for Systematic Biologists), and 12 faculty members were major officers or served as an Executive Committee members. Other faculty members chaired or served on committees for student awards, helped to plan entire conferences or individual symposia at conferences, or served on long range planning committees for these various scientific societies (Appendix B6c).

Since 2005, faculty members have served on 31 review panels at the National Science Foundation. In addition, they provide ad hoc reviews for a wide spectrum of journals in ecology, evolution, and systematics, and organismal biology, and for grant proposals from the National Science Foundation beyond
those involved in panel service. The prominence of EEB Faculty is also evident in advisory board and sabbatical, adjunct, joint, and courtesy appointments held outside UConn, both within the U.S. and internationally, since 2005 (Appendix B6).

8. Describe the unit's potential for responding to changing directions and new external opportunities. What indicators show the level of morale, commitment, and sense of continuing self-improvement of the unit?

Our success in obtaining increased external funding and expanding our scholarship have occurred at a time when University enrollments, and thus individual teaching loads and faculty/student ratios, have increased substantially. In addition, administrative tasks, formally the responsibility of administrative offices or support staff are increasingly passed on to faculty, further eroding the already limited time available for innovative and creative research and mentorship. This is particularly troubling given the number of large and complex collaborative grants our faculty currently oversee. Faculty members are feeling overwhelmed and frustrated because, despite their best efforts, the quality of their contributions to teaching and service is in peril of deteriorating thereby compromising EEB’s commitment to overall excellence. Our support staff also is overwhelmed as administrative regulations, and reporting needs escalate while the number of staff members has decreased. Over the course of some of EEB’s most productive years, salaries have remained essentially static and merit has been suspended. We are concerned that we may lose some of our most productive members to other institutions where faculty support is better and conditions are less stressful. Given the current situation, EEB’s faculty and staff simply lack the time required to respond to challenges and to capitalize on new opportunities.

C. Undergraduate Programs

1. Show summary table of enrollments and credit hours by major, campus, etc., as appropriate.

Summary data on enrollments for all courses offered by EEB faculty at the Storrs campus are provided in Appendix C1. At Storrs, EEB is responsible for 3 of the 5 total (more recently 4) courses offered in introductory biology: non-majors biology (BIO 1102), introductory biology for majors (BIO 1108), and introductory botany (BIO 1110). EEB regularly teaches ~38 lecture courses at the 2000-level or above; 20 of these (67%) include complementary laboratory components. The Department regularly offers 10 W-courses. EEB is responsible for 10 courses at the regional campuses, with the vast majority of enrollments in the 3 introductory courses (Appendix C2).

2. What proportion of these courses are taught by full-time faculty, part-time faculty, and graduate students? How is the quality of general education instruction assessed? Where graduate assistants have a primary instructional role, how are they supervised?

Most courses in EEB are taught by full-time faculty members. The exceptions are the large introductory biology and the summer field courses. At present 2 of the large enrollment undergraduate courses, are taught by a non-tenure track permanent Lecturer (BIO 1102) or by one of our 1–2 APRs (BIO 1108 as of Fall 2012). On occasion, the duties of the APRs include teaching in the upper division core courses (General Ecology or Evolution) and assisting with W-instruction. All W-courses are taught by full time faculty or APRs. The field summer courses (e.g., Summer Flora, Field Entomology, Field Methods in Ornithology and Field Herpetology) are taught primarily by graduate students, or by faculty from regional campuses. Graduate student instructors for these summer courses are selected competitively from the pool of EEB applicants. All graduate students are formally evaluated by students in each of their lab sections or classes at the end of each semester. Most laboratory instruction is provided by graduate student teaching assistants (TAs); TAs are supervised and mentored by lecturing faculty via informal feedback and instruction in weekly TA meetings.

3. With respect to the undergraduate major(s) curriculum and courses:
   a. How does the undergraduate major reflect the goals of the academic program? What evidence is available to compare the curriculum with that of similar programs nationally? Does an accrediting body prescribe any portion of the curriculum? If so, how?
Our EEB curriculum is designed to encourage students to develop a firm understanding of the patterns and processes in ecology, evolution and systematics of organisms, as well as a strong foundation in plant and animal diversity. Scales of study range from molecules to global systems. This curriculum emphasizes laboratory and field experiences that facilitate experience-based learning. The EEB major (Appendix C3) incorporates a full year of introductory biology and chemistry as well as core courses in Ecology and in Evolutionary Biology. Additional courses are required within and outside of the Department in animal and plant diversity, physiology and genetics.

The curriculum for Biological Sciences majors is substantially more “flexible” and varies depending on the Department home of a student’s academic advisor. Students are required to take 36 credits of biology coursework, ideally 24 of which emphasize one of the 3 departments. However, the curriculum of these majors is in no way formalized. Unfortunately, the University’s emphasis on departmental majors exacerbates the lack of cohesion of the Biological Sciences majors, as they are not assigned to any specific department and thus tend to be overlooked—despite constituting 65% of all biology majors. None of our degrees is overseen by an accrediting body.

b. How are courses in the undergraduate major(s) coordinated? How do the courses in the major contribute to its student learning outcomes?

The curriculum of the EEB major continues to be modified to accommodate the needs of the students and course availabilities. By serving on the College Course and Curriculum Committee, one member of our faculty monitors changes in the availability and offering of courses outside of EEB that affect the EEB and Biological Sciences majors. Coordination of upper division courses across the 3 biology departments is lacking, but the extensive slate of courses offered across biology and the flexible nature of the Biological Sciences major work synergistically to serve the needs of these students.

Non-core upper division EEB courses are offered at least once every 2 years. This ensures that all students have at least 1 or 2 opportunities to take each course during a typical 4-year degree program. It also allows our faculty to teach more than a single upper division course and thus increase the diversity and number of courses offered. We generally offer 9–11 upper division courses each semester (Appendix C4; enrollment data provided in Appendix C5).

c. What specific efforts are made to incorporate new knowledge and perspectives into the curriculum? What efforts are made to involve students actively in their learning through internships, research projects, seminars, independent study, studio courses, etc.? Describe any innovations added to instructional programs since the last review.

All EEB faculty members are research-active, and this activity is reflected in their incorporation of recent and relevant information from the primary literature into their courses. Nearly all courses in the Department are now taught within an evolutionary context, including introductory biology for majors (BIO 1108: Principles of Biology). Three new courses that emphasize recent issues and findings have been added since our last self-study. Current Issues in Environmental Science (EEB 3205) is capped at 20 students to facilitate active participation in discussions. Introduction to Conservation Biology (EEB 2208) and Evolution and Human Diversity (EEB 2202, a non-lab general education course that also satisfies a science and a diversity requirement) are high enrollment courses (demand currently exceeds capacity). In addition, advanced undergraduates are encouraged to participate in graduate seminars and journal ‘clubs’ and thus are exposed to the primary literature.

Our newly hired plant genomicist will offer a course in Bioinformatics. If we are allowed to implement fully our proposal to build a world-class cluster of specialists in Biodiversity and Global Change, we believe the course offerings associated with these areas will be highly relevant to students.

EEB faculty members enthusiastically embrace the concept of active student learning. In addition to our emphasis on incorporating laboratories, discussion sections, and field trips into our upper division courses, we actively engage undergraduate students in research. Over the past 8 years, EEB faculty members at Storrs and the Regional Campuses and our 2 full Collections Managers (both of whom have Ph.D.s), have provided independent research or work study opportunities for over 300 undergraduate students; these students collectively completed 536 independent study credits. Appendix C6 summarizes these data and the
current status of some of these students. Over this same period 56 students, most in the Honors program, completed theses. This year 46 Honors students in various stages of completing their 9 credits of research are being advised by EEB faculty. In the last 8 years, these undergraduate research experiences have yielded at least 11 publications that included undergraduate student authors. Numerous students have presented the results of their work as oral presentations or posters at regional or national meetings.

Funding to support undergraduate research comes from several different sources. Some funds come from sources that specifically target undergraduate students (e.g. over 52 students have been supported on REU supplements to NSF grants and an NSF-RES grant) and some are available for small projects through a several-week field course in South Africa (13 students). Most undergraduate research is supported through their advisor’s funds. Several EEB undergraduates have been awarded competitive Summer Undergraduate Research Fellowships ($3,500-4,000), provided by UConn’s Office of Undergraduate Research. EEB offers one undergraduate-specific award (Katie Bu Memorial Award) and undergraduates are eligible to apply for the Department's annual graduate student award competition (see section H2).

4. Concerning the undergraduate major cohort:
   d. Explain any significant changes in the undergraduate major enrollment and in degrees granted since the last review. What are the implications of the average lengths of time required for degree completion? What are the retention rates for the undergraduate majors? Explain low enrollment or low graduation rates, if below Board of Regents (BOR) criteria. What efforts are underway to improve performance in these areas?

   Since 2005, UConn has increased its undergraduate enrollment from 20,000 to over 22,000 but the number of science majors has increased disproportionately, significantly affecting our enrollments. The number of Biological Sciences majors has risen from 611 in 2005 to 1,319 at present. The number of majors in the 3 biology departments has also risen (i.e., EEB: 47 to 68; MCB: 244 to 284; PNB: 144 to 357; Appendix C8). Given the relative size of our major, EEB tends to dedicate a larger proportion of its efforts to serving the Biological Sciences majors than either of our sister departments. Over the last 8 years, EEB has provided 12,142 of 22,027 seats (i.e., 55%) in introductory biology offered by the 3 biology departments and EEB is responsible for teaching 3 (BIO 1102, BIO 1110, and BIO 1108) of the 4 (previously 5) introductory biology courses offered. BIO 1108 would undoubtedly be even larger if we could accommodate the full demand. Total EEB course enrollments have increased from 2,116 in 2005 to 2,890 at present (Appendix C1). This is largely reflected in upper division course enrollments, which have more than doubled, rising from a total of 644 students in 2005 to 1,327 at present, requiring the addition of evening lab sections in a number of cases.

   The University Academic Plan states that all students must fulfill a requirement for intensive writing instruction within the major. A significant portion of teaching effort in EEB is devoted to offering writing-intensive W-courses. In association with particular courses, this instruction involves a 15+ page writing assignment with repeated faculty edits and rewriting for each student, as well as individual meetings with W-instructors (generally not the course lecturers). In our 10 regularly offered W-courses (Appendix C9), EEB has provided W-instruction to 1,653 students, or ~55% of the 3,029 W-seats offered by the 3 biology departments in the last 8 years (Appendix C10). Because the concept of writing instruction “within the major” is interpreted liberally, our courses also fulfill this requirement for students in a diversity of life sciences outside of EEB.

   e. What indicators does the unit utilize to monitor the success of its graduates? How does the quality of these graduates compare with student quality in this field nationwide? Describe any honors or awards received by the unit's graduates.

   Our undergraduates have been awarded 17 fellowships or honors including prestigious Udall and Goldwater fellowships, a Truman award and Graduate fellowships from the National Science Foundation. Among the undergraduate students engaged in research, 5 have received an award for best presentation at regional or national meetings. Fifty-nine students received intramural awards in recognition of their accomplishments or to support their research projects (Appendix C7).
f. Comment on the quality of the unit’s efforts to attract, support, and graduate traditionally underrepresented groups. How does the proportion of degrees granted to underrepresented gender and minorities compare to the university as a whole and to the field nationwide? What specific plans and programs does the unit have in place for increasing the proportion of graduates from traditionally underrepresented groups? Include measures taken to provide special advice and support for such students while enrolled.

The University of Connecticut has 2 programs focused on this goal: Student Support Services (SSS; [http://www.cap.uconn.edu/sss/about/index.html](http://www.cap.uconn.edu/sss/about/index.html)) and the Louis Stokes Alliance for Minority Participation (LSAMP; [http://www.lsamp.uconn.edu/about.html](http://www.lsamp.uconn.edu/about.html)). SSS serves students in all majors at the University and LSAMP is specific to majors in a STEM field. At present there are 98 Biological Sciences majors in the SSS program and 21 Biological Sciences majors in the LSAMP program.

All EEB faculty members who have mentored undergraduate researchers in their labs have worked with students from underrepresented groups (Appendix C11) but beyond the programs described above, EEB does not have its own program to recruit students from these populations, other than individual faculty efforts. Developing such a program would improve our ability to engage members of underrepresented groups in biological research. We note that the Department recently provided summer undergraduate Multicultural Fellowships as matching components to some NSF awards.

g. What is the unit doing to serve nontraditional and part-time undergraduate students?

Unfortunately, given current enrollments and increased workload, we have not been able to give much consideration to accommodating nontraditional and part-time undergraduate students beyond offering 4 summer session courses, 1 intersession field course, 1 intersession on-line course, and adding additional evening lab sections to some of our introductory biology and several of our upper division laboratory courses.

h. Describe the process and structure of the undergraduate advising in the unit. What is the quality of advising for undergraduate majors? How has the advising process been evaluated?

Historically, EEB faculty members were responsible for advising undergraduates in the EEB major, while Biological Sciences majors were divided among faculty in EEB, MCB and PNB. With the number of majors growing precipitously, and also in response to the issues of effective advising raised in our previous review, EEB created the position of Undergraduate Coordinator in 2003, taking the place of a vacant office staff position. This position was the first professional staff advisor position created within CLAS (18 professional advisors now serve CLAS students). In addition to providing support for upper division EEB courses, the EEB Undergraduate Coordinator advises all non-Honors EEB majors as well as a large number of Biological Sciences majors. At present she advises 329 students—a dramatic increase from 105 students in Fall 2004. In Spring 2005, 2 retired faculty members (one EEB), were hired to advise freshman biology students regardless of their major. In Fall 2011, a professional staff advisor was hired to assume that responsibility. As required by the Honors program, Honors students continue to be advised by faculty members. Six EEB faculty members advise EEB Honors students and a subset of Biological Sciences Honors students, for a total load of 10–12 students per faculty member. Three EEB faculty members advise undergraduates at regional campuses. Annual caseloads for all EEB advisor categories are provided in Appendix C11. EEB has just instituted a mandatory survey of EEB graduating seniors that includes 2 questions on the quality of advising. Prior to this survey, there was no formal evaluation of advising.

5. Where are program graduates placed, or what do they do after graduation? How do graduates of the program view their experience, and how are their views solicited? What program modifications do these views suggest?

We currently have no formal system in place for tracking undergraduates once they leave our program. We began an annual EEB Newsletter, which has become a source of information on our graduates. Individuals receiving the Newsletter are asked to provide information on their own achievements and whereabouts as well as on those of their classmates. We have sent out specific requests to our alumni on two occasions over the past 8 years, but received very few replies. Faculty members often keep in touch
with students who have worked in their labs on independent research projects or as research assistants, but the information provided in Appendix C6 is nevertheless limited. These data, however, lead us to believe that our students are generally successful in entering professional or graduate schools, and in obtaining positions in education, government agencies, or are working in some other capacity related to biology. Developing a formal system for tracking undergraduates (EEB and Biological Sciences) who complete degrees under our supervision is an important goal.

The quality of education provided by courses offered by EEB staff is assessed through formal student evaluations administered by the Office of Instructional Research (OIR) and by feedback from students who have attended other institutions or who go on to graduate/professional school. OIR summary data for Storrs faculty for the past 8 years are provided in Appendix C12 (data are presented separately for introductory biology and EEB upper division courses). In the introductory biology courses, faculty generally perform approximately at the level of Biology and overall University for similar courses. In upper division courses EEB faculty generally perform above the University mean, sometimes significantly so (average across years for EEB is 8.95 vs. 8.72 for UConn overall), which we find to be particularly satisfying given the number of our upper division courses that now have enrollments exceeding 100 students.

D. Graduate Programs
1. Summary table of enrollments.
Composition and size of the graduate student population, and enrollment in graduate courses are summarized in Appendix D1.

2. Overview of the graduate programs:
   a. Describe, in general terms, the graduate program(s) offered by the unit. How do the graduate programs reflect the basic goals of the academic program?

   Among the 3 biology departments, EEB is the primary focus for graduate training in basic (and increasingly, applied) research in organismal biology, including ecology, evolutionary biology, conservation biology, systematics, and animal behavior, although colleagues in other departments share interests in each of these fields.

   (i) Research Degree Programs: EEB offers research-intensive M.S. and Ph.D. degrees requiring a written thesis/dissertation. All M.S. and Ph.D. degrees are now granted in the 'Field' of Ecology & Evolutionary Biology. Coursework satisfying the credit requirement is determined by the student’s advisory committee composed of at least 3 faculty members.

   The EEB graduate program reflects faculty strengths, with a focus on a wide diversity of organisms including insects, plants, parasites, and vertebrates, and a broad range of conceptual areas: population, community, landscape, behavioral and paleoecology; systematics and taxonomy; phenotypic evolution, evolutionary development and functional morphology; and conservation ecology and genetics. These programs share a common focus on biodiversity: its origin, maintenance, function, conservation, and loss.

   As the study of biodiversity has matured, the importance of integrated training has moved from desirable to necessary as the scope of investigation into complex systems has become increasingly interdisciplinary. Although ecology, conservation biology, systematics, and evolutionary biology are parts of graduate curricula at many institutions, few U.S. universities provide rigorous, interdisciplinary programs integrating all 4 of these fields. EEB has developed an especially strong, well-balanced program, with proven success in fostering a high level of cross-disciplinary research competence in both technical and conceptual aspects of evolutionary and ecological research. Recent M.S. and Ph.D. students trained jointly by faculty partnerships have investigated many dissertation topics that integrate systematics, evolution, and ecology across all of our core disciplines and levels of organization. Our students (and faculty) are increasingly incorporating information and training from other fields into their work, including physics, mechanics, chemistry, mathematics, statistics, agriculture, social sciences and the humanities, to name a few. This increasing breadth in our graduate training anticipated initiatives at NSF and many professional organizations that are now calling for greater interdisciplinary training in the sciences.
(ii) B.S./M.S. Program: Initiated in Fall 2003, our combined B.S./M.S. program in Biodiversity and Conservation Biology was designed for EEB and Biological Sciences undergraduates with career interests in biodiversity and conservation, who do not require extensive research experience. The program focuses on internships and on complementing undergraduate training with advanced course work. Since its inception, 27 students have graduated, 5 left before completing their degree, and 6 are currently enrolled. We are unaware of similar programs in this field that integrate a non-thesis M.S. with a B.S. degree program.

b. What evidence is available concerning the quality of the unit's graduate program(s)? Describe, in particular, extramural awards and grants for the purpose of graduate education, either to individual students or to the program.

(i) Research Degree Programs: The recent NRC report placed UConn EEB in the 3rd quartile for graduate program size. Our admission has been highly selective—we accept only 23% of applicants (see 4a for more detail). Since 2005, EEB graduate students have garnered an impressive list of extramural fellowships, grants for research support and awards. Their 25 extramural awards include 6 NSF Predoctoral Fellowships, an NASA graduate Fellowship, a NASA graduate Fellowship, 2 Fulbrights, 1 Switzer Fellowship, and 15 NSF Doctoral Dissertation Improvement grants. In addition, students have received 64 research, 10 travel and 18 best presentations awards from professional societies. Their 56 intramural awards include 7 Outstanding Scholar and 4 Multicultural Scholar Fellowships (Appendix D2).

(ii) B.S./M.S. Program: Since students in the B.S./M.S. program do not typically conduct independent research, they rarely apply for extramural awards and grants. Their quality can be judged by the grades of students entering and leaving the program (see below), and by the employment of most graduates in their target field (although this has become less successful in the past two years, presumably a consequence of the weak economy having especially affected hiring by government agencies and non-profit groups where many of our graduates seek employment).

c. What changes in the program(s) have occurred since the last review? What changes (especially innovations) are now underway?

(i) Research Degree Programs: The areas of specialization of the 4 faculty who recently retired from Storrs (Appendix A3) were in plant biology (Anderson), vertebrate physiological ecology (Taigen), and arthropod systematics (Schaefer), limnology (Rich). Although 3 of these faculty members were research active, their contributions to the graduate program had been declining. With respect to the 3 recent hires, paleobiology (Bush) reestablished a historical presence in this field at UConn and the 2 subsequent hires expanded and updated our breadth in ecology (landscape ecology) and evolutionary biology (plant genomics). The proposed cluster hire in Biodiversity and Global Change will both deepen and broaden strengths in EEB.

(ii) B.S./M.S. Program: This program was approved at the time of the previous program review. Subsequent changes include: (a) expansion to attract students from outside UConn in order to build the size and quality of the program, (b) conversion to a Professional Science Master’s program, and (c) reconfiguration of the coursework (e.g., to match certification requirements of certain professions). The program has existed in its current form long enough to allow adequate assessment of that format and we are now re-opening discussions on this topic.

3. With respect to graduate curriculum and courses:

a. What evidence is there of sufficient offerings and balance among the unit's various specialties? Is there sufficient breadth of course offerings and sufficient depth for specialization? How are the courses in the graduate program coordinated? What plans are underway to modify the graduate curriculum in light of available information?

(i) Research Degree Programs: EEB offers 30 lecture courses for graduate credit (Appendix D3), taught by 21 faculty members. Not only do we offer a large range of theoretical and conceptual courses but we also offer the basic "-ology" courses that many universities have cut. At least 3 courses are available in each of the areas of ecology, evolution and systematics. We currently have only one graduate level lecture course in conservation biology. More in-depth and specialty topics are accommodated with seminars.
focused on specific areas (e.g., regular seminars in vertebrate biology and systematics), or one-time offerings (e.g. ecological genomics or discussion of a new book). Our proposed cluster hire offers some hope for further broadening our course offerings. In addition, with support from the Dean, EEB developed a Cyberinfrastructure program [http://web2.uconn.edu/cyberinfra/index.html] consisting of a series of 5 modules. These modules were offered in Spring 2011 and retain a web presence. Some of our graduate students participated in an inter- and cross-University distributed seminar and related activities with partners from 15 institutions in 5 countries that yielded 5 publications, as part of a Dimensions in Biodiversity program.

(ii) B.S./M.S. Program: All EEB courses are available to B.S./M.S. students. With the exception of 2 graduate seminars (EEB 5369: Current Topics in Biodiversity and EEB 5370: Current Topics in Conservation Biology), the small program size precludes designing a large number of courses specifically for this audience. However, many of our existing courses nicely serve the B.S./M.S. program curriculum.

b. What evidence is there of whether the courses meet student needs?

(i) Research Degree Programs: An area of deficiency recognized by both students and faculty is a course in biometry (basic graduate- or advanced-undergraduate-level statistics specifically for biologists). Although some students meet this need with courses in the Statistics Department, others feel that these courses are not accessible. Several attempts have been made at offering such a course, with mixed success. The greatest obstacle is the necessity of taking qualified faculty from other teaching duties in order to offer biometry. The need is now great and we plan to address this deficit soon either by reassigning the teaching duties of an existing faculty member with this expertise, or with one of our new hires.

(ii) B.S./M.S. Program: Exit interviews indicate that courses largely meet student needs.

c. In what ways besides individual thesis or dissertation research are students involved actively in their learning; for example, through internships, practica, and/or graduate assistantships?

(i) Research Degree Programs: Graduate student active learning is enhanced via the following endeavors. Collaborative research: working on projects with faculty, sometimes in other departments or schools and participating in side projects with other grads. Teaching: A wide variety of teaching-related activities are available to EEB students beyond TAs and their associated required one-day teaching workshop. Graduate students often guest lecture in courses taught by faculty, teach summer field courses, organize and lead undergraduate seminar discussion groups, and mentor undergrad research interns in collaboration with faculty. Outreach: EEB graduate students engage in various local activities, such as talking in elementary and high school classes, or sharing their expertise with the public through lectures or greenhouse tours, etc. Practical Experience: conducting fieldwork in the U.S. and many foreign countries; attending and presenting papers or posters at national and international meetings; writing grant applications independently or in collaboration with faculty; learning software relevant to EEB research and teaching; working as editorial assistants; working in one of the collections with collections managers and organization of a yearly graduate student symposium, well attended by both students and by faculty.

(ii) B.S./M.S. Program: Students must complete 4 credits of research to acquire experience in interpreting research and in interacting professionally with those who conduct it. Students are also required to complete at least one internship. Students are frequently integrated into the research groups of their advisor, providing additional exposure to the research and outreach activities of their peers conducting thesis or dissertation research. TA opportunities are occasionally available.

d. Do students have adequate resources to carry out their studies (e.g., library, office and lab space, supplies, equipment, travel, photocopying, etc.)?

(i) Research Degree Programs: The Department has a diverse internal grant program funded by interest generated from a series of endowed accounts in the UConn Foundation established and sustained largely through donations by faculty, staff and alumni (see Section H2). Most of these funds are used to assist with graduate (and occasionally, undergraduate) research and travel. Since 2005, these accounts have provided 205 awards, totaling ~$119,000—an average of 25 awards/year @ ~$580 apiece. Graduate students also are each allocated an annual photocopying budget by the Department. The Graduate School provides a stipend of $2,000 for research to each Ph.D. students who have achieved doctoral candidacy (i.e., passed general
exam; dissertation prospectus approved) and $1,000 for travel once they have completed 30 credits of coursework. All graduate students have excellent access to scientific literature, much of it electronic, provided by the Babbidge Library and its interlibrary loan resources. Beyond desktop computers available in research labs, the McCarthy Room computer lab provides access to computers, many of which are equipped with software resources for GIS and phylogenetic analysis. Access to equipment is good, given the active nature of most research labs. In addition, graduate students have the same access to all shared research facilities (e.g., Greenhouses, EM lab, molecular, and collections facilities) as faculty. If a faculty advisor does not have funds to cover use of the latter, the Department will provide some funds. Office space, however, is limited and that available for students housed in the Torrey Life Sciences building is generally very poor.

(i) B.S./M.S. Program: Dedicated office space for B.S./M.S. students was made available early in the program, but it has been eliminated owing to other departmental space needs; students are now accommodated within their advisors’ labs, an arrangement they actually prefer. B.S./M.S. students receive the same access to resources as research graduate students.

4. Concerning the graduate student cohort:
   a. Assess the quality of the graduate student cohort, based on collective GRE/GMAT or other test scores, collective grade point averages, or other admissions criteria. How does the quality of students in the graduate program compare with student quality in other similar programs? How does the quality of current students compare to the students in the program since the last review? Base the answer on objective and anecdotal data.

   (i) Research Degree programs: In the 2 years preceding the previous review, verbal GREs averaged in the 85th percentile and quantitative GREs in the 65th percentile. Over the last 6 years, average GRE percentiles are V= 82nd and Q= 69th (Appendix D4). However, as the appendix figure shows, these values have increased significantly over that period (3 yr rolling averages increased from V=76th to 88th , and Q=65th to 72nd). The number of students supported on external and internal fellowships has reached its highest level ever in the 2012-2013 cohort @ 20%. The 2006 NRC report shows that the GRE scores of our graduate students are, on average, low relative to those of all of our peer and target institutions (Appendix B7). We believe this is in part because the acceptance rate for offers made (65%) has declined somewhat; i.e., we are loosing some of our best candidates to institutions offering more competitive support packages including full fellowships, which we are lacking.

   (ii) B.S./M.S. Program: Most students entering the B.S./M.S. program do not take GREs. Of those that have (n = 9), mean percentiles were: V= 66th, Q= 58th. Mean B.S. degree GPA for students who have entered the program was 3.26 (n = 26). Mean M.S. degree GPA for students who completed the program was 3.67 (n = 26).

   b. What is the current gender and race/ethnicity composition of the graduate student cohort? How do these figures compare with those for undergraduates within the unit and for similar graduate programs at other peer and aspirational schools? What efforts are underway to attract and retain well qualified students from underrepresented groups? What mechanisms are used to support these students?

   (i) Research Degree Programs: Current compositions are 40% male, 60% female; 10% minority and 17% international (Appendix D5). These numbers show substantial change over those of our previous review, when male was 60% and female 40%. We are able to attract strong minority Ph.D. students largely because of the University's Multicultural Scholarship program. This program provides 50% support throughout the student’s career and is supplemented by a half TA from the Department.

   (ii) B.S./M.S. Program: Gender composition of graduated students is 58% female. Race composition is: 20 white, 1 black, 5 undeclared; 5% minority. Most students are drawn from UConn undergraduate biology students and thus gender and race composition are constrained by that pool.

   c. What is the current composition of the graduate student cohort with respect to geographic origin? How do these figures compare with figures for similar graduate programs at other peer and aspirational schools?
In total, 17% of current EEB graduate students are international. In the past 8 years they have come from Brazil, Canada, China, Colombia, Costa Rica, Croatia, Czech Republic, Iran, Ireland, Korea, the Netherlands, Serbia, and South Africa. Nationally, our program has included students from 13 states.

d. What mechanisms are used to recruit students? Is the program competing well for top students?

(i) Research Degree Programs: As shown in Appendix D5, EEB is very selective, with an offer rate of only 23%. Our program sometimes competes effectively with top 10 programs, but we also lose candidate to other institutions, most likely as a consequence of our less competitive support packages. The virtually non-existent summer support, lack of full graduate fellowships and teaching loads are of most concern. At present we do little active recruiting, and lack the funds to recruit effectively from our existing pool of candidates. We encourage candidates to visit our department and meet faculty and graduate students in March when our annual graduate symposium is held, but unless individual faculty members sponsor such visits, candidates often are unable to visit and experience for themselves the quality of our program—an experience that often convinces them to accept admission.

(ii) B.S./M.S. Program: Program information is provided to UConn biology majors via informational meetings, advisors, departmental emails and the program web site. Although formal analysis is lacking, the program appears to be competing well for top students. The academic quality of students could be increased by extensive and targeted recruitment outside of UConn, but the program was designed to serve students already at the institution and the already high existing teaching commitments of faculty prevents increasing the capacity of the program beyond its current levels.

e. Are stipend levels adequate? Is stipend availability adequate? In addressing this, consider how many of the total number of graduate students have a teaching or research assistantship (both full and half). Also address other forms of support available to graduate students (i.e., pre-doctoral fellowships). What sources and amount of funding is available for summer support?

All EEB Ph.D. students receive full support of one kind or another; none is supported only partially. Over 90% of M.S. students also receive a stipend. Support is offered for up to 5 years to Ph.D. students making good progress and 2 years for M.S. students. Additional support is contingent upon individual circumstances, availability of funding, and teaching needs. B.S./M.S. students are enlisted as TAs when required by teaching needs. Current stipends per academic year are: beginning $19,384; M.S. $20,396; Ph.D. candidates $22,676. These packages also include Health coverage and a full tuition waiver.

We are concerned that stipend levels are falling behind peer and target institutions. The average annual increment since 2001 has been 2.4% (= average inflation rate). Although EEB has been highly successful in competing for UConn’s Outstanding Scholar Fellowships, these are limited in 2 ways: the University-wide pool of awards is relatively small and the fellowships provide only 50% support, and hence must be paired with a 50% TA or RA. We identify this as a major limitation to our competitiveness—we have called upon the Administration for years to expand these to full fellowships and to increase the number available. In several instances we have lost top recruits to Institutions that offer full fellowships. The meager amount of summer support is the other major limitation to our competitiveness. The Department receives a total allocation of $9,400 from the Grad School for summer support. These funds are typically divided among the students who do not quality for work study (e.g., our foreign grads). Based on 7-8 international students per year, support of only $1,100 to $1,350 can be provided to each student. Fortunately, many of our U.S. students qualify for work study, but this only provides about $2000 per student for the summer. Others are supported on faculty grants when available.

The size and sources of support for our graduate program are summarized in Appendix D1. The program is virtually the same size as it was in 2005. Despite the unprecedented increase in our undergraduate enrollment, our allocation of TAs, although improved from an unsustainable low in 2009, has recovered only to nearly the same level it was in 2005. Based on NRC data, the number of TA lines per faculty is substantially lower than 3 out of 5 target institutions and is the same or lower than all but one of our peer institutions (Appendix B7). The number of students supported on Fellowships (mostly external) now exceeds that supported on RAs—the reverse of the situation in 2005. Furthermore, the total number of graduate students supported on RAs has declined from an all time high of 19.5 in 2009, to an all time low of
8.5 at present (Appendix A4). We attribute this, at least in part, to the University’s mandated charging of graduate tuition on grants, which was instituted in 2009.

f. What is the nature and quality of the advising for graduate students and how has advising been assessed? What is the average ratio of student/faculty during thesis and/or dissertation supervision?

(i) Research Degree Programs: The student to faculty ratio is typically ~1.7. Students have a minimum of 3 faculty on their advisory committees. General exams and dissertation defenses require 5 participating faculty.

(ii) B.S./M.S. Program: Quality of advising is assessed via exit interviews conducted by the program coordinator. Information sought is descriptive rather than quantitative, but students almost uniformly respond positively to most aspects of the program. Items of concerns are largely structural, requiring major changes above the Departmental level.

g. What are the retention rates in the graduate program for both master’s and doctoral students? What is the average time to degree completion? How do these figures compare with those from the last review?

(i) Research Degree programs. 92% of M.S. and 95% of Ph.D. students have completed their degrees over the past 8 years. Average time to degree completion is 2 years for the M.S. and 5.3 years for the Ph.D. NRC data attest to the highly successful nature of our graduate program. The median time to degree (5.3 years) is shorter than all of our peer and target institutions; our average completion percentage in 6 years or less (55.6%) is greater than all peer and all but one target institution. On average we graduate a greater number of Ph.D.s (7) than all of our peer institutions and the same or greater number than 2 of our target institutions. Only Berkeley and Michigan State graduate substantially larger numbers of Ph.D.s (12.8 and 18, respectively), but their programs are also substantially larger.

(ii) B.S./M.S. program. 84% of students have finished the program. Because the M.S. program is integrated with the B.S. program, time to completion cannot be clearly separated from undergraduate offerings/requirements. This degree was not offered at the time of our last review.

h. Explain any significant changes in graduate student enrollment and in degrees granted since the last review. How do these figures compare to peer programs? Explain low enrollment or low graduation rates, if below BOR criteria. What efforts are underway to improve performance in these areas?

No major changes.

5. Describe the extent to which this unit interacts programmatically with other units (both within and without the university) at the graduate level. Cite other units where students frequently take coursework or other program options in your unit. List courses in your unit that are frequently taken by students within other graduate degree programs.

EEB has strong connections with the Center for Environmental Sciences and Engineering, which "promotes multidisciplinary research, education and outreach in environmental sciences, engineering, policy, and sustainability." Faculty from other departments or schools (Statistics, Marine Sciences, Natural Resources and Environment, Engineering) have served on the committees of some of our students. Students take classes in a number of other departments, including, for example: Agricultural and Resource Economics—Environmental Economics and Resource Policy & Management courses; Geography—Geographic Information Systems courses; Molecular & Cell Biology—Genomics courses; Natural Resources and the Environment—Environmental Law, Remote Sensing, GIS courses; Physiology & Neurobiology—Electron Microscopy course; Philosophy—Environmental Ethics course; Statistics—statistics and experimental design courses. EEB and Statistics have co-hosted a seminar in Spatial Statistics and many of our special seminar courses (e.g., Systematics) include active participation by faculty and students from other departments, MCB in particular.

6. Provide a list of all graduate students from the last three to five years and indicate to the extent possible where they have been placed. How do graduates of the program view their experience, and how are their views solicited? What program modifications do these views suggest?
Current placements of the 55 Ph.D. students who graduated from our program since 2005 are provided in Appendix D6, as are placements for M.S. and B.S./M.S. students for whom we have data. These data provide additional support for the success of our program. Of the 55 students, 18 (~33%; 9 M, 9 F) hold tenure-track positions, 11 (~20%; 9 M, 2 F) hold scientific positions at institutions such as museums or government agencies, and another 16 (~29%; 8 M, 8 F) are post-docs. In total 83% have succeeded in obtaining positions in science beyond their Ph.D.

E. Student Outcomes Assessment

1. Referring to the Learning Outcomes document, describe what the graduates of the program should know and be able to do when they leave the university, and how the unit measures or otherwise assesses actual student achievement.

Undergraduate Programs: Assessment of the B.A./B.S. degree program in EEB is based on majors achieving 4 goals: (1) acquiring knowledge of the unifying concepts and major results of Ecology and Evolution; (2) becoming familiar with the biology of a group of plants and a group of animals; (3) developing observational, organizational, interpretative, evaluative, and synthetic skills; (4) reflecting upon the impact of Ecology and Evolutionary Biology on their personal future. Multiple objectives and learning outcomes have been identified for each of these goals.

Student achievement is assessed using exams, papers, and other products of student work. Lecture courses administer multiple hourly exams and also always a final exam, many of which are cumulative. Lab courses additionally assess student achievement with lab reports, practical examinations, presentations, field notebooks, and/or specimen collections. Student achievement in our W-courses is assessed by reviewing drafts and final versions of 15–20 page papers on student-selected topics within the course’s subject area.

Graduate Programs: Students earning an M.S., primarily those completing a B.S./M.S. Degree in Biodiversity and Conservation Biology, must demonstrate mastery of a subject area in these fields, typically focusing on a habitat, geographic area and/or organismal group. Furthermore, students must apply these principles during an internship and a research project. Assessment is provided through course grades, and a final oral exam administered by the student’s advisory committee. Research M.S. students must have their thesis work approved by their advisory committees and pass a final thesis defense.

In addition to advanced coursework, students earning a Ph.D. in the graduate field of Ecology and Evolutionary Biology are required to demonstrate the ability to execute a substantial body of original research within the purview of the Department. This is assessed via (1) an oral comprehensive general exam conducted by the student’s advisory committee and at least 2 other faculty that evaluates the student’s progress towards developing a research plan grounded in fundamental knowledge and rigorous design; (2) a dissertation defense, consisting of a public presentation of the dissertation research and an oral exam conducted by the student’s advisory committee and any other interested faculty, serve as summative assessment of the student’s execution of his/her research plan; and (3) evaluation of the written dissertation by the student’s advisory committee. Additionally, EEB places a high value on student contribution to the primary peer-reviewed literature and on career development.

2. Specify how student outcomes are aligned with the mission and goals of the unit, the college (if appropriate), and the university.

Undergraduate Programs: The mission of the EEB B.S./B.A. undergraduate degree programs is to promote the intellectual growth and professional preparation of students by educating them in the principles, practices and applications of Ecology and Evolution. This mission is consistent with the CLAS mission to promote lifelong learning, thinking and informed citizenry. The Department aligned the degree mission with student outcomes by developing an assessment plan in 2006 (reviewed annually).

Graduate Programs: It is our goal for all graduate students pursuing research degrees to have a firm grasp of practices and principles of Ecology and Evolutionary Biology, and to have the skills required to expand knowledge in these areas through original research. The mission of the more vocationally-focused B.S./M.S. program is to provide students with a deeper understanding of Evolution and Ecology than can be
achieved with a BS alone and to prepare them for positions as advisors or consultants by exposing them to broader issues in biodiversity and conservation science policy and law.

3. Describe measures of student learning used in the program.

   Undergraduate and B.S./M.S. Programs. We measure student progress towards learning outcomes using a combination of course-embedded assessment, review of submitted work, and surveys. We assess student progress towards outcomes aligned with goals (1) and (2) (E1, above) by harvesting responses to specific exam questions in our core classes, and applying established rubrics to the student responses to these questions. We assess skills of students listed in goal (3) by reviewing lab reports, field notebooks and papers submitted in W-classes. We gauge student integration of EEB subject matter with their personal perspective and life goals using summative surveys administered at the time the final plan of study is completed and soon we will also be implement formative surveys that are administered at the time a student declares the EEB major to assess how the degree program has shaped this integration. Finally, performance on the final oral exam is a key measure of learning in the B.S./M.S. program.

   Graduate Research Programs. Early in their degree programs, graduate student progress towards learning is measured primarily by course-embedded assessment. In the case of Ph.D. students, performance on the general comprehensive oral exam is paramount and serves to identify deficiencies in knowledge that can be addressed through additional coursework and other means. Later in their programs, measures of graduate student learning focus more on research outcomes including publications, grant applications and oral presentations at national meetings.

4. How do you use assessment of student learning outcomes to make curricular offerings more effective at meeting the goals set for the students? How has it been used in formulating the unit’s strategic plan?

   Undergraduate Program: The Department annually reviews data on assessment of learning outcomes. Implementation of the assessment plan is still in its early stages and we have accumulated limited data owing to a small number of majors and a short duration of data gathering. Reflection on preliminary data engendered discussion on how to implement a more comprehensive assessment plan.

   Graduate Programs: As a result of EEB’s current commitment to undergraduate courses, our graduate curriculum is beginning to stagnate and only a subset of our faculty are able to offer graduate courses. We addressed this, in part, by offering a diversity of graduate seminar courses that allow us rapidly to alter our curriculum to reflect recent advances in Ecology and Evolution.

5. How will the results of the student outcomes assessment be incorporated in strategic planning and curricular review process?

   Results of a comprehensive assessment plan will be considered in EEB’s strategic planning, within which curriculum review will consider how best to improve outcomes for all our students.

F. Outreach and Public Service

   In this self-report, please describe your outreach and public service, specifically referring to educational efforts, leadership, and sharing of knowledge off-campus, for example in the local community and throughout the state and beyond.

1. Describe the nature of academic outreach and public service activities in the unit.

   EEB has an extraordinary record of active engagement with the citizenry of Connecticut and environmental matters across the globe. Some form of science or environmental outreach and public engagement is written into all of EEB’s NSF-funded projects. Departmental efforts include public lectures and programming, public tours of greenhouses; K-12 education; citizen science projects; active involvement in local, regional, and global conservation efforts; board service; media and science communication, including publication of popular articles; and minority recruiting and related efforts to engage underserved groups. While active and successful in traditional outreach channels, EEB has also established an important presence in cyberspace, creating channels of communication on blogs, and through
social media, and by providing content for numerous websites. One faculty member (C. Yarish) and one staff member (C. Morse) have received Provost’s awards for Public Engagement. A partial list of many of EEB’s outreach activities over the past 8 years is given in Appendix F1 and a summary of EEB’s online public outreach is provided in Appendices F4 and F5. The following 8 endeavors highlight the spectrum of EEB outreach activities.

(i) Bioblitz (http://web.uconn.edu/mnh/bioblitz/): Events: In collaboration with the Connecticut State Museum of Natural History, EEB faculty, staff, and students have served as the backbone of these events which seek to survey all species in a discrete urban area in CT, exposing hundreds of citizens to biodiversity and environmental issues. The 3 most recent events (2005 in East Hartford, 2007 in Middletown, and 2009 in Hartford) were directed by D. Wagner.

(ii) Invasive Plant Atlas of New England (http://www.eddmaps.org/ipane/) (IPANE): Spearheaded by J. Silander and recently deceased staff member L. Mehrhoff, this project emphasizes education about invasive plants and their deleterious effects on biodiversity. Over 900 volunteers from across the Northeast have participated in the project.

(iii) EEB greenhouses (http://florawww.eeb.uconn.edu/): Public outreach is a central focus of the daily operations of the EEB greenhouse facilities (Appendix F2). Formal tours are the most visible form of outreach with 728 formal tours to nearly 12,500 visitors over the past 8 years. Among other useful resources for plant lovers, its website provides full access to its complete holdings.

(iv) Biodiversity Research Collections (http://www.biodiversity.uconn.edu/BRC.html): The Department’s state-of-the-art Biodiversity Research Collections (Appendix F3) provides tours to school groups and the public and is home to D. Les and B. Caper’s NSF funded Virtual Herbarium (http://bgbaseserver.eeb.uconn.edu/database.html) and its associated “Virtual Herbarium Goes to School” (http://bgbaseserver.eeb.uconn.edu/Teacher_website/indexl.html) program, which provides lesson plans that allow high school students to use the University’s botanical collections online database to analyze the spread of invasive species, track declines in abundance, etc.

(v) Digital tools for outreach: The Department has moved energetically into online efforts that include web and Facebook pages, citizen-science projects with members of the public contributing data through online portals. (e.g., Social Evolution Forum (http://socialevolutionforum.com/); Uncommon Grounds (http://darwin.eeb.uconn.edu/uncommon-ground/): Reflections on Academics, the Environment and Biodiversity; Amphibian Tracker (http://hydrodictyon.eeb.uconn.edu/people/urban/tracker.html).

(vi) Websites: EEB hosts more than 20 websites that serve content on invasive species, distributional data for plants and animals, mapping and modeling tools, identification resources, and myriad other aspects of our planet’s biodiversity (Appendix F5). EEB also supplies considerable content for sites hosted elsewhere, such as 18,000 wild bee records and thousands of plant and caterpillar images to Discover Life (http://www.discoverlife.org/), an interactive encyclopedia about the taxonomy, natural history, distribution, abundance and ecology of species, which routinely receives more than 20 million hits per month.

(vii) Edwin Way Teale Lecture Series: The series, coordinated by G. Anderson and others and now in its 17th year, brings to campus some of the world leaders in nature writing, philosophy, economics, social policy, biology and public policy areas related to the environment (Appendix F6). The audience for the series is very broad based, and extends well outside the University, it serves as a significant outreach arm of the University.

(viii) EEB has an active program of collaborating with Journalism faculty to train both faculty and graduate students to communicate their science to the public through the news media. In general, EEB has generated extensive media interest. For example, a single recent PNAS publication from Ph.D. student Rico-Guevara was covered by the New York Times, NPR, and featured on over 300 web pages in 19 languages, in over 70 countries. Highlights of EEB media coverage are presented in Appendix F1.
2. How do these activities reflect the goals of the university Academic Plan, and the particular needs of the state and region? What evidence is available to document the quality and effects of these activities?

The Environment is one of 4 “Focused Areas of Excellence” emphasized in the University’s Academic Plan (“Our World, Our People, Our Future”). In the broad view, all of the Department’s research, education, and public engagement efforts bear directly on environmental matters. As evidenced by the activities highlighted above and dozens of others listed in Appendices F1-F5, EEB has an exceptional record of engagement with the citizenry of Connecticut and environmental matters and is active in environmental across the globe. Focal conservation efforts in Madagascar, Patagonia, and South Africa have gone beyond ecology and biodiversity studies to include education, training and active involvement of locals to embrace the cultural, political, and social participation of indigenous peoples. In so doing, these grassroots projects have embraced core areas of the academic plan—in human rights, education, and environmental research and education—upon which the University is seeking to build.

Over the course of the last 10 years, both the greenhouses and state-of-the-art Biodiversity Research Collections have become established as popular ‘campus destinations’ for visitors, with scheduled tours serving thousands from outside the campus community. As noted above, EEB faculty are using science communication skills and social media to teach in new ways and to reach out to audiences external to the University.

3. Are students involved in activities that are outreach related, and are these activities aligned with the Academic Plan?

Our graduate and undergraduate students are fully engaged in the majority of the Department’s outreach activities. Their involvement includes participating actively as members of taxon-focused “teams” for Bioblitz events, working in and leading tours of the greenhouses and Biodiversity Research Collections facility, and contributing content to many of EEB’s websites, e.g., much of the herbarium and pollinator data served and mapped by GBIF and Discover Life.

More recently, one of the most tangible ways that undergraduates at the University have participated in outreach is through use of Twitter. M. Rubega developed a class exercise in her Ornithology course that requires students to tweet observations of birds outside the classroom and connect what they see to course content (using the #birdclass hashtag). This effort has been featured 3 times in the NY Times (http://dotearth.blogs.nytimes.com/2011/05/05/on-birds-twitter-and-teaching/).

G. Collaboration with Other Units
1. What are the other departments, schools/colleges, and centers with which the members of the unit collaborate most frequently? Describe the nature of those efforts and an assessment of successes and disappointments.

Individual EEB faculty participate in research collaborations with colleagues in a diversity of departments across CLAS including Statistics, Molecular and Cell Biology, Geography, Economics, Anthropology. Collaborations in other Schools and Colleges include faculty in the Colleges of Agriculture and Natural Resources, Engineering, Education, and Business. Two EEB faculty members have joint appointments in other departments and units: Bush with the Geosciences Program, and Willig with NRE, Statistics, the Environmental Engineering Program (Department of Civil and Environmental Engineering), and the Graduate Program in Public Health at the UConn Health Center. EEB faculty members also participated in developing proposals for interdisciplinary cluster hires in Journalism and Environmental Science.

EEB faculty members serve on Doctoral and Masters Committees for graduate students from a wide range of graduate programs across representing CLAS (Genetics, Statistics, Geography, Marine Sciences, Microbiology, and Physiology and Neurobiology), the College of Agriculture and Natural Resources (NRE, Plant Sciences), and the School of Engineering (Civil and Environmental Engineering, Mechanical Engineering). In turn, EEB graduate students have committee members from NRE, Statistics, Political Science, and Philosophy departments.
Many EEB faculty members also collaborate with other departments and units in teaching endeavors including: an Introduction to Undergraduate Research with MCB and PNB; Communicating Science to Non-scientists graduate seminar with Journalism; Dimensions of Biodiversity with NRE; Graduate Seminar in Symbiosis with MCB; Cyberinfrastructure Short Courses with Statistics, Geography, and Natural Resources and Environment; Environmental Law Graduate Seminar with UConn Law School; Current Topics in Molecular Evolution with MCB.

Our faculty share advising and mentoring activities with other departments, particularly in biology. These include the Biology 1000s Committee, Honors advisors, University Scholars advisors, and the Nomination Committees for National Scholarships (e.g., Rhodes, Marshall, Udall).

EEB faculty and students conduct research in many Centers and Facilities administered by other units on campus. Principal among these is the Center for Environmental Science and Engineering (http://www.cese.uconn.edu/) (CESE), of which EEB faculty member M. Willig is the Director. CESE grants have supported research by over a dozen EEB graduate students since 2007 and EEB faculty serve on the CESE Advisory Committee. EEB faculty use the MiSeq next generation sequencer recently acquired by MCB with support from EEB. Several EEB faculty and their students frequently use PNB’s Electron Microscope Laboratory and/or the Flow Cytometry and Confocal Microscopy Facility. A proposal to NSF’s MRI program, by M. Cantino (director of the EM facility), J. Caira (EEB) and C. Dupraz (Geosciences) for the purchase of a new field emission scanning electron microscope (FESEM) for the EM facility was funded this past summer. EEB faculty co-head the Bioinformatics Core Facility, collaborate with the Center for Real Estate and Urban Economics, the Center for Population Research, the Connecticut State Data Center, the Map and Geographic Information Center, and the Center for Microbial Systems, Ecology, and Evolution.

2. In what ways (if any) do disciplinary or unit boundaries inhibit or enhance the ability of the unit to develop new approaches to research, grant competitions, teaching, or service?

In our experience, disciplinary or unit boundaries per se do not inhibit collaborations in research, teaching, or service. Disciplinary boundaries have, however, inhibited the development of a successful proposal for an NSF-IGERT grant. We have not developed sufficient depth of teaching or research collaborations in any single coherent thematic area to develop compelling fundable proposals to the IGERT program despite three pre-proposal submissions and one invited full proposal. Physical barriers are, however, another issue. Distance from CESE (located a mile away) is a major barrier to frequent interaction and use of its facilities. In particular, the physical barrier dividing EEB faculty into 2 buildings is probably as limiting as any other boundary on campus when it comes to inhibiting easy and free collaborative work among colleagues. Being organized around the broad notion of organismal biology, EEB is, itself, highly interdisciplinary. Its faculty work on protists, plants and animals, phenotypes and genotypes, and from molecules to global processes, including everything in between. Our shared interest in organisms and organismal processes, nevertheless, keeps us cohesive and has generated novel, often opportunistic, collaborations between botanists and zoologists, functional biologists and ecologists, empiricists and theoreticians, to name a few. Hence the physical division of the Department between two buildings has had a disproportionate effect on our ability to generate new, interdisciplinary initiatives.

3. Under ideal circumstances, what kinds of collaborations (e.g., research and teaching, grants, alumni programs) with other units would be desirable?

It would be beneficial to offer some joint graduate-level seminar courses in areas where we have close faculty collaborations, such as Statistics, Economics, Civil and Mechanical Engineering, and NRE. These joint seminars could lead to broader collaborations and joint research and training programs, potentially leading to a successful IGERT proposal, additional collaborative research proposals, or new graduate and undergraduate programs. Both faculty and graduate students would participate in these seminars, enhancing training and collaborations at different levels.
4. What opportunities are there for conducting interdisciplinary research projects with other units on campus or with other universities or agencies? How successful is the unit in accommodating these needs? How desirable are these kinds of interdisciplinary relationships?

Because of the national reputations of many EEB faculty, opportunities to collaborate with colleagues at other Universities in the U.S. and internationally abound. Since 2005, faculty have been awarded collaborative grants with colleagues at many U.S. institutions and countries worldwide. Over the same period, faculty members have published with colleagues at numerous other leading U.S. and foreign institutions. An increasing number of faculty and students from numerous countries are spending weeks, months, or full semesters/years in the Department (e.g., sandwich programs or sabbatical visits). Flexible teaching schedules, co-teaching, and sabbatical visits have enabled faculty and, in some cases, students to conduct research away from campus. These collaborations involve both research and teaching/mentoring activities, and provide opportunities for interdisciplinary graduate training far beyond those available on the UConn campus.

EEB highly values and enthusiastically promotes disciplinary and interdisciplinary collaborations, viewing them as key elements in maintaining the high quality of research and training that EEB faculty exhibit. The University’s membership in the Organization for Tropical Studies has enhanced international collaboration for both faculty and graduate students for over 30 years. In addition, EEB strongly promotes involvement of faculty in professional societies, which plays a critically important role in enhancing both disciplinary and interdisciplinary research collaborations, as well as program visibility. EEB faculty and graduate students have benefited from participation in workshops and working groups sponsored by the NSF-supported National Center for Ecological Synthesis, National Evolutionary Synthesis Center, and the National Socio-Environmental Synthesis Center. These activities function as springboards for novel collaborative research projects that are often interdisciplinary.

5. Does the unit have any interdisciplinary academic programs? How are these aligned with the goals of the university’s Academic Plan?

EEB is formally involved in 4 interdisciplinary academic programs that focus on environmental issues, a central theme of the Academic Plan of the University: (1) the Center for Integrative Geosciences (undergraduate and graduate programs), (2) the Environmental Science Major (undergraduate program), (3) the Environmental Studies Minor, and (4) the EcoHouse Learning Community. EEB has not only offered a 1 credit seminar for EcoHouse residents, but is currently developing a study abroad course in Patagonia targeting these students. Several EEB faculty have also been involved in planning the new Environmental Studies Major.

In oversight roles, EEB faculty members served as co-chair of the Environmental Policy Advisory Council’s Environmental Literacy Committee, and as co-chair or active members of the University Climate Impact, Modification and Action Committee. Multiple EEB faculty continue to participate in the oversight of the inter-departmental Edwin Way Teale Lecture Series, inviting and hosting a diversity of distinguished individuals to the University to speak on various environmental issues (Appendix F6). Distinguished Research Professor and NAS member, G. Likens, serves as the environmental advisor to President Herbst.

H. University-wide Support and Facilities Services

1. Describe and appraise the current institutional support services and facilities for the unit's:
   a. teaching programs;

   The Institute for Teaching and Learning serves as a valuable resource for faculty teaching innovations. In addition, many of our graduate students benefited greatly from the course “Fundamentals of Teaching and Learning” (EDCI 3820), developed by the Institute’s past director Keith Barker, to provide graduate students with basic teaching training.

   Three members of the 13 Biology Central Services laboratory support staff are key to the success of our introductory biology laboratories particularly now with heavily increased enrollments. These staff members
bear full responsibility for these laboratories and coordinate, supervise and train all associated teaching assistants.

- **b. research, creative production, or other scholarly activities;**

**Research funds:** Indirect costs received by the University are allocated through the Research Foundations to subsidize and promote research by faculty and graduate students. Priorities for the allocation of indirect costs are set by the Vice President for Research in consultation with the Research Advisory Council (RAC), an appointed faculty committee. Until recently, PIs and the Department each received a return of 5% of indirects on each external grant; in 2009 the return was increased to 10% (Appendix H1). The Department uses its pool of indirect funds to support research and scholarly activities; funds are allocated on an ad hoc basis by the Department Head. These funds are essential for purchasing new research equipment, maintaining and repairing existing equipment, supporting our weekly seminar speaker series, and providing support for a variety of research-related expenses for faculty members and students.

The RAC also sponsors 2 major grant competitions each year awarding grants between $2K and $25K. Priority is given to new faculty and interim support. Faculty panels in 5 primary areas review competitive grant applications. A large proportion of EEB faculty receiving RAC awards since 2005 have subsequently succeeded in procuring external grants. When funds are available, a research equipment competition is also held, funding, for example, the purchase and upgrade of EEB’s capillary sequencer. EEB faculty have received funds totaling $414,732 from various RAC programs since 2005 (Appendix B5C). The Research Foundation also supports faculty travel to present papers at professional meetings in the amount of $750/yr. A “small grants” program allows the VP for Research to allocate up to $1K based on a one to two page request. For example, these funds were used to support the Charles Darwin Bicentennial Colloquium Series organized by K. Wells in 2009.

**Facilities:** The Department’s space currently consists of extremely contrasting elements. We have excellent support space (e.g., the EEB Biodiversity Research Collections facility, research greenhouses on the roof of the Biology/Physics building, and the soon to be renovated ground-based greenhouses), and laboratory and office space for 15 of our faculty housed in the Pharmacy/Biology building (PBB), completed in 2005. However, 12 faculty members, including some of the most well-funded, and three of our Board of Trustees Distinguished Professors, remain housed in the decrepit, 50-year old Torrey Life Sciences building (TLS) where infrastructure is undependable, as basic systems such as plumbing, heating, and electricity are now routinely failing. Furthermore, the amount of space available to faculty in TLS is only about two-thirds that allocated to their colleagues housed in the PBB, and room for expansion in TLS is highly limited. Increased enrollment has necessitated the conversion of research space to teaching lab space in at least one instance. Identifying space for new faculty hires is now a critical concern; all space that is available in TLS is inadequate by any standard and would require major renovation to accommodate any newly hired faculty. Space in PBB for our plant genomicist became available only as a result of a sacrifice of space by one of our more senior faculty members who agreed to move back into TLS. We have yet to identify space for the Biodiversity and Climate Change biologist we hope to hire in Fall 2013. Furthermore, the last minute, “value-engineered” removal of the third-floor bridge connecting PBB to TLS that was an integral part of the original building plan designed to preserve connectivity across EEB, has seriously fragmented the Department, and initiated erosion of departmental cohesion through weakened interactions and collaborations (see G2 above).

Several research programs in EEB benefit significantly from the Biotechnology Facility (http://www.biotech.uconn.edu/), in particular from its Bioinformatics Facility (http://www.biotech.uconn.edu/bf/), co-headed by Paul Lewis, and from the Center for Applied Genetics and Technology (http://www.cagt.uconn.edu/CAGT/). Support outside of EEB includes an excellent electron microscopy facility, managed by PNB, which houses 2 transmission electron microscopes and 2 scanning electron microscopes. One of the latter is new and is equipped with EDS and Cryo-capabilities.
Edwin Way Teale Lecture Series: This lecture series (see F1 above and Appendix F6) has been well supported by the Deans of CLAS, Agriculture and the Graduate School, as well as the Provost and President’s offices.

c. recruiting of students, faculty, and staff;

The Dean of CLAS has provided start-up funds ranging from $0.25 to $0.5 million for each of the 3 faculty hired since 2005. In the case of the faculty member housed in TLS, the Dean also provided support for modest renovation of laboratory space. In several years the Department’s operating budget has included an allocation of about $2,000 for graduate student recruitment, although those funds have largely disappeared as a result of budget constraints.

d. outreach, including professional and community service;

No resources beyond the Department’s budget are available for such activities.

e. administration.

Biology Central Services: The 3 biology departments share a centralized Biology Central Services (BCS) office and staff that provides significant help for centralized purchasing, biological illustration, graduate applications, grants budgets, personnel and building management, introductory biology TA training, laboratory organization, coordination, and limited secretarial help for the latter. The organizational chart in Appendix A1 includes the various elements of BCS. BCS is managed by an Assistant Dean who works for the 3 departments, and for the Dean of the CLAS, who also manages Academic Renovations (more below). The BCS is a model in CLAS for cooperation among departments and for savings generated by shared functions. BCS has professional staff that works very well with the Faculty, embracing the concepts of efficiency and service. Unfortunately, as administrative tasks have grown, the staff is no longer able to assist faculty to the extent they have in the past. Implementation of the new Kuali financial system, which has shifted the responsibility for many administrative tasks (purchasing, etc.) to faculty, has particularly exacerbated the drain on faculty time.

Academic Renovations: This unit covers the spectrum from small repairs to full lab renovations. They do good work, quickly, efficiently and much more inexpensively than the Facilities departments at the University. More importantly, they strive to include faculty lab directors in the planning and execution of their work. Facilities has some first class employees and they generally respond quickly to ad hoc calls. When it comes to renovations, however, the overall attitude is not ‘user’ or service-oriented and completion of renovations is slow.

2. Has the unit engaged in any entrepreneurial activities, through grants or fundraising, to augment institutional support?

EEB has 17 small accounts (Appendix H2) managed by the UConn Foundation, a private entity associated with the University established to recruit and manage funds given to the University by private donors. The modest interest income from these funds serves primarily to support graduate student research and travel. The expenditures from most of these funds (i.e., those in grey in Appendix H2) are allocated competitively, based on applications to ad hoc committees appointed by the Department Head. The other funds are managed by relevant faculty in consultation with the Head. Since 2005 the combined total principal across these 17 accounts has risen from $556,796 to $661,920. Increases have resulted from return of interest on existing principle, and donations from alumni and individuals outside of the immediate University Community, but most of the funds continue to come from donations from faculty and staff. Our experience with the University’s Development Officers has generally been disappointing, as efforts by EEB to initiate fundraising have not been endorsed or actively supported. Most of our limited donations to date have been initiated through the efforts of EEB faculty and staff.

I. Summary Assessment and Future Directions
1. Summarize the major strengths and weaknesses of the unit and the problems it faces in the foreseeable future.
Appendix ES2 summarizes the most salient elements of this self-study. We are a strong, active, collegial department of first-rate, highly productive scholars, most with strong national and international reputations, committed to excellence in teaching and research. Our service to professional societies and the University is substantial. The number of Storrs-campus faculty is down from 2005 (from 27 to 25), and we have become “top-heavy” with a large majority of the faculty now Full Professors. Objective teaching evaluations attest to our continued excellence in teaching, but increased enrollments have substantially increased our per capita teaching loads (from 70.5:1 to 103:1). We contribute substantially to 1000s (55%) and W-instruction (~55%) within the life sciences. Our graduate program is strong, but small relative to those of many of our peer and target institutions, particularly in light of the simultaneous increases in our scholarship and teaching loads. While graduate stipends for the academic year are competitive, the lack of summer support and full fellowships is limiting our competitiveness and thus also the quality of our program relative to our peer and target institutions. Space is a critical concern. While about half our faculty are housed in excellent space in the new Pharmacy/Biology building, the remainder is housed in dilapidated space in the Torrey Life Sciences building and there is no space available for new faculty. The last-minute deletion of the connecting bridge between PBB and TLS has seriously fragmented the department substantially reducing interaction. Perhaps of greatest concern at this juncture is the continued erosion of faculty time for research and scholarship resulting from the continued increases in teaching loads and mandated bureaucratic tasks required of faculty. The cost of this combination of conditions, coupled with declining faculty salaries, is high stress, low morale and an increasing likelihood that our best faculty will leave for other institutions.

2. The quality of an academic unit can be assessed in many ways. In terms of the three criteria below, describe the overall quality of the unit.
   a. Resource criteria (e.g., student selectivity or demand; faculty prestige, training, and teaching loads; grants and contracts; library; equipment; and support staff).

   Enrollment in our undergraduate courses has increased substantially since our last review and teaching loads are at an all-time high. Nonetheless, based on waiting lists, demand continues to far exceed capacity. Our graduate admissions process is selective—offers are made to only about 23% of applicants. The large majority of our faculty has external funding. Total extramural support since 2005 exceeds $28 million and includes 19 awards of $500,000 or more. The Department is now home to 4 Board of Trustees Distinguished Professors, and an associated faculty member is in the National Academy of Sciences. We are down one office staff position (secretary), having exchanged one such position for a full time academic advisor to handle the hundreds of additional students resulting from a precipitous increase in biology enrollments.

   b. Reputational criteria (e.g., national or international ranking, or other judgments of the program's students, faculty, resources, and productivity).

   The 2006 NRC report suggests that EEB has increased in standing relative to some of the peer and target institutions selected for our previous self-study. EEB also ranked substantially above the other 4 UConn biology programs included in the NRC study. NSF data indicate that we rank 4th among our 11 peer and target institutions in dollars per funded faculty member from NSF’s DEB programs. Since 2005, our graduate students have been supported by 25 extramural awards including 6 NSF Pre-doctoral Fellowships, an EPA Star Fellowship, a NASA graduate Fellowship, 2 Fulbrights, 1 Switzer Fellowship, and 15 NSF Doctoral Dissertation Improvement grants. Faculty citations since 2007 exceed 53,000; the mean departmental h-index since 2007 is 17.53, and the mean 10-index since 2007 is 28.43, suggesting that our scholarly output has a significant impact on our fields.

   c. Outcomes criteria (e.g., faculty scholarly productivity, awards and honors, research contributions, teaching performance, service to state and nation; student gains in knowledge, students' professional achievements, personal placement/or career development, program alumni opinion).

   Scholarly output since 2005 has included 16 authored or co-authored books, 13 edited books, 658 peer-reviewed papers and 111 peer-reviewed book chapters; service to peer reviewed journals has included 5 Editors, and 45 other editorial positions. Faculty in EEB have served as presidents of 5 major societies and
on 31 review panels at NSF, alone. Departmental means on student evaluations, particularly for our upper division courses, are routinely above those of the University overall. Since 2005, 55 post-docs have worked in the Department; of the 35 no longer in residence, 91% now hold positions in science, 74% at academic institutions. Over 80% of the 55 Ph.D. students graduating since 2005 now hold positions relevant to their degree: 32% at academic institutions, 20% at museums or government agencies, 29% as post-docs. Undergraduate placement data are not as readily available; data who worked in labs attests to a high degree of success at least among these students.

3. In what areas has the unit improved or changed since the last review? Describe the evidence used to support the conclusions.

Our space has improved substantially given that about half of our faculty and their research programs are now located in the Pharmacy/Biology building. The Dean has recently committed funds to support renovation of our aging greenhouses. We hired a professional academic advisor who now advises all non-Honors undergraduate students. We have initiated a combined B.S./M.S. vocational degree in Biodiversity and Conservation Biology and provided the necessary additional coursework in order for them to be competitive for positions in government agencies, non-profits, etc.

4. Describe new directions in curriculum, resources, research, reorganization, staffing or student clientele planned for the next few years aimed at strengthening the unit, in conjunction with your strategic plan.

This self-study exercise has been useful for helping us to identify areas of concern. (1) Faculty efficiency would be substantially improved by reinstatement of an office staff position (converted to a professional academic advisor) to assist with the increased bureaucratic load mandated by the University, but also associated with the greater number of larger, more complicated grants we now oversee. (2) If fully implemented, our cluster hire proposal would result in a reduction in our teaching loads, while simultaneously increasing our overall scholarly productivity and funding. We are confident that in the near future, at least, the quality and reputation of the Department will continue to draw an outstanding pool of candidates for each position, and that with financial assistance from the Dean, we will continue to succeed in recruiting our top choice from among those interviewed (as for our last 3 searches). (3) The President’s recent efforts to secure funds to resolve space issues surrounding faculty in the life sciences is encouraging, but the proposed timeframe (2018 at the earliest), leaves us with major more immediate concerns, particularly with respect to identifying space for stellar new hires. As an interim solution, funds will need to be allocated for renovation of TLS and it seems likely that some of the existing uses of space (e.g., for introductory teaching labs) will need to be reassigned to provide space for new faculty hires. Construction of a bridge between TLS and PBB would be an extremely positive outcome for EEB and the other biology departments. (4) Non-competitive support for graduate students, in terms of summer support and full fellowships, has emerged as a growing impediment to graduate student recruitment.

5. What plans are underway to capitalize on individual faculty strengths and to overcome weaknesses?

For the most part, our faculty members are highly research active. The majority are conscientious and effective teachers. There is a growing inequity among faculty in terms of service to the Department and University as a whole, with only a subset of faculty participating in these activities. We plan to re-evaluate this situation, and also that of total teaching loads and teaching load inequity, in the context of a departmental retreat.

6. Are there new ways that the unit can enhance programs for undergraduate and graduate students, for research, service, and University operations?

Some consideration should be given to the Biological Sciences majors as a whole, for they are being neglected relative to their peers majoring in EEB, MCB and PNB, but this must be a coordinated effort among the 3 biology departments. Planning is underway for a reconfiguration of graduate student teaching loads from co-teaching 3 introductory labs, to solo-teaching 2 labs; this is likely to have a positive effect on our ability to recruit outstanding graduate students.
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2005-2012

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Appendix H1: Indirect costs returns to EEB from extramural grants 2004 and 2012  
Appendix H2: Departmental endowed accounts and awards made
# Appendix ES1: Ecology and Evolutionary Biology Program Review

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8 Year Program Review – Ecology and Evolutionary Biology: Appendix ES (Executive summary)

### Appendix ES1 (continued)

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#### Enrollment, Graduate/Professional

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#### Budget and Grants

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### Student Credit Hours Beyond Unit’s Subjects: Faculty Taught Subjects Outside Unit

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Appendix ES2: Overview of EEB’s faculty size, productivity, funding, in the context of undergraduate student enrollment and TA support.
Appendix A1: Organization of biology departments and Biology Central Services

- Torrington
  - 0 Faculty
  - 0 Lecturer
- Hartford
  - 1 Faculty
- Stamford
  - 1 Faculty
  - 4 Lecturers
- Waterbury
  - 1 Faculty
  - 2 Lecturers
- Avery Point
  - 1 APR

**Ecology & Evolutionary Biology**

- **26 Full Time Faculty**
- **1 Search Underway**
- **2 Lecturers**
- **1 APR**

**Molecular & Cell Biology**
- 33 Full Time Faculty
- 3 Searches Underway
- 5 APR
- 1 Research Asst. Professor

**Physiology & Neurobiology**
- 15 Full Time Faculty
- 2 Searches Underway
- 2 Lecturers
- 1 APR

**Dept Administration**
- Advising
  - 100s
  - EEB

**Collections**

**Greenhouse**

**Biotech Facility**

**Biology Central Services**
(see next page)

**EM Lab**
Appendix A2: List of EEB faculty at the Storrs and Regional campuses

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<td>Caira, Janine</td>
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<td>Chazdon, Robin</td>
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<td>Colwell, Robert</td>
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<td>Crespi, Jean1</td>
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<td>Elphick, Christopher</td>
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<td>Goffinet, Bernard</td>
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<td>Henry, Charles</td>
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<td>Holsinger, Kent</td>
<td>Professor, Distinguished Professor</td>
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<td>Jockusch, Elizabeth</td>
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<td>Jones, Cynthia</td>
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<td>Les, Donald</td>
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<td>Lewis, Louise</td>
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<td>Lewis, Paul</td>
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<td>Rubega, Margaret</td>
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<td>Wells, Kentwood</td>
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<td>Fry, Adam</td>
<td>Lecturer (Storrs)</td>
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<td>Christine Giambartolomei-Green</td>
<td>Assistant Professor in Residence (Avery Point)</td>
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<td>Herrick, Susan</td>
<td>Lecturer (Storrs)</td>
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<td>Kraemer, Claudia</td>
<td>Assistant Professor in Residence (Stamford)</td>
<td>2004</td>
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<td>Likens, Gene</td>
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<td>Philbrick, Paula</td>
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<td>Wilson, Roderick</td>
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1 & 2 faculty members nominally associated with our department as a result of the dissolution of the Department of Geology, but with primary affiliation with the Integrative Geosciences Program; these colleagues do not teach courses or supervise graduate students in EEB and are not included in the quantitative analyses in this document.
### Appendix A3: Size of EEB faculty 2005-2012 based on a constant faculty number of 22

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Appendix A4a: Number (total post-doc years: 154.5; annual average No. post-docs 20)

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Appendix A4b: List and the current position

Angelini, D. R. Assistant Professor, Colby College, Waterville Maine
Arango, C. Saint Joseph's University, Philadelphia
Arroyo, J. P. Research Associate, McGill, Canada
Benoit, L. Post-doctoral Research Associate; University of Connecticut, EEB
Bois, S. Conservation Research Program Director, Inst. Applied Ecology Corvallis, OR & EEB
Budke, J. M. Post-doctoral Research Associate; University of Connecticut, EEB; UC Davis, (01/2013)
Carlson, J. Assistant Professor, Nicholls State University, Louisiana
Castro-Arellano, I. Assistant Professor, Texas State University, Texas
Chong, Y. C. Post-doctoral Research Associate; University of Connecticut, EEB
Cooley, J. R. University of Connecticut, MBA
Forrest, L. L. Bar-coding Research Scientist, Royal Botanic Garden, Edinburgh, Scotland
François, P. Post-doctoral Research Associate; University of Connecticut, EEB
Fucikova, K. Post-doctoral Research Associate; University of Connecticut, EEB
Fyler, C. A. Founder and president of Moonrise Media
Gray, D. W. Post-doctoral Associate with Dr. Thomas Sharkey at Michigan State University
Haukilsami, V. Finnish Forest Research Institute
Hurme, K. Post-doctoral Research Associate; University of Connecticut, EEB
Ibanez, I. Assistant Professor, University of Michigan
Kim, J.K. Post-doctoral Research Associate; University of Connecticut, Marine Sciences & EEB
Kuchta, R. Academy of Science of the Czech Republic
LaFleur, N. E. Lecturer, Kean University, Union, NJ
Latimer, A. M. Associate Professor, University of California Davis
Lee, Y. State of Connecticut
Liu, Y. Post-doctoral Research Associate; University of Connecticut, EEB
Mao, Y. X. Deputy-Dean, College of Marine Life Sciences and Director, National Experimental Teaching Demonstration Center of Marine Life Sciences, Ocean University of China
Makarikov, A. Post-doctoral Research Associate; University of Connecticut, EEB & Univ. N. Dakota
Marshall, D. C. Post-doctoral Research Associate; University of Connecticut, EEB
Martine, C. Associate Professor, Burpee Endowed Chair in Plant Genetics, Bucknell University
Martinez-Cabrera, H. I. Université du Québec à Montréal, Canada
Martinez-Solano, I. Post-doctoral Fellow, Inst. de Invest. en Recursos Cinegéticos Ciudad Real, Spain
McManus, H. A. Assistant Professor, Le Moyne College, Syracuse, NY
Medina, R. Post-doctoral Research Associate; University of Connecticut, EEB
Merow, C. G. Post-doctoral Research Associate; University of Connecticut, EEB
Messinger, S. Post-doctoral Research Associate; University of Connecticut, EEB
Noh, S. Morgan Lab, Division of Biology, Kansas State University
Norden, N. Assistant Professor, Universidad Pontificia Javeriana, Bogota, Colombia
Appendix A4b (continued)

Opel, M. University of Connecticut, EEB, Greenhouses
Oros, M. Slovak Academy of Sciences
Orosova, M. Slovak Academy of Sciences
Peredo, E. Visiting researcher, Woods Hole
Pereira, R. Senior Research Scientist & principal of AlgaPlus, LTD, Aveiro, PT
Phillips, A. J. Post-doctoral Research Associate; University of Connecticut, EEB
Polihronakis, M. University California, SanDiego; Drosophila Species Stock Center,
Presley, S. Post-doctoral Research Associate; University of Connecticut, EEB
Price, B. W. Post-doctoral Research Associate; University of Connecticut, EEB
Reyda, F. B. Assistant Professor, University of Wisconsin-Whitewater, College at Oneonta
Richardson, J. Post-doctoral Research Associate; University of Connecticut, EEB
Shannon, R. Assistant Professor, West Virginia Wesleyan College
Smith, C. Assistant professor, Wofford College (South Carolina)
Sudo, Y. Okinawa Prefectural Fisheries Experiment Station, Okinawa Prefectural Government;
Tippery, N. P. University of Wisconsin-Whitewater
Vivar, J. C. Research Associate in the Department of Statistical Science at Duke
Waeschenbach, A. Post-doctoral Research Associate; University of Connecticut, EEB & BMNH, London
Wickett, N. J. Chicago Botanical garden, Northwestern University
Zarnetske, P. Post-doctoral Research Associate; University of Connecticut, EEB
Appendix B1: All publications and software by EEB faculty 2005-2012.

Appendix B1a: Self-authored and edited books by EEB faculty (2005-2012)

Self authored books (16; in alphabetical order)


Turchin P. 2005. War and Peace and War: Life Cycles of Imperial Nations. Pi Press. Published as a paperback under the title War and Peace and War: The Rise and Fall of Empires by Plume (an imprint of Penguin) in February 2007. (A Serbian and Korean translations have been published and a Russian translation will be published in 2013).


Edited books (13; in alphabetical order)


Edited by graduate student


Appendix B1b: Book chapters by EEB faculty (2005-2012)

**Book Chapters (111; in alphabetical order)**

In press/accepted (13)


2012 (13)


2011 (10)


2010 (4)


2009 (13)


Biogeography of Compositae. IAPT, Vienna.


2008 (13)


2007 (17)


2006 (16)


Appendix B1c: Publications in peer reviewed journals by EEB faculty (2005-2012)

In review (17)


Budke, J. M., B. Goffinet and C. S. Jones. Dehydration protection provided by a maternal cuticle improves offspring fitness in the moss Funaria hygrometrica. Submitted to Annals of Botany


**Published (or almost) (658)**

**In Press or accepted (26)**


Caira, J. N., M. Pickering, A. D. Schulman, and N. Hanessian. Accepted. Two new species of *Echinobothrium* (Cestoda: Diphylloidea) from batoids off South Africa. *Comparative Parasitology*.


**Published**

2012 (57)


insights into tritrophic interaction diversity and chemical ecology using 16 years of volunteer supported research. *American Entomologist* 58: 15-19.


2011 (86)


2010 (85)


8 Year Program Review – Ecology & Evolutionary Biology: Appendix B (Scholarly productivity)

311-318.


Smith C. F., G. W. Schuett and K. Schwenk. 2010. Relationship of plasma sex steroids to the mating season of copperheads at the north-eastern extreme of their range. *Journal of Zoology* 280: 362-


2009 (92)


Filoramo, N. I., K. Schwenk, and N. Kley. 2009. Cilia and goblet cells in the mouths of snakes—a derived condition within squamates. *Integrative and Comparative Biology* 49:


2008 (82)


2007 (76)


American Entomologist 53: 42-47.


Vilchez, B., R. L. Chazdon, and W. Alvarado. 2007. Fenologia reproductive de las especies del dosel


2006 (81)


Appendix B1d: Software developed by EEB faculty (2005 and 2012).

Colwell

Lewis, P.
Appendix B2: Number of publications per faculty 2005-2012; distribution of citations, life time citations, citations since 2007, h- and i 10-index and h- and i 10-index since 2007. Number of publications is derived from Appendix B1; citation and index data retrieved from Google Scholar Sept. 2012. (E=Emeritus; R=Retired; MBL=Marine Biological Laboratory, Woods Hole, Ma).

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\(^1\) h-index is the largest number h such that h publications have at least h citations

\(^2\) h-index since 2007: the largest number h such that h publications have at least h new citations in the last 5 years

\(^3\) i 10-index is the number of publications with at least 10 citations

\(^4\) i 10-index since 2007: the number of publications that have received at least 10 new citations in the last 5 years.
Appendix B3: Presentations made by EEB faculty 2005-2012

Appendix B3a: List of plenary talks given by EEB faculty

**Bush**
2008  Paleontological Society Centennial Short Course

**Caira**

**Chazdon**
2012  Keynote address, 18th Annual Conference, Yale Chapter of the International Society of Tropical Foresters
2011  Plenary lecture, Student Conference on Conservation Science; American Museum of Natural History
2007  Keynote Address: Congreso Mexicano de Botánica, Zacatecas, México

**Colwell**
2013  Keynote Speaker, INTECOL Symposium on Tropical Elevational Gradients, London, UK.
2011  Invited Speaker, Sun Yat-Sen University, Guangzhou, China
2011  Invited Speaker, Institute of Zoology, Chinese Academy of Sciences, Beijing, China
2010  Keynote Speaker, International Biogeography Society, Heraklion, Crete, Greece
2010  Invited Speaker, Royal Society, London, UK, October
2009  Keynote Speaker, Instituto de Ecología A.C. (INECOL) Student Colloquium, Xalapa, Mexico
2009  Keynote Speaker, International Biogeography Society, Mérida, Mexico
2008  Invited Speaker, National Academy of Science Sakler Colloquium, Irvine, CA

**Elphick**
2012  Plenary talk, Bird Conservation Conference in the Northeast, Plymouth, MA, USA.
2009  Plenary talk, Wetlands and Waterbirds Conference, Leeton, Australia.
2007  Dinner presentation, Western Field Ornithologists Annual Meeting, Las Vegas, NV, USA.

**Holsinger**
2009  LDS: Botany in 2009

**Schlichting**
2008  TREEBREEDEX: European network on forest tree breeding and genetics. Madrid.
Appendix B3a (continued)

Schultz
2012 10ο Πανελλήνιο Συμπόσιο Ωκεανογραφίας & Αλιείας (10th Panhellenic Symposium of Oceanography and Fisheries), Athens Greece
2012 Ελληνική Εταιρεία Βιολογικών Επιστημών (Hellenic Society of Biological Sciences), Τρίκαλα Greece
2006 First Marine Biology Conference of Brazil, Rio de Janeiro

Schwenk
2011 Workshop on: Natural Kinds in Philosophy and in the Life Sciences: Scholastic Twilight or New Dawn?, Granada, Spain
2005 XIIIth Altenberg Workshop in Theoretical Biology: Arriving at a Theoretical Biology—The Waddington Centennial, Konrad Lorenz Institute, Altenberg, Austria

Silander
2007 NIEAS International Symposium, Tsukuba, Japan
2009 Odum Conference: Understanding and managing biological invasions as dynamic processes: integrating information across space and time.
2012 Fynbos Forum, Cape St. Francis, South Africa

Simon

Turchin
2010 Invited Key Lecturer at the SIDER Workshop on “Modeling Reality: Using Mathematical Models to Describe and Predict Social Dynamics”, Sde Boquer, Israel.

Urban
2009 Keynote speaker, University of Toronto Ecology and Evolutionary Biology Colloquium
Appendix B3a (continued)

Wagner
2006  Cascading consequences of introduced and invasive species on imperiled invertebrates, 18th USDA Interagency Research Forum on Gypsy Moth and Other Invasive Species. Annapolis, MD.
2007  Cascading consequences of introduced and invasive species on imperiled invertebrates, Natural Areas Conference, Cleveland, Ohio.
2010  Spring Caterpillar Fauna of the Appalachians with Ecological, Behavioral, and Evolutionary Vignettes of Southeastern Species, Society of Southeastern Biologists, Asheville, North Carolina, April, 2010

Wells

Willig
2005  inaugural lecture in the "Professor Walter G. Moore Lecture in Ecology Series" (Loyola University)
2005  plenary address at the "International Symposium on the Importance of Bats as Bioindicators" (Barcelona, Spain)

Yarish
2005  Keynote Presentation at the Centre for Marine Resources and Mariculture (C-Mar) 8th Annual Aquaculture Workshop, Portaferry, Northern Ireland.
### Appendix B3b: Number of annual talks given by EEB faculty

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Appendix B4: Distribution of extramural awards per year by faculty. For each award active for at least one year 2005-2012; total award amount was divided by award period (# of years) and annual portions added for each faculty holding multiple awards. Only the portion of collaborative awards going to UCONN is included.

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<th>2012</th>
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Appendix B5: Research grants received or submitted by EEB faculty 2005-2012. A. Pending. B. Extramural recent or active. C. Intramural recent or active.

Appendix B5A. Pending Extramural and Intramural grant proposals

**Extramural**

**Chazdon**


**Colwell**

Pending NSF, Collaborative Research: Using stochastic biogeographical models to link regional processes with continental patterns and the past with the future, $298,751.

**Goffinet**

Pending NSF (DEB-1222493) full proposal pending IOS Preliminary Proposal: Dialects of decay: geographic, ecological and phylogenetic variation in a deceptive chemical signal. Collaborators: Dr. R. Raguso (Cornell) & P. Marino (Memorial University, Canada) (UCONN portion: $132,343).

**Wagner**


**Willig**

Pending NSF. DEB 1239764. LTER 5: Understanding Environmental Change in Northeastern Puerto Rico. Collaborators: Brokaw, Gonzalez, Pringle, Ramirez, and Willig. Request 5,880,000 for six years. Funded 1,960,000 for two years.

**Yarish**

Pending Environmental Protection Agency/Long Island Sound Research Program (2013-2015). Comparative analysis and model development for determining the susceptibility to eutrophication of Long Island Sound (J. Vaudrey is lead PI): $400,000.


Pending University of California (BARD is prime) (2013-2016): The use of aquaculture effluents in spray culture for the production of high protein macroalgae for shrimp aqua-feeds: $92,000.


**Intramural**

**Henry**

Pending The genomics of recent, rapid and repeated speciation in a duetting insect (co-PI: M. Wells): $24,929.

**Simon**

Pending Bridging Funds for Phylogeny and Biogeography of World Cicadas and Seed Data for Future Endosymbiont Co-Phylogeny NSF Submission. $24,992.)
Appendix B5B. Extramural recent or active grants

Adams
2007-2010 Army Research Office; “Swarm behavior during conflicts: from biological to engineered systems”; Co-P.I. with Nejat Olgac (Department of Mechanical Engineering; University of Connecticut); $271,000.
2002-2006 National Science Foundation Grant; “Behavioral control of the reproductive structure of termite colonies”; $233,000.

Bush
2009 NSF, EAR, Sedimentary Geology & Paleobiology (Paleoecologic gradient analysis of the Frasnian/Famennian extinction and recovery; $182,411)

Caira
2011–2013 MRI: Acquisition of a field emission scanning electron microscope with cryo transfer and EDS systems. $597,600 (Marie Cantino and Christoph Dupraz, Co–PIs).
2006–2011 National Science Foundation (Biological Surveys and Inventories Program): “A survey of the elasmobranchs and their metazoan parasites of Indonesian Borneo (Kalimantan). $500,590 (Peter Last and Gavin Naylor, Co–PIs).

Chazdon
2012-2017 NSF, DEB; Collaborative Research/LTREB Renewal: Successional pathways and rates of change in tropical forests of Brazil, Costa Rica and Mexico. $344,072. REU Supplement (2011) $7,616
2011-2014 NSF, CNH; Collaborative Research: The emergence of effective governance arrangements for tropical forest ecosystems. $113,330
2011-2012 NSF, DEB; Dissertation Research: Functional trait diversity and community assembly of trees and seedlings during tropical forest succession, $14,909.
2011-2014 NSF, Population and Community Ecology; Collaborative Research: Modeling successional vegetation dynamics in wet tropical forests. To date $187,615
2009-2010 NSF, OISE Workshop Grant; Neotropical secondary forest regeneration: Integrating ecological processes across multiple scales, $39,028.
2009-2013 NASA; Detecting changes of forest biomass from fusion of radar and lidar: Developing DESDynl measurement requirements (subgrant from JPL) $135,000
2008-2012 Blue Moon Fund; Valuing the carbon and biodiversity of secondary and mature tropical forests. $184,213
### Appendix BSB (continued)

<table>
<thead>
<tr>
<th>Year(s)</th>
<th>Principal Investigator(s)</th>
<th>Funding Source Details</th>
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#### Colwell

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<tr>
<th>Year(s)</th>
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<th>Funding Source Details</th>
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</thead>
<tbody>
<tr>
<td>2010-2012</td>
<td></td>
<td>NSF DEB-1011304, “Dissertation Research: Spatio-Temporal Variation in an Ant-Plant Interaction” (PI; $14,990; Kellie Kuhn’s dissertation research supported)</td>
</tr>
<tr>
<td>2009-2011</td>
<td></td>
<td>NSF DBI-0851290, &quot;Extending Lifemapper to Enable Macroecological Research&quot; (PI; $151,415)</td>
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<tr>
<td>2007-2010</td>
<td></td>
<td>NSF DEB-0639979, &quot;Integrating ecological and evolutionary processes in stochastic biogeographical models&quot; (PI; $207,566)</td>
</tr>
<tr>
<td>2003-2008</td>
<td></td>
<td>Conservation International TEAM Project, &quot;Tropical Ecology, Assessment, and Monitoring in a Lowland Tropical Wet Forest&quot; (Co-PI with two others, $1,550,646)</td>
</tr>
<tr>
<td>2000-2006</td>
<td></td>
<td>NSF DEB-0072702 &quot;Arthropod diversity from Rainforest to Cloud Forest, Project ALAS Phase IV&quot; (Project Director; 7 Co-P.I.'s, $959,075)</td>
</tr>
<tr>
<td>2003-2008</td>
<td></td>
<td>Conservation International TEAM Project, &quot;Tropical Ecology, Assessment, and Monitoring in a Lowland Tropical Wet Forest&quot; (Co-PI with two others, $1,550,646)</td>
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#### Elphick

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<tr>
<th>Year(s)</th>
<th>Principal Investigator(s)</th>
<th>Funding Source Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Sentinels of climate change: coastal indicators of wildlife and ecosystem change in Long Island Sound. CT DEEP. (PI: C.S. Elphick; Co-PIs: M. Huang, C. Field).</td>
<td>$193,049</td>
</tr>
<tr>
<td>2011</td>
<td>Development of a decision support tool for coastal habitats in Connecticut. CT DEP. (PI: C.S. Elphick)</td>
<td>$9,960</td>
</tr>
<tr>
<td>2010</td>
<td>The conservation of tidal marsh birds: guiding action at the intersection of our changing land and seascapes. USFWS. (PI: T.P. Hodgman, Maine DIFW; Co-PIs: B.J. Olsen, C.S. Elphick and W.G. Shriver.)</td>
<td>$760,202</td>
</tr>
<tr>
<td>2007</td>
<td>Chimney swift critical habitat needs and design of artificial nesting structures. CT DEP - Wildlife Division. (PI: M. Rubega).</td>
<td>$49,804</td>
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<tr>
<td>2007</td>
<td>Estimating the demographic consequences of wetland fragmentation: Movement and survival patterns of a threatened salt marsh bird. CT DEP - OLISP (Co-PI: J. Hill.)</td>
<td>$24,543</td>
</tr>
<tr>
<td>2006</td>
<td>Evaluating the benefits of salt marsh restoration and management for globally vulnerable birds. NOAA/Connecticut Sea Grant. (Co-PI: M. Rubega.)</td>
<td>$139,165</td>
</tr>
</tbody>
</table>
Appendix B5B (continued)

2006 Waterbirds on working lands: literature review and bibliography development (supplement). National Audubon Society. $10,710


2005 A comprehensive assessment of the distribution of saltmarsh sharp-tailed sparrows in Connecticut. CT DEP - OLISP. (Co-PI: M. Rubega.) $24,952

2005 Monitoring plan development for the Fenwick Saltmarsh Restoration Project Lynde Point Land Trust. $5,098

2005 Developing an IBA conservation plan for the East and West River marsh complex IBA in Guilford and Madison. National Audubon Society. $10,000

Goffinet

2012-2015 National Science Foundation (DEB-1240045) $484,948.00 Collaborative Research: AToL: Assembling the Pleurocarp Tree of Life: Resolving the rapid radiation using genomics and transcriptomics. Total award : $1,364,397 Collaborators : Dr. A.J. Shaw (Duke) & N. Wickett (Chicago Botanical Garden)

2012 National Science Foundation (DEB-1212505) US$38,080 Funding for support of graduate students to attend joint international conferences on molecular systematics of bryophytes and bryophyte genomics, and for professional development for 4-12 science teachers in NY in June 2012 (co-PI: Drs. Amy Litt, DorothyBelle Poli & William R. Buck).

2012-2015 National Science Foundation (DEB-1146295) US$531,550 Rapid radiation and sporophyte evolution in the Funariaceae: inferences from phylogenomics and cross generational cuticle development studies


2009-2011 National Science Foundation (DEB 0910258) US$9,594 Dissertation Research: Genetic consequences of the shift to asexuality in bryophytes: insights from the hornwort Megaceros aenigmaticus; Thesis of Juan Carlos Villarreal.

2006-2010 National Science Foundation (EF 0531557) US$573,075 ATOL, Collaborative : Assembling the liverwort tree of life : window into the evolution of early land plants. (Six institutions, total of $2,839,578). REU supplements in 2007, 2008 and 2009 for $6,500, $7,000 and 8,500, respectively.


Formal collaborative projects with funding at other institutions

2012-2014 Spanish Ministerio de Ciencia e Innovación CGL2011-28857 to Dr. Vicente Mazimpaka (Uni. of Madrid). Disyunciones intercontinentales en briofitos: estudios sistemáticos y filogeográficos en el genero Orthotrichum (Orthotrichaceae, Bryopsida). [Intercontinental disjunctions in bryophytes: systematic and phylogeographic studies on the genus Orthotrichum Hedw. (Orthotrichaceae, Bryopsida)]. 97,000 €

2009-2011 Corporacion de Fomento CORFO, Chile. Awarded to Omora Foundation; project: Eco Turismo con Lupa en la Región Subantáctica y Antártica Chilena. US$400,000

2007-2010 Ministerio de Educación y Ciencia, Dirección General de Investigación (Spain) CGL2007-61389 to Dr. Franscico Lara, Uni. Madrid. Estudios taxonómicos, sistemáticos y
Appendix BSB (continued)

biogeográficos sobre Orthotrichum Hedw. Subg. Pulchella (Schimp.) Vitt (Orthotrichaceae, Bryopsida. Una revisión al nivel mundial. [Taxonomic, Systematic and Biogeographic studies on Orthotrichum subg. Pulchella (Schimp.) Vitt. A world-wide revision]. 72,600€

2005 National Geographic Society (7942-05). Award to Robert Raguso (with Paul Marino and Bernard Goffinet as Co-PIs); Odor, color and fly-mediated spore dispersal in dung mosses (Splachnaceae). $23,806.83

Holsinger
2011 Collaborative: Dimensions: Parallel evolutionary radiations in Protea and Pelargonium in the Greater Cape Floristic Region, National Science Foundation DEB-1046328, $1,976,670 (Carl Schlichting, principal investigator; Cynthia Jones, John Silander, co-principal investigators)

Jockusch
2012-2013 University of Connecticut Research Foundation, Faculty Large Grant Program: Genome-wide Analysis of Hybridization between Salamanders with Giant Genomes, $21,000

2008 NSF Dissertation Improvement Grant: Dissertation Research: Origin and Diversification of Pseudoscorpions on Granite Outcrops in Southwestern Australia (with co-PI graduate student Roberta Engel), $11,992


2006-2008 USDA NRICGP seed grant, Functional Genomics of Arthropods and Nematodes Panel: Functional genomic analysis of appendage development in the red flour beetle, Tribolium castaneum, $100,000

2005-2008 NIH NRSA Ruth L. Kirchstein Postdoctoral Fellowship for postdoctoral researcher David Angelini: Developmental mechanisms underlying divergent morphology in the antennae of Tribolium flour beetles, ca. $135,000


Jones
2011-2016 National Science Foundation Dimensions of Biodiversity: Parallel Evolutionary Radiations in Protea and Pelargonium in the Greater Cape Floristic Region; Schlichting, P.I., Holsinger, Jones, Silander co-PIs, Borevitz, Latimer collaborators; 5 years, $1,976,670 to UConn.

2009-2011 (+ one year no -cost extension) National Science Foundation (IOS - Organism-Enviro Interactions), EAGER: A mechanism for xylem repair under tension. H. J. Schenk (PI) (total grant $299,994) and C. S. Jones (Subcontract $87,171).

2009-2012 National Science Foundation (DEB - Systematic Biology and Biodiversity Inventory) Reduction & reversal in the Funariaceae: phylogenetic perspective on sporophyte
Appendix BSB (continued)

complexity and role of the calyptra. PI B. Goffinet, co-PI C. S. Jones $599,242).
2007-2010 (+ 1.5 year no-cost extension) National Science Foundation (IOS - Organism-Enviro Interactions), Collaborative Research: Resistance, repair and redundancy: Traits that protect shrubs against drought-induced hydraulic failure. H. J. Schenk and C. S. Jones. (Total grant: $654,000; $290,000 to UConn.)
2006-2009 (+ one year no-cost extension) National Science Foundation International Research Experience for Students: Biodiversity Hotspots: Ecological and Evolutionary Patterns and Processes in the Cape Floristic Region of South Africa. PI John Silander, co-PIs C. Schlichting, C. Jones and K. Holsinger. $149,000.

Les
2012 Genetic variation in Sparganium natans (small bur-reed). Massachusetts Natural Heritage and Endangered Species Program. $2,500
2008–2009 RUI: Surveys of Podostemaceae (riverweeds) in Latin America. National Science Foundation/Western Connecticut State University. $10,000
2007–2009 Biological control and ecology of Cabomba. CSIRO, Canberra, Australia. (with Amy Weise). $30,000
2006 Genetic analysis of invasive Hydrilla verticillata populations in Connecticut. SeaGrant Development grant. (with L. Benoit). $1,507
2004–2005 Fluridone resistance in submersed aquatic plants. Griffin-LLC Co., Valdosta, Georgia. $57,758 [reduced to $23,103 by contract termination due to sale of company]

Lewis, Louise
2012 National Science Foundation, Systematic Biology Program, DEB1213675, ROA supplement for ATOL: Collaborative Research: Assembling the Green Algal Tree of Life (GRAToL), $19,840.
Appendix BSB (continued)

2008-2011 National Aeronautics and Space Administration, Exobiology Program, 07-EXB07-0066, Leaping to land – physiology and phylogenetics of desert green algae, 07/01/2008–06/30/2011, Co-I with Z.G. Cardon (MBL, lead), H. Frank (UConn, Chemistry), $93,035 (of $531,978).


Lewis, Paul
2010-2015 National Science Foundation Collaborative Research: Assembling the Green Algal Tree of Life (GrAToL) Grant DEB-1036448, $649,872. Co-PI with Louise A. Lewis.

2006 National Evolutionary Synthesis Center (NESCent) Sabbatical Fellowship, Spring Semester 2006


Rubega
2012 Inventory and Assessment of Greatest Conservation Need Avian Species. CT Department of Environmental Protection. M. Rubega, PI $31,632

2011 Inventory and Assessment of Greatest Conservation Need Avian Species. CT Department of Environmental Protection. M. Rubega, PI $26,667

2010 Inventory and Assessment of Greatest Conservation Need Avian Species. CT Department of Environmental Protection. M. Rubega, PI (Co-PI: Chris Elphick) 5/1/2010 – 10/14/2010. $32,958

2009 Graduate Research Assistantship Award to support Faculty Members in pursuit of Multidisciplinary Environmental Activities, UConn Center for Environmental Science and Engineering: Preparing specimens for research, education and outreach in the UConn Biological Collections. M. Rubega, P.I. $10,000

2009 Graduate Research Assistantship Award to support Faculty Members in pursuit of Multidisciplinary Environmental Activities, UConn Center for Environmental Science and Engineering: Chimney Swift Conservation in CT. M. Rubega, P.I. $10,000
Appendix B5B (continued)

2008  Connecticut Avian Insectivores: Habitat-use Study and Design of Artificial Nesting Structures for Chimney Swifts. CT Dept of Environmental Protection. M. Rubega, PI (C.S. Elphick, Co-PI) $61,698


2006  Evaluating the benefits of salt marsh restoration and management for globally vulnerable birds. CT-Seagrant. M. Rubega, Co-PI (C.S. Elphick, PI). $139,165

2005  A comprehensive assessment of the distribution of saltmarsh sharp-tailed sparrows in Connecticut. CT DEP - OLISP. M. Rubega, Co-PI (C.S. Elphick, PI) $24,952

Schlichting

2012-2016  Dimensions of Biodiversity: Parallel Evolutionary radiations in *Protea* and *Pelargonium* in the Greater Cape Floristic Region. National Science Foundation (DEB- ) C.D.SCHLICHTING, K.E.Holsinger, C.S. Jones. $512,000


Schultz

2012  Fulbright Program, U.S. Department of State. The physiology, ecology, and conservation of landlocked fishes in Greece. Four-month research and teaching fellowship at Aristotle University, Greece.

2011  Foster-Davis Foundation. How ion-exchange physiology adapts upon landlocking in anadromous fishes. (1 yr., $53,080)

2010  National Science Foundation. Planning Visit to East Africa for environmental research on Lake Victoria. (ETS and two other PIs in linked proposal; 1 yr., $ 20,477)

2008  Connecticut Department of Environmental Protection, Tax Checkoff Fund. Integrating fluvial geomorphology and stream ecology: Processes shaping the Distribution of freshwater mussels in Connecticut. (1 yr., $16,185). NOAA National Sea Grant College. Estimating anadromous river herring natal stream homing rates and timing of juvenile emigration using otolith microchemistry. (J. Vokoun, Project Director; ETS and one other co-PI; 2 yr., $63,962)

2007  Connecticut Department of Environmental Protection, Long Island Sound Programs. Estimating predation on declining river herring: Tag-recapture study of striped bass in the Connecticut River. (1 yr., $25,000)

2005  Connecticut Department of Environmental Protection, State Wildlife Grant. Predator-prey interactions of striped bass and river herring in the Connecticut River. (3 yr., $230,233)
Appendix BSB (continued)

U.S. Environmental Protection Agency. Improved valuation of ecological benefits associated with aquatic living resources: development and testing of indicator-based stated preference valuation and transfer. (R.J. Johnston, Project Director; ETS and two other co-PIs; 3 yrs., $405,154)

Schwenk
2008-2010 NSF DDIG (Do egg size effects cascade through salamander ontogeny? Allometric engineering of maternal provisioning, T. Landberg, C. Schlichting and K. Schwenk) $12,000)

Silander
2012-2014 MacArthur Foundation “Strengthening Advance Training and research in Sustainable Biodiversity Conservation and Climate Change Science and Policy in Madagascar” (J. Ratsirarson PI, Université d’Antananarivo, J. Silander, co-PI, with W. Bond, University of Cape Town, co-PI) $400,000

2011-2015 NSF-Dimensions of Biodiversity (J.Silander, K. Holsinger, C. Jones co-PIs with C. Schlichting PI). “Dimensions of Biodiversity: Parallel Evolutionary radiations in Protea and Pelargonium in the Greater Cape Floristic Region” $3,000,000: collaborative grant with University of California Davis and University of Chicago; University of Connecticut as lead institution $2,000,000 portion.

2009-2012 NASA Earth and Space Science National Fellowship(J. Silander, Jr. P.I., A.Wilson, student fellow) $90,000

2009-2012 NSF-DEB (Ecological Biology) (J. Silander PI with R. Primack (Boston University) and I. Ibanez (University of Michigan) “Collaborative Research: Spatiotemporal models of phenology: Integrating the effects of climate change on plants and animals.” $187,575.


Predictive Modeling and Volunteer Networks to Enhance Early Detection and Rapid Response to Invasive Species.” $460,000


Simon


2006-2011 NSF DEB 05-29679 PEET: Partnerships for training new experts in Auchenorrhyncha taxonomy. $750,000 (5 years plus one no cost extension) Co-PI’s Jason Cryan, Chris Dietrich, and Chris Simon (CS share of grant = 1/3).

2010 Feb REU Supplement to NSF DEB 05-29679 $7,500.

2004-2010 NSF DEB 04-22386, “Phylogeography of New Zealand Cicadas.” Co-PI Thomas Buckley. $400,000. (3 years plus three no cost extensions). REU supplements in 2005, 2006, 2007, 2009, for $12,000, $6,000, $12,000, $7,000, respectively.

2006-2008 NZ Marsden Fund (equivalent of US NSF). Ice Age Refugia in New Zealand. PI Thomas Buckley (Landcare Research, Auckland), Associate Investigators Chris Simon (UCONN), Glenn Thackray (Idaho State U., Maureen Mara (U. Canterbury), Sponsor: Marsden Fund; Project period: 1/1/06-12/31/08. $675,000 NZD for three years. UCONN subcontract is $18,400 NZD for 2 years.

Turchin
2011–15 ESRC Ritual, Community, and Conflict (Project Director: H. Whitehouse)

2005–08 NSF Global state formation: modeling the rise, fall and upward sweeps of large polities in world history and the global future (with C. Chase-Dunn and E. Anderson)

2005–07 NSF Supplement to the 2000–5 NSF-IRCEB grant

2000–05 NSF-IRCEB Building a mechanistic basis for landscape ecology of ungulate populations (with J. Fryxell, M. Turner, M. Boyce, and E. Merrill)

Urban
2012-2017 Principal Investigator James S. McDonnell Foundation “Does evolution affect the assembly dynamics of biological communities?” $449,851

2011-2014 Principal Investigator National Science Foundation “Evolutionary and ecological feedbacks: Do locally adapted salamanders shape food web dynamics across natural landscapes?” $500,000
Appendix B5B (continued)

2009  Principal Investigator University of Connecticut Foundation “Evolutionary feedbacks on species diversity” $24,000

2005–2008 Co-Principal Investigator National Center for Ecological Analysis and Synthesis Working Group “Evolutionary and ecological sorting in space” with M. Leibold $105,000

2006-2008 Postdoctoral Research Fellow National Center for Ecological Analysis and Synthesis Fellowship “Interaction traits and metacommunity gene flow” $86,000.

Wagner


Willig

2012-2013 Quinnipiac River Fund (T. Bosker and C. Perkins). $18,000.


2011-2013 AgriFuels, LLC (with C. Perkins). $30,000.

2011-2012 U.S.G.S. (with C. Perkins and A. Provatas). $6,000


2009-2010 AgriFuels, LLC (with C. Perkins). $30,000.


2006-2012 N.S.F. LTER IV (with N. Brokaw and others). $4,920,000.


Appendix BSB (continued)

2004-2005  N.S.F. Interagency Personnel Agreement.  $151,299.
2002-2006  N.S.F LTER (with J. Zimmerman and others).  $2,800,000.

Yarish
2012-2014  Co-PI (with S. Lindell) on a proposal to the Woods Hole Sea Grant/NOAA (as a subaward through the Marine Biological Laboratory) entitled “Multi-cropping Shellfish and Macroalgae for Business and Bioextraction.” Subcontract to MBL for Year I being $31,852 with direct costs of $20,818; Year II being $29,116 with direct costs of $19,030; Total of 2 year subcontract $60,968 with direct costs of $39,848. Total Grant: $155,014 (without match).
2012-2014  PI on a proposal to the Connecticut Sea Grant College Program entitled “Seaweed Aquaculture from Bioextraction of Nutrients from Long Island Sound.” Year I being $64,962 with direct costs of $41,398; Year II being $65,141 with direct costs of $41,400; Total of 2 year grant $129,754 with direct costs of $82,798.
2011-2013  PI on a subcontract to Ocean Approved, LLC (Portland, Maine) entitled “Development of Native Kelp Culture System Technologies to Support Sea Vegetable Aquaculture in New England Coastal Waters” (NOAA-SBIR Phase II, for Year I being $41,999 with direct costs of $27,450; Year II being 29,029 with direct costs of $18,973; Total of 2 year grant $71,028 with direct costs of $46,423). Received notice on 10-13-2011 that grant will receive NOAA funding. FRS #: 561401, Award/Contract #: AG110895.
2011-2013  Associate Investigator on project entitled “Comparative analysis of eutrophic condition and habitat status in Connecticut and New York embayments of Long Island Sound” funded by Long Island Sound Research Fund (NY and CT Sea Grant College Programs) $199,998 (Principal Investigator J. Vaudrey).
2011-2012  PI on project entitled “Seaweed Aquaculture for Bioextraction of Nutrients from LIS” funded by The National Fish and Wildlife Foundation – Long Island Sound Futures Fund $123,999.00; PI)
2010-2013  Co-Principal Investigator project entitled “Development and application of a Long Island Sound GIS-based eelgrass habitat suitability index model” funded by: Long Island Sound Study and NEIWPPC (Principal investigator J. Vaudrey); $40,652.
2010  PI on a subcontract to Ocean Approved, LLC (Portland, Maine) entitled “Development of Native Kelp Culture System Technologies to Support Sea Vegetable Aquaculture in New England Coastal Waters” (NOAA-SBIR Phase I, for $31,660 with direct costs of $20,693). Received notice on 5-11-2010 that grant will receive NOAA funding.
2010-2012  PI on a proposal to the Connecticut Sea Grant College Program (with C.D. Neefus of the University of New Hampshire) entitled “Development of Seaweed Culture System
Appendix BSB (continued)

Technologies to Support Integrated Multi-trophic Aquaculture and Sea Vegetable Aquaculture in New England.” $99,275 with direct costs of $65,147; Grant No. NA10OAR4170095.

2006-2008 Co-PI on a proposal to the Packard Foundation (with Barry Costa-Pierce, University of Rhode Island and Jose Zertuche, Universidad Autonoma de Baja California, MX) entitled “Sustainability Assessment of Capture-Based Tuna Aquaculture in Mexico.” The UConn subcontract to the Graduate School of Oceanography, University of Rhode Island was $18,355. Total award from Packard to the project was $156,221.


2006-2010 PI on a proposal to the Connecticut Sea Grant College Program (with R.B. Whitlatch, G.P. Kraemer and S. Lin) entitled “Impacts and Spread of the Non-indigenous Rhodophycean Alga, Grateloupia turuturu, on Long Island Sound with total funding for a 2 yr project of $153,714 with direct costs of $103,861 [Award/Contract # NA06OAR4170072]

2003-2006 Co-PI on a proposal to the Maine Sea Grant College Program (with Susan Brawley, University of Maine) entitled “Enhanced spore production for seeding of New England Porphyra for integrated finfish/seaweed aquaculture.” Total funding was $21,105.
Appendix B5C. Intramural research awards from the Research Advisory Council (RAC)

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bush</td>
<td>2006</td>
<td>Thin Section Laboratory (saw, impregnation unit, polishing/lapping system). $90,689.</td>
<td>$18,808</td>
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<tr>
<td>Cardon</td>
<td>2006</td>
<td>$16,677</td>
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<tr>
<td>Chazdon</td>
<td>2009</td>
<td>Dynamics and reassembly of woody seedling and sapling communities in tropical secondary forests; $15,000</td>
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<tr>
<td>Goffinet</td>
<td>2005</td>
<td>Providing a phylogenetic and ontogenetic framework for functional genomic studies in the model species <em>Physcomitrella patens</em>; $14,625.</td>
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<tr>
<td></td>
<td>2007</td>
<td>Providing a phylogenetic and ontogenetic framework for functional genomic studies in the model species <em>Physcomitrella patens</em>; $935.</td>
<td></td>
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<tr>
<td></td>
<td>2010</td>
<td>Assembling chloroplast genomes and screening microsatellite loci from total genomic liverwort 454 Sequences.; $23,373.00</td>
<td></td>
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<td></td>
<td>2012</td>
<td>Rapid Radiation and Sporophyte Evolution in the Fumariaceae (Mosses): Inferences from phylogenomics; $21,000.</td>
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<tr>
<td>Holsinger</td>
<td>2005</td>
<td>$10,000</td>
<td></td>
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<td></td>
<td>2008</td>
<td>Gene flow and seed variability in a threatened Malagsay orchid; $1,500.</td>
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<td>Jockusch</td>
<td>2012</td>
<td>Genome-Wide Analsyis of Hybridization Bewteen Salamanders with Giant Genomes; $21,000.</td>
<td></td>
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<tr>
<td>Jones</td>
<td>2008</td>
<td>Variation in Structural and Functional Traits Across Diverse Plant Growth Forms; $15,225.</td>
<td></td>
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<tr>
<td>Lewis</td>
<td>2005</td>
<td>Field Collection of Gren Algal Symvionts from Two Species of Pacific Sea Anemone, Anthopleura, Elegantissima and A.xanthogrammica; $934.</td>
<td>ABI 3130xl DNA Analyzer; $33,000.</td>
</tr>
<tr>
<td>Schwenk</td>
<td>2008</td>
<td>Copulation kinematics in Poecilia, a genus of livebearing fish; $13,304.</td>
<td></td>
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<tr>
<td>Schwenk</td>
<td>2009</td>
<td>High-Speed Videography of Animal Function and Behavior: A Multi-Investigator Proposal; $20,000.</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix BSC (continued)

**Silander**  
2007  
Evolution of Elephant Birds in Madagascar - What Can We Learn from Ancient DNA?; $15,655.

**Simon**  
2010  
Using CAGT Genomic FLX Technology To Locate Microsatellites To Collect Preliminary Data For Tracking Gene Flow Across Species Boundaries; $24,000.

**Trumbo**  
2008  
Basic and Applied Research on a Host Shift Among Burying Beetles; $5,480.

**Urban**  
2009  
Evolutionary Feedbacks on Species Diversity: Does Local Adaptation in Salamanders Affect the Structure of Natural Communities?; $24,000.

**Wagner**  
2010  
Owlet Caterpillars of Eastern North America (Lepidoptera: Noctuidae); $1,500.

**Wells**  
2008  
Charles Darwin Bicentennial Colloquium Series; $2,000.00
Appendix B6: Honors, awards and professional service by EEB faculty 2005-2012.

Appendix B6a: Awards and Honors

University Honors and Awards
2012  Yarish  Provost Award in Public Engagement, UCONN
2012  Holsinger  Board of Trustees Distinguished Professor, UCONN
2011  Willig  Excellence in Research Award, CLAS, UCONN
2009  Anderson  Board of Trustees Distinguished Professor, UCONN
2009  Les  Excellence in Research Award, CLAS, UCONN
2008  Holsinger  Distinguished Alumni Award, College of Idaho
2007  Holsinger  Faculty Excellence Award in Research, UCONN Alumni Ass.
2007  Yarish  Faculty Recognition Award, Stamford Campus
2006  Caira  Board of Trustees Distinguished Professor, UCONN
2005  Chazdon  Honors Faculty Member of the Year, UCONN

State/Regional Societies and Associations
2012  Anderson  Annual Distinguished Speaker, New England Botanical Club
2012  Chazdon  Elected Member, Connecticut Academy of Science and Engineering
2012  Colwell  Elected Member, Connecticut Academy of Science and Engineering
2011  Caira  Elected Member, Connecticut Academy of Science and Engineering
2011  Willig  Elected Member, Connecticut Academy of Science and Engineering
2010  Holsinger  Elected Member, Connecticut Academy of Science and Engineering
2010  Silander  Elected Member, Connecticut Academy of Science and Engineering
2008  Yarish  Elected Member, Connecticut Academy of Science and Engineering
2007  Holsinger  Service Excellence Award, UCONN Chapter, AAUP

National Societies and Associations
2012  Colwell  Elected Fellow, Ecological Society of America
2012  Urban  Research Promise Award, AAUP
2012  Willig  Research Excellence Award, AAUP
2011  Colwell  Elected Fellow, American Academy of Arts and Sciences
2008  Urban  Young Investigator Award, American Society of Naturalists
2006  Anderson  Elected Member, The Honor Society of Phi Kapp Phi
2006  Anderson  Centennial Awardee, Botanical Society of America
2006  Holsinger  Centennial Awardee, Botanical Society of America
2006  Wagner  National Outdoor Book Award for Best Nature Guidebook

International
2011  Schultz  Scholarship, Fulbright Foundation in Greece
Appendix B6b: Journal Editorial Memberships (duplicates indicate positions held by multiple faculty members)

1. Acta Entomologica, Musei Nationalis Pragae: Editorial Board Member
2. Acta Parasitologica: Editorial Board Member
3. American Journal of Botany: Associate Editor, Associate Editor, Associate Editor
4. American Naturalist: Associate Editor
5. American Society of Mammalogists: Board of Directors Member
6. Anales de Biología: Associate Editor
7. Animal Conservation: Editorial Board Member
8. Annalen des Naturhistorischen Museums, Wien: Editorial Board Member
9. Annals of the Entomological Society of America: Subject Editor
10. Aquatic Botany: Editorial Advisory Board
11. Auk: Associate Editor
12. BioScience: Editorial Board Member
13. Biotropica: Editor in Chief: Editorial Board Member
14. The Bryologist: Editor
15. Cliodynamics: The Journal of Theoretical and Mathematical History: Editor in Chief
16. Copeia: Associate Editor, Editorial Board Member
17. Cryptogamie-Bryologie: Associate Editor
18. Ecography: Associate Editor
19. Ecology/Ecological Monographs: Subject Editor
20. Ecosystems: Advisory Board Member
21. Encyclopedia of Biodiversity: Associate Editor
22. European Journal of Entomology: Editorial Board Member
23. Evolution: Associate Editor
24. Evolutionary Ecology Research: Editor (under an EIC)
25. Journal of Anatomy: Editorial Board Member
27. Journal of Experimental Zoology: Associate Editor: Editorial Board Member: Editorial Board Member
28. Journal of Helminthology: Editorial Board Member
29. Journal of Parasitology: Editorial Board Member
30. Journal of Phycology: Associate Editor
31. Kurtziana Gayana Botanica: Editorial Board Member
32. Medicinal and Aromatic Plants Abstracts (MAPA): Advisory Board Member
33. Marine Ecology Progress Series: Editorial Review Board Member
34. Oecologia: Associate Editor
35. PeerJ: Editorial Board Member
36. Plant Ecology and Evolution: Associate Editor
37. Plant Species Biology: Editorial Board Member
38. PLoS Currents: Tree of Life: Board of Moderators
39. Revista del Caribe Nicaraguense (Wani): Advisory Board Member
Appendix B6c: Society Activities

1. American Association of University Professors: Executive Committee Member
2. American Bryological and Lichenological Society: Executive Committee Member
3. American Institute for Biological Sciences: President; Committee Member on Biodiversity/Taxonomy Services: Long Range Planning Committee Member: Nominations Committee Chair
4. American Society of Ichthyologists and Herpetologists: Board of Governors member: Editorial Board member: Executive Committee Member: Endowment and Finance Committee Chair: Long Range Planning Committee: Publications Policy Committee: Website Design Committee
5. American Society of Mammalogists: Planning & Finance Committee (Member): Development Committee (Member and Chair): Jackson Award Committee for Outstanding Service (Member and Chair): Merriam Award Committee for Outstanding Research (Member and Chair)
6. American Society of Parasitologists: President: Vice President: President-Elect: Council member
7. American Society of Plant Taxonomists: Cooley Award Committee
8. Association for Tropical Biology and Conservation: 50th Anniversary Annual Meeting Planning Committee (Member)
9. Botanical Society of America: President; Publications Committee: Chair, Developmental and Structural Section: Chair, Esau Award for best student paper: Member, Fundraising committee for Donald Kaplan Memorial Lecture Series: Development Committee Member: Strategic Planning Committee Member: Centennial Planning Committee Member: Secretary/Treasurer, Economic Botany Section
10. Ecological Society of America: Chair, MacArthur Award Committee
11. International Association of Bryologist: Award Adjudication Committee Member
12. International Association for Ecology: Honorary Member
13. International Society of Limnology: President: U. S. National Representative
14. Lepidopterists’ Society: Conservation Committee Member
15. North East Algal Society: Annual Conference Convener: Executive Committee Member: Secretary
16. Phycological Society of America: Communications Committee Chair: Executive Committee Member
17. Society for Integrative and Comparative Biology, Division of Vertebrate Morphology: Division Chair: SICB Executive Committee Member: D. Dwight Davis Award Committee Chair: NE Regional Meeting Organizer: SICB ‘Grand Challenges in Organismal Biology’ Steering Committee Chair
18. Society for Systematic Biologists: President (3-year executive term as president elect, president, past president): Executive Committee Member: Publications Committee: Long Range Planning Committee
19. Society for the Study of Evolution: Nominations Committee
Appendix B6d: Advisory Board Memberships

1. Aldo Leopold Foundation, Inc.: Board of Directors and Vice Chair
2. Connecticut Conference on Natural Resources: Scientific Advisory Committee Member for Tropical Ecology Assessment and Monitoring Program (TEAM)
3. Conservation International: Scientific Advisory Board Member
4. Environmental Defense Fund: Board of Trustees
5. Foundation for the Advancement of the Atlantic Coast of Nicaragua (FADCANIC): Scientific Advisor
6. Friends of Mirror Lake Association (FMLA), Wisconsin: Honorary Board Member
7. Hubbard Brook Ecosystem Study: Elected, Scientific Coordinating Committee, Committee of Scientists: Chair, Hubbard Brook Ecosystem Study Information Oversight Committee
8. Hubbard Brook Research Foundation: Board of Trustees
9. Hudson River Foundation: Board of Trustees
10. Joseph W. Jones Ecological Research Center at Ichauway Plantation, Georgia: Chair, Scientific Advisory Committee
11. Marine Biological Laboratory: Advisory Board for Workshop in Molecular Evolution
12. National Socio-Environmental Synthesis Center: Scientific Review Committee
14. State of Connecticut Endangered Species Technical Advisory Committees: Member Committee on Fishes
15. State of Connecticut Endangered Species Technical Advisory Committees: Member Committee on Amphibians and Reptiles
17. State of Connecticut, Governor's Steering Committee on Climate Change, Subcommittee on Climate Adaptation: Committee Member
19. University of Idaho - CATIE IGERT Program: Advisory Committee Member
20. University of Texas Culture Collection of Algae: Advisory Board Member

Appendix B6e: Summary of Federal Panel Service. (National Science Foundation (program details not given to maintain confidentiality))

<table>
<thead>
<tr>
<th>Year</th>
<th>Federal Panel Service</th>
</tr>
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<tbody>
<tr>
<td>2012</td>
<td>7 Directorate for Biological Sciences (BIO) panels and 1 Crosscutting (NSF wide)</td>
</tr>
<tr>
<td>2011</td>
<td>6 Directorate for Biological Sciences (BIO) panels and 1 Crosscutting (NSF wide)</td>
</tr>
<tr>
<td>2010</td>
<td>4 Directorate for Biological Sciences (BIO) panels</td>
</tr>
<tr>
<td>2009</td>
<td>4 Directorate for Biological Sciences (BIO) panels</td>
</tr>
<tr>
<td>2008</td>
<td>3 Directorate for Biological Sciences (BIO) panels</td>
</tr>
<tr>
<td>2007</td>
<td>4 Directorate for Biological Sciences (BIO) panels</td>
</tr>
<tr>
<td>2006</td>
<td>2 Directorate for Biological Sciences (BIO) panels</td>
</tr>
<tr>
<td>2005</td>
<td>1 Directorate for Biological Sciences (BIO) panel</td>
</tr>
</tbody>
</table>
Appendix B6f: Faculty serving on University Committees

Adams  
School or College:  
Member, CLAS C&C Committee 2011-2012  

Anderson  
University Wide:  
Member, Graduate Faculty Council (founding member via service on Grad Executive Committee) 1990-2008  
Member, University Senate, Executive Committee, elected--1998-01; 2002-2005  
Member, University Committee on Honorary Degrees and Awards--1997-02; 2002-07  
Member, University Space Committee 2001-2008  
Member, Edwin Way Teale Series 1995- to present; lead coordinator 2002-2007  
Co-founder, Arboretum Committee ~1985; Co-Director 1985-XX  
Member, Executive Committee of the Graduate School 1986–2005; Chair as Graduate Dean and Vice Provost 05-08  
Representative on Academic Affairs Committee – 2002-05  
Member, Campus Appearance Committee 2011-12  
Member, Campus Building Names Committee 2010-2013  
Member, Select Campus Appearance Committee 2012-  
Course re-numbering effort, culminated in selection of new University 4-digit numbering system; co-lead with Jeffrey Von Munkwitz-Smith ~2000-2005; implemented 2005  
Nominated Honorary Doctoral recipient: Peter Crane (2011)

Bush  
School or College:  
Co-chair, Geochemistry Faculty Search 2012  
Chair, Geosciences Graduate Committee 2011-present  
Member, Geosciences Adjunct Faculty Search Committee2009  
Member, Geosciences Faculty Advisory Committee2008-present  
Member, Geosciences Undergraduate Curriculum Committee 2007-present  
Chairperson, Geosciences Recruiting Committee 2007-present  
Member, Biology Undergraduate Awards Committee2007-present  
Member, Sedimentology Faculty Search Committee 2007

Caira  
University Wide:  
Member, University Research Council, 1995–2001; 2005–present  
Member, University Senate, 1995–2002; 2003–present  
Member, University Senate Budget Committee, 1995–1997; 2012  
Member, Alumni Association Distinguished Professor Selection Committee, 1996, 2006  
Member, University Senate Enrollment Committee 2000–2002, 2007  
Member, Commencement Committee, 2000–2006  
Member, Senate Nominating Committee, 2003–2006  
Member, Research Council Life Sciences Area Review Committee, 2005–present  
Member, AAUP Awards Selection Committee, 2006–present
Appendix B6f (continued)

Member, University Committee of Three, 2007–2009
Member, Search Committee for Vice President Research & Dean Grad School, 2008
Chair, University Committee of Three, 2009
Member, Board of Trustees Distinguished Professor Selection Committee, 2009–present
Member, IGERT proposal internal Selection Committee, 2009, 2011
Member, University Outstanding Teaching Assistant Selection Committee, 2009
Member, Research Council Intermediate Equipment grant award committee, 2009–2010
Member, Alumni Association Awards Committee, 2010–present
Chair, Board of Trustees Distinguished Professor Reception Committee, 2011
Member, Committee for Five Year Review of Director of CESE, 2011
Member, Search Committee for Vice Provost for Enrichment and Director of Honors, 2012
Chair, Committee for Five Year Review of Dean of College of Agricultural and Natural Resources, 2012

School or College:
Member, CLAS Strategic Planning Committee; Chair Community Subcommittee, 2005–2006
Member, Electron Microscopy Laboratory Technician, Search Committee, 2010
Member, Chemistry Head Search Committee, 2011

Chazdon
University Wide:
Member, Provost Search Committee, 2012-2013
Member, University Senate, Scholastic Standards Committee, 2012-2014
Panel Member, CLAS Grade Appeal, 2012
Member, Faculty Focus Group, W Taskforce, 2010-
Member, Udall Award Committee, 2010-
Member, Future of Environmental Sciences Committee, 2009
Member, Environmental Literacy Committee, 2006-2009
Member, Environmental Studies Degree Committee, 2008-
Faculty Advisor, Environmental Biology Concentration, Env. Sci. Major 2007-
Faculty Advisor, Environmental Studies Minor, 2002-
Member, Planning Committee, Teale Lecture Series on Nature and the Environment, 1999-
Advisor, Off-campus advisor for Ecology and Evolutionary Biology, 1995-
Board Member, Center for Biodiversity and Conservation, 1999-
Member, Caribbean and Latin American studies committee, 1990-

Colwell
University Wide:
UConn Delegate to Organization for Tropical Studies Assembly of Delegates 2010

Coe
University Wide:
Representative to the Hartford Consortium Environmental Planning Committee (UConn/Hartford) 2008-
Present
Member, Pre-College Advisory Committee for the Hartford Public Schools (UConn/Hartford) 2007-
Present
Member, Planning Committee for the “Year of Science” (UConn/Hartford) 2007-Present
Appendix B6f (continued)

Member, Learning Commons Taskforce (UConn/Hartford) 2007-Present
Member, Inclusive Science Curriculum Committee (UConn/Hartford) 2006-Present
Member, Student Affairs Committee (UConn/Hartford) 2006-Present
Member, Collections Committee (UConn/Storrs 2005-Present
Advisor, Environmental Science, Branch Campus Advisor (UConn/Hartford) 2005-Present
Member, Minority Recruitment Activities (UConn/Hartford 2004-Present
Faculty Representative for Puerto Rican Latin American Student Organization (UConn/Hartford) 2004-Present
Faculty Representative for Muslim Student Association (UConn/Hartford) 2004-Present

School or College:
Representative of CLAS to the Provost’s International Executive Council 2009-2011

Elphick
Member, Teale Seminar Series, Teale Seminar Series Organizing Cmte 2011-2012

Goffinet
University Wide:
Member, Office of Sponsored Programs Advisory Committee (2006)

School or College:
Member, Search committee for BCS grants and contracts specialist (Fall 2010)

Henry
University Wide:
Member, Arboretum Committee

Holsinger
University Wide:
Faculty Representative, Financial Affairs Committee, UConn Board of Trustees 2000–2009
Member, University Senate 2005–2012
Member, Chair (2009–2010), Academic Center/Institute Review Committee 2007–2010
Member, Chair (2009–2010), Faculty Review Board 2007–2010
Chair, University Budget Committee, University Senate 2009–2010
Member, Chair (2011–2012), Senate Executive Committee 2010–2012

School or College:
Member, College of Liberal Arts & Sciences Dean Search Committee 2007–2008
Chair, College of Liberal Arts & Sciences Academic Advisory Board2011–2012

Jockusch
University Wide:
Member, University Senate (Fall 2011–present)
Member, General Education Oversight Committee and
Co-chair of Science and Technology Subcommittee (2008-2009, 2010-2012)
Secretary of the University Senate (Fall 2005, Spring 2011)
Appendix B6f (continued)

Member, Rhodes/Marshall Nominee Selection Committee (Spring 2006-present)
Member, Office of National Scholarships Director Search Committee (Spring 2008)
Member, Aquatics Facility Architect Selection Committee (Spring 2006)
Member, Searle Proposal Internal Review Committee (2005-2006)

School or College:
Member, CLAS Advisory Committee on External Funding (2005-2006)
Member, CLAS Committee on Committees (2005-2006)
Member, Biology Honors Committee (2003-present)
Member, Freshman and Sophomore Biology Honors Course Presentations (2002-present)

Jones

University Wide:
Member, Vice-Provost’s Gateway Committee for Introductory Science Courses 2007
Member, College of Letters and Science Committee on Committees 2003-2005

Les, Don

University Wide:
Member, PCID Steering Committee February 28, 2011 - Present
Member, Field Trips Policy Committee 2011 - Present

School or College:
Member, ALTRRR Committee May 18, 2010 - Present
Member, CLAS Research Awards Committee 2011

Lewis, Louise

University Wide:
Member, Graduate Faculty Council (2009, 2010–present); Alternate Member for Botany, Entomology, Zoology (2007–09)
Member, University Student Fulbright Scholarship Committee (2005–09)
Member, Anonymous Proposal Reviews, University of Connecticut Research Foundation (various times)

School or College:
Member, CLAS Policies and Procedures Committee (2009–11)
Member, Search Committee for 2 Microbiology positions, MCB (Fall 2006)

Lewis, Paul

University Wide:
Co-facility Head (with J. Peter Gogarten) of the Bioinformatics Facility, UConn Biotech Center

School or College:
Member, CLAS Courses & Curricula committee member (sitting in for M. Rubega Spring 2007)
Member, CLAS Courses & Curricula committee (EEB representative, Fall 2010 and Spring 2011)
Appendix B6f (continued)

Rubega
University Wide:
Member, Institutional Animal Care and Use Committee (IACUC) Effective October 1, 2009

Schlichting
University Wide:
Member, AAUP Executive Committee (elected) 2006-2007

Schultz
University Wide:
Alternate Member, Capital Projects Planning Advisory Council
Ex officio Member, General Education Oversight Committee
Member, Graduate Faculty Council
Member, Senate Executive Committee
Member, University Senate Curricula and Courses Committee
Member, Udall Scholarship Selection Committee
Member, University and Interdepartmental Curriculum Committee (ex officio)
Member, University Senate

Schwenk
University Wide:
Member, Alternate, Faculty Council. (February 2010 - May 2012).

Silander
University Wide:
Member, University Senate, elected 1996-2009
Member, University Senate Courses and Curricula Committee 1999-2004
Member, University Senate Faculty Standards Committee 2004-2009
Member, University Fulbright Committee 2001-2005
Member, University Study Abroad Committee 2010-present

School or College:
Member, CLAS Dean’s Advisory Committee for Promotion and Tenure 2002-2005

Simon
University Wide:
Member, Summer Undergraduate Research Fellowship (SURF) selection committee Sp 2005
Member, SURF Awards review committee for honors program Sp 2007, 2008
Member, Internal screening committee to evaluate proposals for NSF-URM (Undergraduate Research and Mentoring in the Biological Sciences) submissions. Spring 2010.

Trumbo
Chair, Connecticut State Employees Campaign, UConn-Waterbury, 2004-present
Coordinator, Tri-Campus Biology 2004-2005
Appendix B6f (continued)

Member, University Senate 2006-2009
Member, Campus Lecture Series committee 2006-
Member, Year of Science organizing committee 2006-
Faculty Sponsor, Student Environmental Club 2011-

Urban
University Wide:
Member, Graduate School Faculty Council (2012 – present)
Member, UConn SURF Grant Review Committee (2012)

Wagner
University Wide:
University Senator: 2001-
Faculty Standards Committee: 2003-
Chair, Phi-Beta Kappa, UConn Chapter, committee for induction of graduate students 2007
Board Member, Connecticut State Museum of Natural History 1997-; Co-chair, Strategic Planning Committee 2008
Co-chair, EPAC’s Environmental Literacy Committee with primary responsibility for academic oversight of Eco-House, 2008-2011
Member, Environmental Policy Advisory Council (EPAC): 2009-2011
Member, 100’s Biology Teaching Awards Committee (1991 - Present)

Wells
University Wide:
Member, Regional Campus Liaison for EEB (2007 - Present)
Member, Graduate Faculty Council

School or College:
CLAS Courses & Curriculum Committee (continuing)

Willig
University Wide:
Member, Executive Committee for Implementation of the Environment Component of the Provost’s Academic Plan, University Connecticut (2007-2008)
Member, Environmental Policy Advisory Council, Univ. Connecticut (2006-Present)
Member, Teale Lecture Series Committee, Univ. Connecticut (2006-Present)
Member, Steering Committee, Connecticut Conference on Natural Resources, UConn (2007-Present)
Member, Advisory Council, Wildlife Conservation Research Center, Univ. Connecticut (2007-Present)
Member, Coordinating Committee, Center for Public Health and Health Policy, UConn (2007-Present)
Member, Search Committee, Vice-Provost for Research & Graduate Education, UConn (2007-2008)
Member, Search Committee, Vice-President for Research and Graduate Education, UConn (2008-2009)
Member, Executive Committee, Atmospheric Sciences Group, Univ. Connecticut (2008-Present)
Member, Climate Action Task Force, Univ. Connecticut (2008-Present)
Member, Environmental Leadership Awards Committee, Univ. Connecticut (2008-2010)
Member, Undergraduate curriculum for Environmental Studies Committee, Univ. Connecticut (2008-2010)
Member, Committee for Excellence in Graduate and Professional Programs, Univ. Connecticut (2009-2010)
Appendix B6f (continued)

Member, Large Equipment Competition Evaluation Committee (2009)
Member, Provost’s Committee on the Environment (2009-2011)
Member, Major Center/Institute Review Committee (2010-2011)
Member, Board of Advisors, Charles J. Zwick Center for Food and Resource Policy (2011-Present)
Member, Organizing Committee, The Norman Hascoe Distinguished Lectures on the Frontiers of Science (2011-Present)
Member, Organizing Committee, Climate Impact, Mitigation, and Adaptation Colloquium (2012)
Member, Tech Park Master Plan Committee (2012-Present)

Yarish

University Wide:
Member, Management Team (2011 - Present)
Member, The CT Aquatic Nuisance Species Workgroup (September 2006 - Present)
Member, Faculty Recognition Committee for Stamford Campus (March 2009 - August 2011)
Member, Chile Coordinating Committee, Office of International Programs 2000-present
Member, Safety Committee 2004-
Member, Oversight Committee for the Center for Globalization and Commerce Nov. 2005-present.
Member of the Connecticut Sea Grant (CTSG) 2006 Research Advisory Panel
Member, Bird Flu Committee 2006-
Member, Faculty/Professional Development Team 2007-
Member, Faculty Recognition Committee 2007-
Member, Pandemic Flu Committee 2008-
Member, Misconduct Board 2008-
Member, Year of Science Committee 2008-
Member, Stamford Campus-Norwalk Community College Committee 2008-
Member, Ad-Hoc Committee on Undergraduate Research (Co-organized Stamford Campus Student Research Poster Session, Spring 2011
Appendix B7: Comparison of target and peer EEB departments based on NRC rankings and NSF-DEB awards.

Appendix B7a: NRC data for current target (above UCONN) and peer (below UCONN) EEB institutions (n=94). Peer (P) and target (T) institutions at the time of previous self study (2001) are identified in parentheses following institution name.

<table>
<thead>
<tr>
<th>Institution Name</th>
<th>R Rankings 5&lt;sup&gt;th&lt;/sup&gt; percentile</th>
<th>R Rankings 95&lt;sup&gt;th&lt;/sup&gt; percentile</th>
<th>S Rankings 5&lt;sup&gt;th&lt;/sup&gt; percentile</th>
<th>S Rankings 95&lt;sup&gt;th&lt;/sup&gt; percentile</th>
<th>Research Activity 5&lt;sup&gt;th&lt;/sup&gt; percentile</th>
<th>Research Activity 95&lt;sup&gt;th&lt;/sup&gt; percentile</th>
<th>Average number of publications (00-06) per allocated Faculty, 2006</th>
<th>Average citations per publication</th>
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<td>Indiana (T)</td>
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<td>14</td>
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<td>Berkeley (T)</td>
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<td>9</td>
<td>36</td>
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<td>Michigan State</td>
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<td>21</td>
<td>12</td>
<td>50</td>
<td>16</td>
<td>60</td>
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<td>2.82</td>
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<td>Kansas (P)</td>
<td>6</td>
<td>26</td>
<td>14</td>
<td>49</td>
<td>21</td>
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<td>Texas, Austin (T)</td>
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<td><strong>UCONN</strong></td>
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<td>Arizona (T)</td>
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<td>37</td>
<td>10</td>
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<td>Rutgers (P)</td>
<td>20</td>
<td>46</td>
<td>48</td>
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<td>65</td>
<td>1.84</td>
<td>2.69</td>
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<td>Stony Brook (T)</td>
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<td>24</td>
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<td>19</td>
<td>61</td>
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<td>UMass (P)</td>
<td>38</td>
<td>64</td>
<td>41</td>
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<td>85</td>
<td>1.03</td>
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<td>59</td>
<td>78</td>
<td>56</td>
<td>85</td>
<td>17</td>
<td>68</td>
<td>1.39</td>
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### Appendix B7a (continued)

<table>
<thead>
<tr>
<th>Institution Name</th>
<th>Percent of faculty with grants, 2006</th>
<th>Awards per allocated faculty member, 2006</th>
<th>Average completion percentage: 6 Years or &lt; 2006</th>
<th>Median time to degree 2006</th>
<th>Average number of Ph.D.s graduated, 2002-2006</th>
<th>Average GRE scores, 2004-2006</th>
<th>Number of core and new faculty, 2006</th>
<th>Number of TA line per faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana (T)</td>
<td>92.7%</td>
<td>1.32</td>
<td>51.7%</td>
<td>6.10</td>
<td>7.20</td>
<td>691</td>
<td>22</td>
<td>1.8</td>
</tr>
<tr>
<td>Berkeley (T)</td>
<td>75.6%</td>
<td>0.36</td>
<td>41.2%</td>
<td>6.30</td>
<td>18.00</td>
<td>702</td>
<td>42</td>
<td>1.26</td>
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<tr>
<td>Michigan State</td>
<td>86.6%</td>
<td>0.46</td>
<td>56.7%</td>
<td>5.70</td>
<td>12.80</td>
<td>677</td>
<td>87</td>
<td>0.23</td>
</tr>
<tr>
<td>Kansas (P)</td>
<td>75.4%</td>
<td>0.68</td>
<td>42.9%</td>
<td>5.70</td>
<td>8.80</td>
<td>683</td>
<td>37</td>
<td>1.07</td>
</tr>
<tr>
<td>Texas, Austin (T)</td>
<td>80.4%</td>
<td>0.95</td>
<td>20.8%</td>
<td>6.00</td>
<td>4.00</td>
<td>697</td>
<td>46</td>
<td>0.56</td>
</tr>
<tr>
<td><strong>UCONN</strong></td>
<td><strong>74.2%</strong></td>
<td><strong>0.58</strong></td>
<td><strong>55.6%</strong></td>
<td><strong>5.30</strong></td>
<td><strong>7.00</strong></td>
<td><strong>658</strong></td>
<td><strong>29</strong></td>
<td><strong>0.63</strong></td>
</tr>
<tr>
<td>Arizona (T)</td>
<td>77.2%</td>
<td>0.55</td>
<td>27.7%</td>
<td>6.00</td>
<td>6.40</td>
<td>703</td>
<td>26</td>
<td>1.1</td>
</tr>
<tr>
<td>Rutgers (P)</td>
<td>63.4%</td>
<td>0.19</td>
<td>13.7%</td>
<td>7.08</td>
<td>6.20</td>
<td>699</td>
<td>59</td>
<td>0.62</td>
</tr>
<tr>
<td>Stony Brook (T)</td>
<td>74.9%</td>
<td>0.38</td>
<td>17.8%</td>
<td>5.90</td>
<td>4.40</td>
<td>715</td>
<td>26</td>
<td>0.88</td>
</tr>
<tr>
<td>UMass Amherts (P)</td>
<td>81.7%</td>
<td>0.36</td>
<td>52.0%</td>
<td>5.70</td>
<td>4.40</td>
<td>660</td>
<td>38</td>
<td>0.18</td>
</tr>
<tr>
<td>Tennessee (P)</td>
<td>71.7%</td>
<td>0.68</td>
<td>55.5%</td>
<td>5.70</td>
<td>5.00</td>
<td>666</td>
<td>25</td>
<td>1.07</td>
</tr>
<tr>
<td>Florida State (P)</td>
<td>87.5%</td>
<td>0</td>
<td>14.0%</td>
<td>7.50</td>
<td>1.60</td>
<td>683</td>
<td>18</td>
<td>0.06</td>
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</table>
Appendix B7b: Comparison of peer and target EEB program based on active NSF research awards. Peer (P) and target (T) institutions at the time of previous self study (2001) are identified in parentheses following institution name.

<table>
<thead>
<tr>
<th>School</th>
<th>Fac</th>
<th>With funds</th>
<th>% funded Fac</th>
<th>NSF $ funds</th>
<th>Other NSF funds</th>
<th>$/Fac</th>
<th>$/Funded fac</th>
<th>Ranked $/Fac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana (T)</td>
<td>23</td>
<td>15</td>
<td>0.65</td>
<td>10,764,565</td>
<td>992,661</td>
<td>468,025</td>
<td>717,638</td>
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</tr>
<tr>
<td>Berkeley (T)</td>
<td>38</td>
<td>24</td>
<td>0.63</td>
<td>8,370,112</td>
<td>5,066,133</td>
<td>220,266</td>
<td>348,755</td>
<td>8</td>
</tr>
<tr>
<td>Michigan State</td>
<td>110</td>
<td>37</td>
<td>0.34</td>
<td>24,266,208</td>
<td>18,790,625</td>
<td>220,602</td>
<td>655,843</td>
<td>7</td>
</tr>
<tr>
<td>Kansas (P)</td>
<td>39</td>
<td>19</td>
<td>0.49</td>
<td>11,073,090</td>
<td>4,871,883</td>
<td>283,925</td>
<td>582,794</td>
<td>6</td>
</tr>
<tr>
<td>Texas (T)</td>
<td>40</td>
<td>19</td>
<td>0.48</td>
<td>18,007,687</td>
<td>211,024</td>
<td>450,192</td>
<td>947,773</td>
<td>3</td>
</tr>
<tr>
<td>UConn</td>
<td>26</td>
<td>11</td>
<td>0.42</td>
<td>9,595,435</td>
<td>129,000</td>
<td>369,055</td>
<td>872,312</td>
<td>4</td>
</tr>
<tr>
<td>Arizona (T)</td>
<td>26</td>
<td>11</td>
<td>0.42</td>
<td>15,732,201</td>
<td>5,964,344</td>
<td>605,085</td>
<td>1,430,200</td>
<td>1</td>
</tr>
<tr>
<td>Rutgers (P)</td>
<td>65</td>
<td>16</td>
<td>0.25</td>
<td>9,518,076</td>
<td>8,382,741</td>
<td>146,432</td>
<td>594,880</td>
<td>10</td>
</tr>
<tr>
<td>Stony Brook (T)</td>
<td>17</td>
<td>8</td>
<td>0.47</td>
<td>3,063,488</td>
<td>0</td>
<td>180,205</td>
<td>382,936</td>
<td>9</td>
</tr>
<tr>
<td>UMass Amherts (P)</td>
<td>31</td>
<td>9</td>
<td>0.29</td>
<td>4,160,353</td>
<td>1,216,029</td>
<td>134,205</td>
<td>462,261</td>
<td>11</td>
</tr>
<tr>
<td>Tennessee (P)</td>
<td>28</td>
<td>12</td>
<td>0.43</td>
<td>2,121,243</td>
<td>18,076,813</td>
<td>75,759</td>
<td>176,770</td>
<td>12</td>
</tr>
<tr>
<td>Florida State (P)</td>
<td>21</td>
<td>12</td>
<td>0.57</td>
<td>6,457,760</td>
<td>1,138,970</td>
<td>307,512</td>
<td>538,147</td>
<td>5</td>
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### Appendix B8: Comparison of NRC data for EEB and sister biology departments at the University of Connecticut

<table>
<thead>
<tr>
<th></th>
<th>R Rankings</th>
<th>S Ranking</th>
<th>Research Activity</th>
<th>Average # of Pubs (00-06) /Allocated Fa in 06</th>
<th>Average Citations per Pub</th>
<th>% of faculty with grant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5th percentile</td>
<td>95th percentile</td>
<td>5th percentile</td>
<td>95th percentile</td>
<td>5th percentile</td>
<td>95th percentile</td>
</tr>
<tr>
<td>EEB</td>
<td>14</td>
<td>38</td>
<td>22</td>
<td>60</td>
<td>20</td>
<td>67</td>
</tr>
<tr>
<td>PNB</td>
<td>54</td>
<td>85</td>
<td>29</td>
<td>67</td>
<td>70</td>
<td>91</td>
</tr>
<tr>
<td>Microbiology</td>
<td>49</td>
<td>61</td>
<td>56</td>
<td>63</td>
<td>50</td>
<td>64</td>
</tr>
<tr>
<td>Genetics</td>
<td>56</td>
<td>63</td>
<td>60</td>
<td>64</td>
<td>54</td>
<td>64</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>96</td>
<td>120</td>
<td>103</td>
<td>120</td>
<td>48</td>
<td>109</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Awards per Allocated Faculty 2006</th>
<th>Avg. Completion % 6 Years</th>
<th>Median Time to Degree 2006</th>
<th>% Non-Asian Minority Fac. 2006</th>
<th>% Female Faculty 2006</th>
<th>% Non-Asian Minority Students Fall 2005</th>
<th>% Female Students Fall 2005</th>
<th>% International Students Fall 2005</th>
<th>Average # of Ph.D.s Graduated, 2002-2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEB</td>
<td>0.58</td>
<td>55.6%</td>
<td>5.30</td>
<td>0%</td>
<td>27.6%</td>
<td>4.0%</td>
<td>56.5%</td>
<td>17.4%</td>
<td>7.00</td>
</tr>
<tr>
<td>PNB</td>
<td>0.07</td>
<td>68.3%</td>
<td>5.30</td>
<td>6.3%</td>
<td>31.3%</td>
<td>0%</td>
<td>51.6%</td>
<td>45.2%</td>
<td>3.20</td>
</tr>
<tr>
<td>Microbiology</td>
<td>0</td>
<td>10.7%</td>
<td>7.30</td>
<td>8.3%</td>
<td>16.7%</td>
<td>16.7%</td>
<td>55.6%</td>
<td>33.3%</td>
<td>2.00</td>
</tr>
<tr>
<td>Genetics</td>
<td>0.02</td>
<td>8.3%</td>
<td>6.50</td>
<td>5.9%</td>
<td>23.5%</td>
<td>4.0%</td>
<td>30.3%</td>
<td>15.2%</td>
<td>1.60</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>0.05</td>
<td>6.5%</td>
<td>8.00</td>
<td>0%</td>
<td>34.8%</td>
<td>6.7%</td>
<td>50.0%</td>
<td>35.7%</td>
<td>3.20</td>
</tr>
</tbody>
</table>
## Appendix B8 (continued)

<table>
<thead>
<tr>
<th></th>
<th>Percent of Interdisciplinary Faculty, 2006</th>
<th>Average GRE Scores, 2004-2006</th>
<th>Total Faculty, 2006</th>
<th>Number of Allocated Faculty, 2006</th>
<th>Assistant Professors as a Percent of Total Faculty, 2006</th>
<th>Tenured Faculty as a Percent of Total Faculty, 2006</th>
<th>Number of Core and New Faculty, 2006</th>
<th>Number of Students Enrolled, Fall 2005</th>
<th>Average Annual First Year Enrollment, 2002-2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEB</td>
<td>27.5%</td>
<td>658</td>
<td>40</td>
<td>29.03</td>
<td>13.0%</td>
<td>78.0%</td>
<td>29</td>
<td>46</td>
<td>8.67</td>
</tr>
<tr>
<td>PNB</td>
<td>52.9%</td>
<td>731</td>
<td>34</td>
<td>14.49</td>
<td>12.0%</td>
<td>82.0%</td>
<td>16</td>
<td>31</td>
<td>6.33</td>
</tr>
<tr>
<td>Microbiology</td>
<td>33.3%</td>
<td>709</td>
<td>18</td>
<td>6.54</td>
<td>11.0%</td>
<td>78.0%</td>
<td>12</td>
<td>18</td>
<td>3.33</td>
</tr>
<tr>
<td>Genetics</td>
<td>45.2%</td>
<td>649</td>
<td>31</td>
<td>8.52</td>
<td>16.0%</td>
<td>81.0%</td>
<td>17</td>
<td>33</td>
<td>6.67</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>45.2%</td>
<td>590</td>
<td>42</td>
<td>9.56</td>
<td>17.0%</td>
<td>76.0%</td>
<td>23</td>
<td>28</td>
<td>8.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>% of Students with RA (Fall 2005)</th>
<th>% of Students with TAs, Fall 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEB</td>
<td>22.5%</td>
<td>40.0%</td>
</tr>
<tr>
<td>PNB</td>
<td>50.0%</td>
<td>42.9%</td>
</tr>
<tr>
<td>Microbiology</td>
<td>27.8%</td>
<td>55.6%</td>
</tr>
<tr>
<td>Genetics</td>
<td>12.9%</td>
<td>74.2%</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>12.5%</td>
<td>70.8%</td>
</tr>
</tbody>
</table>
Appendix C1: EEB course enrollment 2005-2012

C1a: Enrollment in Introductory biology and upper division courses taught within the biological sciences by EEB, MCB and PNB

<table>
<thead>
<tr>
<th></th>
<th>04-05</th>
<th>05-06</th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCB</td>
<td>96</td>
<td>95</td>
<td>95</td>
<td>76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>362</td>
</tr>
<tr>
<td>MCB/PNB</td>
<td>1103</td>
<td>1107</td>
<td>1146</td>
<td>1174</td>
<td>1295</td>
<td>1196</td>
<td>1218</td>
<td>1284</td>
<td>9,523</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1201</strong></td>
<td><strong>1202</strong></td>
<td><strong>2141</strong></td>
<td><strong>1250</strong></td>
<td><strong>1295</strong></td>
<td><strong>1196</strong></td>
<td><strong>1218</strong></td>
<td><strong>1284</strong></td>
<td><strong>9,885</strong></td>
</tr>
<tr>
<td>EEB</td>
<td>975</td>
<td>1016</td>
<td>1035</td>
<td>1002</td>
<td>863</td>
<td>851</td>
<td>863</td>
<td>867</td>
<td>7,472</td>
</tr>
<tr>
<td>EEB</td>
<td>446</td>
<td>445</td>
<td>486</td>
<td>517</td>
<td>553</td>
<td>582</td>
<td>576</td>
<td>637</td>
<td>4,242</td>
</tr>
<tr>
<td>EEB</td>
<td>51</td>
<td>58</td>
<td>36</td>
<td>53</td>
<td>54</td>
<td>61</td>
<td>56</td>
<td>59</td>
<td>428</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1472</strong></td>
<td><strong>1519</strong></td>
<td><strong>1557</strong></td>
<td><strong>1572</strong></td>
<td><strong>1470</strong></td>
<td><strong>1494</strong></td>
<td><strong>1495</strong></td>
<td><strong>1563</strong></td>
<td><strong>12,142</strong></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>2671</strong></td>
<td><strong>2721</strong></td>
<td><strong>2798</strong></td>
<td><strong>2822</strong></td>
<td><strong>2765</strong></td>
<td><strong>2690</strong></td>
<td><strong>2713</strong></td>
<td><strong>2847</strong></td>
<td><strong>22,027</strong></td>
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Upper division courses

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<tr>
<th></th>
<th>04-05</th>
<th>05-06</th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEB</td>
<td>646</td>
<td>671</td>
<td>702</td>
<td>918</td>
<td>944</td>
<td>1117</td>
<td>1098</td>
<td>1296</td>
<td>7,392</td>
</tr>
<tr>
<td>PNB</td>
<td>1303</td>
<td>1496</td>
<td>1458</td>
<td>961</td>
<td>1980</td>
<td>2232</td>
<td>2333</td>
<td>2651</td>
<td>15,414</td>
</tr>
<tr>
<td>MCB</td>
<td>2558</td>
<td>2692</td>
<td>2971</td>
<td>3093</td>
<td>3035</td>
<td>3285</td>
<td>3206</td>
<td>3515</td>
<td>24,355</td>
</tr>
<tr>
<td><strong>Total # of students taught by EEB</strong></td>
<td><strong>2116</strong></td>
<td><strong>2210</strong></td>
<td><strong>2311</strong></td>
<td><strong>2578</strong></td>
<td><strong>2484</strong></td>
<td><strong>2656</strong></td>
<td><strong>2655</strong></td>
<td><strong>2890</strong></td>
<td><strong>19,959</strong></td>
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</table>

C1b: Enrollment in EEB graduate courses

<table>
<thead>
<tr>
<th></th>
<th>04-05</th>
<th>05-06</th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>212</td>
<td>241</td>
<td>272</td>
<td>255</td>
<td>246</td>
<td>196</td>
<td>321</td>
<td>204</td>
<td>1,947</td>
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</table>
Appendix C10: W enrollments of 3 biology departments 2005-2012 (total # W students: 3,029)

<table>
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<tr>
<th></th>
<th>EEB</th>
<th>PNB</th>
<th>MCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004 F (incl 10 reg)</td>
<td>92</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td>2005 S</td>
<td>108</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>2005 F</td>
<td>104</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>2006 S</td>
<td>82</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>2006 F (incl 9 reg)</td>
<td>114</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>2007 S</td>
<td>86</td>
<td>4</td>
<td>86</td>
</tr>
<tr>
<td>2007 F</td>
<td>112</td>
<td>27</td>
<td>41</td>
</tr>
<tr>
<td>2008 S</td>
<td>95</td>
<td>6</td>
<td>53</td>
</tr>
<tr>
<td>2008 F (incl 6 reg)</td>
<td>130</td>
<td>30</td>
<td>69</td>
</tr>
<tr>
<td>2009 S</td>
<td>102</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>2009 F</td>
<td>96</td>
<td>21</td>
<td>79</td>
</tr>
<tr>
<td>2010 S</td>
<td>89</td>
<td>12</td>
<td>118</td>
</tr>
<tr>
<td>2010 F</td>
<td>131</td>
<td>32</td>
<td>62</td>
</tr>
<tr>
<td>2011 S (+Biol 3520W)</td>
<td>76</td>
<td>4</td>
<td>146</td>
</tr>
<tr>
<td>2011 F</td>
<td>94</td>
<td>34</td>
<td>79</td>
</tr>
<tr>
<td>2012 S (+Biol 3520W)</td>
<td>142</td>
<td>16</td>
<td>131</td>
</tr>
<tr>
<td>Total</td>
<td>1,653</td>
<td>275</td>
<td>1,101</td>
</tr>
<tr>
<td>Percentage of total</td>
<td>54.6</td>
<td>9.1</td>
<td>36.3</td>
</tr>
</tbody>
</table>

Distribution of W student teaching among 3 biology departments.
Appendix C11: Advising loads in EEB in Fall (F/Fa) and Spring (S/Sp) semester 2005-2012. (Under. Coor.: Undergraduate coordinator; Ret. Fac.: Retired Faculty; Reg. Camp.: Regional Campus)

<table>
<thead>
<tr>
<th>Advisor Type</th>
<th>F 04</th>
<th>S 05</th>
<th>F 06</th>
<th>S 06</th>
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<th>S 07</th>
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* A retired EEB faculty member advised half of the Biology, EEB, and MCB freshmen between Spring 2005 and Spring 2011. In Fall 2011, a professional staff member was hired to advise these freshmen.
** Honors advising is handled by faculty members.
*** EEB faculty members at the regional campuses advise students in the biologies at their campuses.

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## Appendix C12 (continued)

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| Overall mean | 8.93 | 8.95 | 8.72 |
Appendix C2: Enrollment at the Regional campuses in courses taught by EEB faculty 2005-2012 (total number of student taught: 4277; Biology courses labeled “B”, EEB course labeled “E”; Campus: A=Avery Point, H=Hartford, T=Torrington, S=Stamford, W=Waterbury; Semesters: F=Fall, S=Spring; s= summer).

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|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Torrington |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 0    |
| B1102   | 12   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 47   |
| B1108   | 11   | 17   |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 91   |
| Stamford |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 536  |
| B1102   | 47   | 21   | 14   | 42   | 24   | 12   | 22   | 26   | 14   | 23   | 20   | 15   | 23   | 24   | 21   | 22   | 22   | 24   | 22   | 20   | 23   | 17   | 536  |
| B1110   | 5    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 7    |
| B1108   |      | 14   | 28   | 21   | 29   | 29   | 36   | 29   | 36   | 44   | 37   | 238  |      |      |      |      |      |      |      |      |      |      |      | 238  |
| E2214   |      | 9    | 10   | 6    | 6    | 16   | 11   | 12   | 12   | 17   | 17   |      |      |      |      |      |      |      |      |      |      |      | 17   |
| E2244   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 12   |
| E244W   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 15   |
Appendix C3: Curriculum for an EEB major (and minor – see end)

Students majoring in Ecology and Evolutionary Biology may opt for either a Bachelor of Arts degree or Bachelor of Science degree. Both BA and BS degree candidates must complete the following courses in addition to the general CLAS requirements for these degrees:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>Biol. 1107 and Biol. 1108 or 1110</td>
<td>8 cr. total</td>
</tr>
<tr>
<td>Chem. 1127Q/1128Q or 1124Q/1125Q/1126Q</td>
<td>8-10 cr. total</td>
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</table>

**REQUIREMENTS FOR THE EEB MAJOR (BS OR BA)**
At least 24 credits of EEB courses at the 2000-level or higher, which includes courses in I-IV below. It is recommended that students take at least four EEB courses that require extensive laboratory or field work. Students are encouraged to complete a course in statistics.

I. Both of the following core courses:
   - EEB 2244/W General Ecology 4 cr.
   - EEB 2245/W Evolutionary Biology 3-4 cr.

II. At least one of the following animal diversity courses:
   - EEB 2214 Biology of the Vertebrates 3 cr.
   - EEB 3254 Mammalogy 4 cr.
   - EEB 3265 Herpetology 4 cr.
   - EEB 3273 Comparative Vertebrate Anatomy 4 cr.
   - EEB 4200 Biology of Fishes 4 cr.
   - EEB 4250 General Entomology 4 cr.
   - EEB 4252 Field Entomology 3 cr.
   - EEB 4260 & 4261 Ornithology & Ornithology Lab 4 cr.
   - EEB 4274 Introduction to Parasitology 4 cr.
   - EEB 4275 Invertebrate Zoology 4 cr.

III. At least one of the following plant diversity courses:
   - EEB 3203 Developmental Plant Morphology 4 cr.
   - EEB 3204 Aquatic Plant Biology 4 cr.
   - EEB 3220/W Evolution of Green Plants 3-4 cr.
   - EEB 3240 Biology of Bryophytes and Lichens 4 cr.
   - EEB 3250 Biology of the Algae 4 cr.
   - EEB 3271 Plant Systematics 4 cr.
   - EEB 4272 The Summer Flora 3 cr.

IV. A course in physiology
   - EEB 4215 Physiological Ecology 3 cr.
   (students who take PNB 2250 as a related course are not required to take EEB 4215)

**RELATED COURSE REQUIREMENTS:**
At least 12 credits of 2000 level science courses outside EEB, which must include either MCB 2410 (Human Genetics) or 2413 (Concepts of Genetic Analysis). One semester of organic chemistry is recommended.
Appendix C3 (continued)

EEB COURSE OFFERINGS:
Below is a list of the undergraduate courses that can be applied to the major. Bold course numbers indicate laboratory and field courses. Courses offered in alternate years are indicated with an asterisk. Students should take this into consideration in preparing their plan of study. Ordinarily, students will fulfill this requirement primarily or exclusively with undergraduate courses. However, some graduate courses are open to undergraduates with the consent of the instructor (see 5000-level or higher below). Honors students are encouraged to take these courses under the graduate number.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>EEB 2208</td>
<td>Intro to Conservation Biology</td>
<td>3 cr.</td>
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<tr>
<td>EEB 2214</td>
<td>Biology of the Vertebrates</td>
<td>3 cr.</td>
</tr>
<tr>
<td>EEB 2244/W</td>
<td>General Ecology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>EEB 2245/W</td>
<td>Evolutionary Biology</td>
<td>3-4 cr.</td>
</tr>
<tr>
<td>EEB/Psych 3201</td>
<td>Animal Behavior</td>
<td>3 cr.</td>
</tr>
<tr>
<td>EEB 3203/5203*</td>
<td>Developmental Plant Morphology</td>
<td>4 cr.</td>
</tr>
<tr>
<td>EEB 3204/5204*</td>
<td>Aquatic Plant Biology</td>
<td>4 cr.</td>
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<tr>
<td>EEB 3205*</td>
<td>Current Issues in Environmental Sci</td>
<td>3 cr.</td>
</tr>
<tr>
<td>EEB 3220/W/5220</td>
<td>Evolution of Green Plants</td>
<td>3 cr.</td>
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<td>EEB 3221/5221*</td>
<td>Evolution of Green Plants Lab</td>
<td>1 cr.</td>
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<td>EEB 3230</td>
<td>Marine Biology</td>
<td>3 cr.</td>
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<td>EEB 3240/5240*</td>
<td>Biology of Bryophytes and Lichens</td>
<td>4 cr.</td>
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<td>EEB 3247*</td>
<td>Limnology</td>
<td>4 cr.</td>
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<td>EEB 3250/5250*</td>
<td>Biology of the Algae</td>
<td>4 cr.</td>
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<tr>
<td>EEB 3254/5254*</td>
<td>Mammalogy</td>
<td>4 cr.</td>
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<td>EEB 3265/5265*</td>
<td>Herpetology</td>
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<td>EEB 3269/5269*</td>
<td>Social Insects</td>
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<td>EEB 3271/5271*</td>
<td>Systematic Botany</td>
<td>4 cr.</td>
</tr>
<tr>
<td>EEB 3273*</td>
<td>Comparative Vertebrate Anatomy</td>
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<td>EEB 3307/5307*</td>
<td>African Field Ecology</td>
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<td>EEB 3891</td>
<td>Internship in EEB</td>
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<td>EEB 3894</td>
<td>Undergraduate Seminar</td>
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<tr>
<td>EEB 3895</td>
<td>Special Topics</td>
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<td>EEB 3899</td>
<td>Independent Study</td>
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<tr>
<td>EEB 4200/5200*</td>
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<td>EEB 4215/5215*</td>
<td>Physiological Ecology</td>
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<td>EEB 4251/W*</td>
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<td>EEB 4260</td>
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<td>EEB 4261</td>
<td>Ornithology Laboratory</td>
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<td>EEB 4272</td>
<td>The Summer Flora</td>
<td>3 cr.</td>
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<tr>
<td>EEB 4274*</td>
<td>Introduction to Animal Parasitology</td>
<td>4 cr.</td>
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<tr>
<td>EEB 4275*</td>
<td>Invertebrate Zoology</td>
<td>4 cr.</td>
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<tr>
<td>EEB 4276/W*</td>
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<tr>
<td>EEB 4896W</td>
<td>Senior Thesis in EEB</td>
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Appendix C3 (continued)

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<td>EEB 5302*</td>
<td>Organisms and Ecosystems</td>
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<td>EEB 5310*</td>
<td>Conservation Biology</td>
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<td>EEB 5333*</td>
<td>Evolutionary Developmental Biology</td>
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<td>EEB 5335W*</td>
<td>Vertebrate Social Behavior</td>
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<td><strong>Prin. Methods of Systematic Biology</strong></td>
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<td>EEB 5348*</td>
<td>Population Genetics</td>
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<td>EEB 5349*</td>
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<td>EEB 5350*</td>
<td>Molecular Systematics</td>
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<td>Functional Ecology of Plants</td>
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<td>EEB 5369</td>
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<td>Current Topics Conservation Biology</td>
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<td>EEB 5375*</td>
<td>Evolution and Ecology Communities</td>
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<tr>
<td>EEB 5449*</td>
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</tr>
<tr>
<td>EEB 6480-6490</td>
<td>Various Graduate Seminars</td>
<td>1 cr.</td>
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</table>

**The EEB Minor:**

An alternative for some students is a minor in Ecology and Evolutionary Biology. Requirements are a minimum of 15 credits of 2000-level or higher EEB courses, including both General Ecology (EEB 2244 or 2244W) and Evolutionary Biology (EEB 2245 or 2245W).

“Completion of a minor requires that a student earn a C (2.0) grade or better in each of the required courses for that minor. Substitutions are not possible for required courses in a minor.” (Undergraduate Catalog)
### Appendix C4: Recent undergraduate course offerings per semester (Lab = Bold; Animal Diversity; Plant Diversity; Core Course).

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<tr>
<th>Fall Odd</th>
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<td><strong>3203 - Developmental Plant Morphology</strong></td>
<td><strong>2245/W - Evolutionary Biology</strong></td>
</tr>
<tr>
<td>3204 - Aquatic Plant Biology</td>
<td>3230 - Marine Biology</td>
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<tr>
<td>3205 - Current Issues in Environmental Science</td>
<td><strong>3250 - Biology of the Algae</strong></td>
</tr>
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<td><strong>3230 - Marine Biology</strong></td>
<td>3273 - Comparative Vertebrate Anatomy</td>
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<td>3247 - Limnology</td>
<td>4230W - Methods of Ecology</td>
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<td>3254 - Mammalalogy</td>
<td>4250 - General Entomology</td>
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<td>4230W - Methods of Ecology</td>
<td>4275 - Invertebrate Zoology</td>
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<tr>
<td>4250 - General Entomology</td>
<td><strong>4276/W - Plant Anatomy</strong></td>
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<tr>
<td><strong>4274 – Animal Parasitology</strong></td>
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<table>
<thead>
<tr>
<th>Spring Even</th>
<th>Spring Odd</th>
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<tbody>
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<td>2202 - Evolution &amp; Human Diversity</td>
<td>2202 - Evolution &amp; Human Diversity</td>
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<td>2208 - Intro Conservation Biology</td>
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<tr>
<td>2244/W - General Ecology</td>
<td>2244/W - General Ecology</td>
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<tr>
<td>2245/W - Evolutionary Biology</td>
<td>2245/W - Evolutionary Biology</td>
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<tr>
<td><strong>3220/3221 - Evolution Green Plants</strong></td>
<td><strong>3240 - Biology of Bryophytes and Lichens</strong></td>
</tr>
<tr>
<td>3269 - Social Insects</td>
<td>3265 - Herpetology</td>
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<td>3895 - Ethical Perspective in Biology</td>
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<td><strong>4120 - Paleobiology</strong></td>
<td>4200 - Biology of Fishes</td>
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<td>4215 - Physiological Ecology of Animals</td>
<td>4260/4261 - Ornithology</td>
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</table>
### Appendix C5: Enrollment in EEB upper division undergraduate courses 2005-2012 (S= sabbatical; Lab courses are in bold).

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Total number of students enrolled in EEB upper division courses: 7,817
(F: female; M: male; E, ethnic; H: Honors thesis; nH: non honors thesis).

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<td>2</td>
<td>8 pres; 8 pub</td>
<td>6H</td>
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<td>2nH</td>
<td>1 Ph.D. program; 1 Botanist, Chicago Botanical Garden; 1 technician, DEP; 1 teaching high school; 1 Quality compliance specialist for poultry; 1 Ph.D. program in Physical Therapy</td>
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* Regional Campus, first two years of study only
Appendix C7. List of undergraduate awards (known to faculty) 2005-2012.

**EXTRAMURAL AWARDS AND HONORS:**

**Goldwater (2):** Colin Carlson (Schlichting), Burgio (Rubega)
** Udall Fellowship (1):** Colin Carlson (Schlichting)
**Truman Award (2):** Colin Carlson (Schlichting), Logan Senack (Holsinger)
**Fellowship to Law School (1):** Steve Ferketic (Silander)
**National Science Foundation Graduate Fellowships (4):** Kevin Burgio (Rubega), Graziella DiRenzo (Bush), Kathryn Gannon Fontaine 2005 (Simon), Martha Ellis 2005 (Elphick)
**Botanical Society of America Young Botanist Award (3):** Jessica Clopton (Goffinet); Nikisha Patel (Anderson-Holsinger)
**Society for Advancement of Chicano and Native Americans in Science (1):** Jeslyn Calderon-Ayala (Simon) First place poster award
**Division of Vertebrate Morphology, Soc. For Integrative and Comparative Biology (SICB) (1):** Leah H. Brown-Wilusz (Schwenk) Best student poster award
**Helminthological Society of Washington (1):** James Bernot (Caira) Best student paper award
**National Science Foundation REU Awards (37):** Caira (6), Chazdon (2), Jockusch (4), Goffinet (5), Lewis L. (1), Simon (17), Willig (1)
**NSF – LSAMP (1):** Leroy Robinson 2006 (Jockusch)
**NSF- IRES: Students offered International Research Experience in South Africa (13):** Katie Johnson, Chelsea Lane, Logan Senak, Walter Barozi, Bianca Lopez, Jonathan Glenn, Bronwen Tomb, Adam Pellegrini, Christina Natalie, Colin Carlson, Emily Scherbatskoy, Georgia Thomas, Jeffrey Ferketic, (Silander, Holsinger, Jones, Schlichting)

**INTRAMURAL AWARDS AND HONORS (since 2005):**

**University of Connecticut New England Scholar (1):** Michael Cordiero (Simon)
**Connecticut Presidential Scholar (1):** Nicole Piatt (L. Lewis)
**Nutmeg Scholar (2):** Kira Sullivan-Wiley (Rubega); Kaitlin Heenehan
**Frontiers for Undergraduate Research (1):** Kathryn Gannon Fontaine (Simon) Peer poster award
**UConn Achievement Scholarship (1):** Michael Cordiero (Simon)
**University Scholars Supervised (9):** Benjamin Plourde (Chazdon), Colin Carlson (Schlichting)
  James Moriarty (Elphick); Martha Ellis (Elphick), David Fryxell (Urban), Kira Sullivan-Wiley (Rubega); Kevin Burgio (Rubega), Kaitlin Heenehan (Caira), Steve Ferketic (Silander).
**Summer Undergrad Research Fellowship (University-wide competition) (9):** Georgia Thomas (Jones), Devin O’Brien (Jockusch); Taylor Ferguson (Jockusch), Jessica Clopton (Goffinet), Colleen Chambers (Simon), Anne O’Sullivan (Adams), Selena Humphries (Rubega/Elphick co-advised), KiraSullivan-Wiley (2 with Rubega), Kevin Burgio (Rubega)
**Northeast Alliance for Minority Participation Summer Research Program (3):** Jallah Rouse 2007; Avis Thompson 2008 (Jockusch), Jeslyn Calderon-Ayala 2007 (Simon)
**Office of Undergraduate Research Grants (6):** Summer Payne (Jones), Peter Meney (Henry), Jared Rada (L. Lewis), Katie Abbot (Willig), Kira Sullivan-Wiley (Rubega); Kevin Burgio (Rubega)
**Margaret F. Ertman award for Best Biology Student (1):** Meghan Twohig (Caira)
**Claire Berg award for best biology genetics honors thesis (1):** Megan Ribak (Simon)
**Katie Bu Memorial Award (1):** Kevin Burgio (Rubega)
**Outstanding EEB Senior (5):** Kerri Mocko (Jones), Kira Sullivan-Wiley (Rubega), April Rodd (Wagner), Graziella DiRenzo (Bush), Joseph Mega (Caira); Paul Gignac (Schwenk)
**Museum of Natural History Award (3):** Kevin Burgio (Rubega), Selena Humphries (Rubega/Elphick co-advised), Cassandra Daley (Wagner)
Appendix C8: Distribution of majors within biology 2005-2012.

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*Up until Spring 2009, EEB 2244/W was only offered in the fall semester. Due to enrollment pressures, the department began offering the class in both fall and spring semesters. In Spring 2013, we will offer 128 seats in EEB 2244 and 2244W combined.

**A small section of EEB 2245/W is offered every other fall to help with enrollment demands. Enrollment in both sections was dramatically increased in Spring 2012 to meet enrollment demands.

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<td>51</td>
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<td>51</td>
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<tr>
<td><strong>B.S./M.S. PROGRAM</strong></td>
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<tr>
<td>Active B.S./M.S.</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>7</td>
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<td>10</td>
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<tr>
<td>B.S./M.S. on TA</td>
<td>5</td>
<td>5</td>
<td>0.5</td>
<td>2</td>
<td>1</td>
<td>0.5</td>
<td>2.5</td>
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<td>1</td>
<td>4.5</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total grads (Ph.D. + M.S. + B.S./M.S.)</strong></td>
<td>50.5</td>
<td>51.5</td>
<td>51.5</td>
<td>51</td>
<td>58.5</td>
<td>54.2</td>
<td>52.5</td>
<td>49.5</td>
<td>56</td>
<td>51.5</td>
<td>57.5</td>
<td>56</td>
<td>58</td>
<td>56</td>
<td>57</td>
<td>54</td>
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<tr>
<td><strong>TOTAL TAs</strong></td>
<td>28.5</td>
<td>28.5</td>
<td>30</td>
<td>27.5</td>
<td>31</td>
<td>24.5</td>
<td>28</td>
<td>23</td>
<td>24</td>
<td>18</td>
<td>27.5</td>
<td>30.5</td>
<td>30</td>
<td>28.5</td>
<td>31</td>
<td>27.4</td>
</tr>
</tbody>
</table>
Appendix D2. Awards received by graduate students in EEB between 2005 and 2012.

Summary:
Extramural research awards: 25
Intramural awards: 55
Societal extramural awards: 64
Best student presentation awards: 17
Travel awards: 10

EXTRAMURAL AWARDS (25)
National Science Foundation Predoctoral fellowships (6):
2007 Susan Letcher
2008 Vanessa Boukili
2009 Alyssa Borowske
2010 Lily Lewis
2011 Kevin Burgio
2012 Jessica Rack

Doctoral Dissertation Improvement grants (total active: 15; *awarded after 2005: 10):
Hillary McManus (L. Lewis) 2004-2006: “Systematics, Colony Form Evolution and Phenotypic Plasticity within the Family Hydrodictyaceae (Sphaeropleales, Chlorophyta).” $10,516.
*Maxi Polihronakis (Henry) 2006-2008: “Understanding the Evolutionary Patterns Contributing to Species-Specific Male and Female Genitalia in a Group of Scarab Beetles.” $11,085.
*Juan Carlos Villarreal (Goffinet) 2009-2011: “Genetic consequences of the shift to asexuality in bryophytes: insights from the hornwort *Megaceros aenigmaticus*.” $9,594.
*Kellie Kuhn (Colwell) 2010-2012: “Spatio-Temporal Variation in an Ant-Plant Interaction” $14,990.
Appendix D2 (continued)

**East Asia and Pacific Summer Institute (2):**
2008. Jenica Allen, Jessica Budke

**EDEN research exchange grant (sponsored; 1):**
2011. Frank Smith

**National Center for Ecological Analysis and Synthesis (sponsored; 2).**
2010-2011. Jenica Allen—Invited Working Group Member
2011: Chris Owen: Next-gen Sequencing Bioinformatics Course

**Northeast Alliance for Graduate Education and the Professoriate Mentoring Fellowship (1).**
Klingbeil (2011)

**Fulbright Foundation (2).**
Research Fellowship: 2009. Amanda Wendt

**EPA Star Fellowship (1):** 2012. Heidi Golden


**Switzer Fellowship (1):** 2009. Kathryn Theiss

**AOU and Cooper Ornithological Society (1):** 2010: Alejandro Rico-Guevara

**Schwenk/Northeast alliance mentoring fellowship (1):** 2007. Roberta Engel.

**American Museum of Natural History, Theodore Roosevelt Memorial Award for Graduate Student Research (1):** 2005.

**INTRAMURAL AWARDS (56)**

**Outstanding Scholar Fellowships (7)**
2006 Suegene Noh
2007 Vanessa Boukili
2009 Alyssa Borowske
2010 James Mickley, Jessica Rack
2012 Michael Hutson, Cera Lawrence

**Outstanding Multicultural scholar Fellowship (2)**
2012 Dustin Ray, Diego Sustaita

**Multicultural Fellowships (4)**
2006 Maria Pickering
2007 Laura Cisneros.
2009 Andre Felton
2011 Holly Brown

**Schwenk Graduate mentor Fellowship-CLAS (2)**
Tobias Landberg (2008)
Roberta Engel (2008)

**Center for Environmental Sciences and Engineering:**

*Graduate Student Research Fellowships (16):*
Appendix D2 (continued)

**Multidisciplinary Environmental Research Award (8):**

**Center for Conservation and Biodiversity Grant (3)**
2008 Nic Tippery
2009 Laura Cisneros
2011 Elizabeth Timpe

**Center for Conservation and Biodiversity Silander Endowment (1)**
2011 Lily Lewis

**Doctoral dissertation award (11):**
2007 Jang Kim, Nic Tippery
2008 Suegene Noh
2010 Jessica Budke
2011 Vanessa Boukili, Cory Merow, Kathryn Theiss, Frank Smith
2012 Kelli Kuhn, Jenica Allen, Jon Velotta

**President summer research award (2):**
2010 Juan Carlos Villarreal
2011 Cory Merow

**SOCIETAL AWARDS (64)**
15. Cooper Ornithological Society Mewaldt-King Award: Trina Bayard (2007)
Appendix D2 (continued)

22. International Association of Plant Taxonomists: Juan Carlos Villarreal (2008)
33. Smithsonian Tropical Research Institute: Juan Carlos Villarreal (2008-co-Pi)
34. Society for Systematic Biology: Chris Owen (2009)
37. Society for Integrative and Comparative Biology Division of Vertebrate Morphology (D. Dwight Davis award): Diego Sustaita (2007)
38. Society for Systematic Biologists Graduate Student Research Award: Maxi Polihronakis (2005)
39. Society for the study of Evolution (Rosemary Grant Award): Frank Smith (2010)
40. Southern Appalachian Botanical Society: Juan Carlos Villarreal (2009)
42. Wilson Ornithological Society Paul A. Stewart Award: Trina Bayard (2008)

**BEST STUDENT PRESENTATION AWARDS AT NATIONAL CONFERENCES (18):**

1. American Association of Ichthyologists and Herpetologists (Stoye Award): Justin Davis (2010)
5. Botanical Society of America: Jessica Budke (Katherine Esau award: 2010), Hugo Martinez (best poster: 2008), Kerri Mocko (Best poster: 2009)
1. Entomological Society of America, annual meeting: President's Prize in Systematics, Evolution and Biodiversity: Suegene Noh (2008)
5. Society for Integrative and Comparative Biology, Division of Systematics and Evolutionary Biology: Maxi Polihronakis (2005)
Appendix D2 (continued)


TRAVEL AWARDS (10)

8. Society for the Study of Evolution International Travel Award: Beth Wade (2008 but declined)
Appendix D3: Graduate course offerings per semester (with lab = Bold).

EEB 5215 (see also EEB 4215)  Physiological Ecology of Animals  Fall
EEB 5369  Current Topics in Biodiversity  Fall
EEB 5894  Seminar - Introduction to Natural History Collections  Fall
EEB 6481  Seminar in Biodiversity  Fall
EEB 5203 (see also EEB 3203)  Developmental Plant Morphology  Alternate Falls
EEB 5204 (see also EEB 3204)  Aquatic Plant Biology  Alternate Falls
EEB 5250 (see also EEB 3250)  Biology of the Algae  Alternate Falls
EEB 5254 (see also EEB 3254)  Mammalogy  Alternate Falls
EEB 5333  Evolutionary Developmental Biology  Alternate Falls
EEB 5335W  Vertebrate Social Behavior  Alternate Falls
EEB 5347  Principles and Methods of Systematic Biology  Alternate Falls
EEB 5348  Population Genetics  Alternate Falls
EEB 5449  Evolution  Alternate Falls
EEB 5370  Current Topics in Conservation Biology  Spring
EEB 5200 (see also EEB 4200)  Biology of Fishes  Alternate Springs
EEB 5220 (see also EEB 3204)  Evolution of Green Plants  Alternate Springs
EEB 5221 (see also EEB 3221)  Evolution of Green Plants Laboratory  Alternate Springs
EEB 5240 (see also EEB 3240)  Biology of Bryophytes and Lichens  Alternate Springs
EEB 5265 (see also EEB 3265)  Herpetology  Alternate Springs
EEB 5271 (see also EEB 3271)  Systematic Botany  Alternate Springs
EEB 5301  Population and Community Ecology  Alternate Springs
EEB 5302  Organisms and Ecosystems  Alternate Springs
EEB 5307 (see also EEB 3307)  African Field Ecology and Renewable Resource Management  Alternate Springs
EEB 5349  Phylogenetics  Alternate Springs
EEB 5350  Molecular Systematics  Alternate Springs
EEB 5360  Functional Ecology of Plants  Alternate Springs
EEB 5372  Computer Methods in Molecular Evolution  Alternate Springs
EEB 5375  Evolution and Ecology of Communities  Alternate Springs
EEB 5452 (Required 2 week field trip in May)  Field Ecology  Alternate Springs
EEB 5895  Special Topics - Biogeography  Alternate Springs
EEB 5895  Special Topics - Paleobiology  Alternate Springs
EEB 5889  Research  Every Semester
EEB 5891  Graduate Internship in Ecology, Conservation or Evolutionary Biology  Every Semester
EEB 5899  Independent Study  Every Semester
EEB 6480  Seminar in Vertebrate Biology  Every Semester
EEB 6482  Seminar in Spatial Ecology  Every Semester
EEB 6483  Seminar in Marine Biology  Every Semester
EEB 6484  Seminar in Plant Ecology  Every Semester
EEB 6485  Seminar in Comparative Biology  Every Semester
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Frequency</th>
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<tbody>
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<td>EEB 6486</td>
<td>Seminar in Systematics</td>
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<td>EEB 5269</td>
<td>Social Insects</td>
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<tr>
<td>EEB 5371</td>
<td>Current Topics in Molecular Evolution and Systematics</td>
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</tr>
<tr>
<td>EEB 5445</td>
<td>Advanced Invertebrate Zoology</td>
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<tr>
<td>EEB 5447</td>
<td>Mathematical Ecology</td>
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<tr>
<td>EEB 5463</td>
<td>Plant Ecology</td>
<td>Variable</td>
</tr>
<tr>
<td>EEB 5477</td>
<td>Insect Phylogeny</td>
<td>Variable</td>
</tr>
<tr>
<td>EEB 5894</td>
<td>Seminar - Ferns and Friends</td>
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<td>EEB 5894</td>
<td>Seminar - Speciation</td>
<td>Variable</td>
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<tr>
<td>EEB 5894</td>
<td>Seminar - Bayesian Regression Analysis</td>
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<tr>
<td>EEB 5894</td>
<td>Seminar - Symbiosis</td>
<td>Variable</td>
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<tr>
<td>EEB 5894</td>
<td>Seminar - Statistical Methods</td>
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<td>EEB 5894</td>
<td>Seminar - Morphometrics</td>
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</tr>
<tr>
<td>EEB 5894</td>
<td>Seminar - Ecol Theory &amp; Struct Equat Modeling</td>
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</tr>
<tr>
<td>EEB 5894</td>
<td>Seminar - Entomology &amp; Invertebrate Conservation</td>
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<tr>
<td>EEB 5894</td>
<td>Seminar - Mass Extinction</td>
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<td>Seminar - Ethics &amp; Communication</td>
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<tr>
<td>EEB 5894</td>
<td>Seminar - Ecosystems &amp; Biogeochemistry</td>
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<td>EEB 5894</td>
<td>Seminar - Science Communication</td>
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<td>EEB 5894</td>
<td>Seminar - Assess Monit of Envir Services</td>
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<tr>
<td>EEB 5894</td>
<td>Seminar - Invasive Species Biology</td>
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<td>EEB 5894</td>
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<td>EEB 5894</td>
<td>Seminar - Ecology &amp; Conservation of Tidal Marshes</td>
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<tr>
<td>EEB 5894-1</td>
<td>Seminar - Speciation and Hybridization</td>
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<tr>
<td>EEB 5894-10</td>
<td>GIS Cyberinfrastructure</td>
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<td>EEB 5894-11</td>
<td>Climate Modeling</td>
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<tr>
<td>EEB 5894-12</td>
<td>Modeling Biodiversity Patterns and Ecological Processes</td>
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<tr>
<td>EEB 5894-13</td>
<td>Specimen-level Databases</td>
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<tr>
<td>EEB 5894-14</td>
<td>Developing Online Databases and Serving Biological Research Data</td>
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<tr>
<td>EEB 5894</td>
<td>Cyberinfrastructure</td>
<td>Variable</td>
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<td>EEB 5895</td>
<td>Special Topics - Behavioral Endocrinology</td>
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<tr>
<td>EEB 5895</td>
<td>Special Topics - Biology of Marine Algae</td>
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<td>EEB 5895</td>
<td>Special Topics - Biostatistics</td>
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<td>PhyloMath</td>
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<tr>
<td>EEB 5895</td>
<td>Special Topics - Protist Evolution and the Origin of Eukaryotes</td>
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<td>EEB 5895</td>
<td>Special Topics - Animal Models and Human Evolution</td>
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<td>EEB 5895</td>
<td>Special Topics - Law and Ecology</td>
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<td>EEB 5895</td>
<td>Special Topics - Applications of Next-generation Sequencing in Ecology &amp; Evolutionary Biology</td>
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<tr>
<td>EEB 5895-5</td>
<td>Special Topics - Ecology and Evolution of Ecosystem Services</td>
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<tr>
<td>EEB 6487</td>
<td>Seminar in Parasitology</td>
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<tr>
<td>EEB 6490</td>
<td>Seminar in Behavioral Ecology</td>
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Appendix D4. Mean Verbal and Quantitative GRE percentiles for enrolled graduate students 2007–2012

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<th></th>
<th>Mean number</th>
<th>Applicant %</th>
<th>Enrolled %</th>
<th>Current %</th>
<th>2006* %</th>
<th>2000** %</th>
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<td>Male</td>
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<td>41</td>
<td>44</td>
<td>40</td>
<td>44</td>
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<tr>
<td>Female</td>
<td>37</td>
<td>59</td>
<td>56</td>
<td>60</td>
<td>56</td>
<td>40</td>
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<td>Minority</td>
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<td>7</td>
<td>9</td>
<td>10</td>
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<tr>
<td>International</td>
<td>9</td>
<td>14</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>14</td>
</tr>
</tbody>
</table>

Offers made: 15 (23% of applicants)
Offers accepted: 9 (65% of offers and 15% of applicants)

* NRC figures; ** previous review
# Appendix D6: Placements of graduates 2005-2012

## Ph.D. students graduating 2005-2012

<table>
<thead>
<tr>
<th>Student</th>
<th>Advisor</th>
<th>Grad. year</th>
<th>Current title</th>
<th>Where placed</th>
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<tbody>
<tr>
<td>Lubertazzi, D.</td>
<td>Adams</td>
<td>2005</td>
<td>Postdoctoral Fellow</td>
<td>Museum of Comparative Zoology, Harvard University</td>
</tr>
<tr>
<td>Young, C. A.</td>
<td>Anderson</td>
<td>2005</td>
<td>Chief Executive Officer</td>
<td>Ministry of Energy, Science, Technology and Public Utilities, Government of Belize</td>
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<tr>
<td>Shannon, R. K.</td>
<td>Anderson</td>
<td>2005</td>
<td>Associate Professor</td>
<td>West Virginia Wesleyan College</td>
</tr>
<tr>
<td>Barber, K.</td>
<td>Caira</td>
<td>2005</td>
<td>Co-owner</td>
<td>Greengate Family Farm, Missouri</td>
</tr>
<tr>
<td>Hooker, B.</td>
<td>Cardon</td>
<td>2005</td>
<td></td>
<td>Department of Earth &amp; Environment, Mount Holyoke College</td>
</tr>
<tr>
<td>Richert, J.</td>
<td>Jockusch</td>
<td>2005</td>
<td>Herpetological Geneticist</td>
<td>U. S. Geological Survey, Western Ecological Research Center</td>
</tr>
<tr>
<td>Moody, M.</td>
<td>Les</td>
<td>2005</td>
<td>Assistant Professor</td>
<td>Department of Biological Sciences, University of Texas at El Paso</td>
</tr>
<tr>
<td>LaPlante, L.</td>
<td>Schultz</td>
<td>2005</td>
<td>Assistant Professor</td>
<td>Saint Anselm College, Department of Biology</td>
</tr>
<tr>
<td>Citron-Pousty, S.</td>
<td>Silander</td>
<td>2005</td>
<td>Software Developer</td>
<td>Redhat OpenShift, Mountain View, CA</td>
</tr>
<tr>
<td>Leicht, S.</td>
<td>Silander</td>
<td>2005</td>
<td>Adjunct Professor</td>
<td>University of Rhode Island</td>
</tr>
<tr>
<td>Martine, C.</td>
<td>Anderson</td>
<td>2006</td>
<td>Assistant Professor</td>
<td>Burpee Endowed Chair in Plant Genetics, Bucknell University</td>
</tr>
<tr>
<td>Healy, C.</td>
<td>Caira</td>
<td>2006</td>
<td>Curator of Invertebrates</td>
<td>Royal Ontario Museum, Toronto, Canada</td>
</tr>
<tr>
<td>Packauskas, R.</td>
<td>Schaefer</td>
<td>2006</td>
<td>Associate Professor</td>
<td>Department of Biology, Fort Hays State University</td>
</tr>
<tr>
<td>Engelmann, K.</td>
<td>Schlichting</td>
<td>2006</td>
<td>Assistant Professor</td>
<td>Department of Biology, University of Bridgeport</td>
</tr>
<tr>
<td>Herron, P.</td>
<td>Cardon</td>
<td>2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sezen, U.</td>
<td>Chazdon</td>
<td>2007</td>
<td>Postdoctoral Fellow</td>
<td>Botany Department, University of Georgia</td>
</tr>
<tr>
<td>Wickett, N.</td>
<td>Goffinet</td>
<td>2007</td>
<td>Conservation Scientist</td>
<td>Genomics and Bioinformatics, Chicago Botanic Garden; and Northwestern University</td>
</tr>
<tr>
<td>O’Donnell, B.</td>
<td>Jockusch</td>
<td>2007</td>
<td>Assistant Professor</td>
<td>Department of Biological Sciences, Plymouth State University</td>
</tr>
<tr>
<td>McManus, H.</td>
<td>Lewis,L.</td>
<td>2007</td>
<td>Assistant Professor</td>
<td>Department of Biological Sciences, LeMoyne College</td>
</tr>
<tr>
<td>Yanega, G.</td>
<td>Rubega</td>
<td>2007</td>
<td>Visiting Assistant Professor</td>
<td>Pacific University</td>
</tr>
<tr>
<td>Name</td>
<td>Affiliation</td>
<td>Role</td>
<td>Institution</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Filoramo, N.</td>
<td>Schwenk</td>
<td>Assistant Professor</td>
<td>Biology Department, Worcester State University</td>
<td></td>
</tr>
<tr>
<td>Nelson, M.</td>
<td>Wagner</td>
<td>Scientist</td>
<td>Natural Heritage and Endangered Species Program, Massachusetts Division of Fish &amp; Wildlife</td>
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</tr>
<tr>
<td>Plowes, N.</td>
<td>Adams</td>
<td>Postdoctor Fellow</td>
<td>School of Life Sciences, Arizona State University</td>
<td></td>
</tr>
<tr>
<td>Connolly, B.</td>
<td>Anderson</td>
<td>State Botanist</td>
<td>Massachusetts</td>
<td></td>
</tr>
<tr>
<td>Ross, N.</td>
<td>Anderson</td>
<td>Assistant Professor</td>
<td>Department of Biology, Drake University</td>
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<tr>
<td>Reyda, F.</td>
<td>Caira</td>
<td>Assistant Professor</td>
<td>Biological Field Station, SUNY Oneonta</td>
<td></td>
</tr>
<tr>
<td>Letcher, S.</td>
<td>Chazdon</td>
<td>Assistant Professor</td>
<td>Department of Environmental Studies, Purchase College</td>
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</tr>
<tr>
<td>Richmond, M.</td>
<td>Henry</td>
<td>Manager</td>
<td>UCSD Drosophila Stock Center, University of California, San Diego</td>
<td></td>
</tr>
<tr>
<td>Skogen, K.</td>
<td>Holsinger</td>
<td>Research Scientist</td>
<td>Chicago Botanic Garden</td>
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</tr>
<tr>
<td>Ridge, G.</td>
<td>Schaefer</td>
<td>Agricultural Scientist</td>
<td>Department of Entomology, Connecticut Agricultural Experiment Station</td>
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<tr>
<td>Wall, M.</td>
<td>Schaefer</td>
<td>Vice President of Research and Public Programs</td>
<td>Department of Entomology, San Diego Natural History Museum</td>
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<tr>
<td>Latimer, A.</td>
<td>Silander</td>
<td>Assistant Professor</td>
<td>Department of Plant Sciences, University of California, Davis</td>
<td></td>
</tr>
<tr>
<td>Rota, J.</td>
<td>Wagner</td>
<td>Postdoctor Fellow</td>
<td>Department of Entomology, Natural History Museum of Denmark</td>
<td></td>
</tr>
<tr>
<td>Arroyo, P.</td>
<td>Chazdon</td>
<td>Postdoctor Fellow</td>
<td>Geography Department, McGill University</td>
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<td>LaFleur, N.</td>
<td>Rubega</td>
<td>Lecturer</td>
<td>Kean University</td>
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<td>Smith, C.</td>
<td>Schwenk</td>
<td>Assistant Professor</td>
<td>Biology Department, Wofford College</td>
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<td>Rangel, T.</td>
<td>Colwell</td>
<td>Assistant Professor</td>
<td>Departamento de Ecologia, Universidade Federal de Goiás</td>
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<td>Bayard, T.</td>
<td>Elphick</td>
<td>Director for Conservation</td>
<td>Audubon Washington</td>
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<td>Noh, S.</td>
<td>Henry</td>
<td>Postdoctor Fellow</td>
<td>Division of Biology, Kansas State University</td>
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<td>Prunier, R.</td>
<td>Holsinger</td>
<td>Assistant Professor</td>
<td>Department of Biology and Environmental Sciences, Western Connecticut State University</td>
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<td>Martinez-Cabrera, H.</td>
<td>Jones</td>
<td>Postdoctor Fellow</td>
<td>Canada</td>
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<td>Tippery, N.</td>
<td>Les</td>
<td>Assistant Professor</td>
<td>Department of Biological Sciences, University of Wisconsin-Whitewater</td>
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<td>Letsch, M.</td>
<td>Lewis, L.</td>
<td>Visiting scientist</td>
<td>EEB, University of Connecticut</td>
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<td>Landberg, T.</td>
<td>Schwenk</td>
<td>Postdoctor Fellow</td>
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<td>Weiss, A.</td>
<td>Les</td>
<td>2005</td>
<td>Founder and President</td>
<td>Moonrise Media, Marta’s Vineyard</td>
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<tr>
<td>Hill, K. B.R.</td>
<td>Simon</td>
<td>2005</td>
<td>Researcher</td>
<td>Department of Ecology &amp; Evolutionary Biology, University of Connecticut</td>
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<tr>
<td>Hax, N.</td>
<td>Goffinet</td>
<td>2006</td>
<td>Researcher</td>
<td>Science Department, Lyme-Old Lyme High School</td>
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<td>Fried, H.</td>
<td>Schultz</td>
<td>2006</td>
<td>Science Teacher GIS and Land Resources Analyst</td>
<td>Center for Biodiversity and Conservation, Scenic Hudson</td>
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<td>Tabak, N.</td>
<td>Silander</td>
<td>2006</td>
<td>Researcher</td>
<td>Center for Biodiversity and Conservation, Scenic Hudson</td>
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<tr>
<td>Lambert, S.</td>
<td>Jones</td>
<td>2007</td>
<td>Researcher</td>
<td>Research Unit, Pennsylvania Cooperative Fish and Wildlife</td>
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8 Year Program Review – Ecology and Evolutionary Biology: Appendix D (Graduate program)

BS/MS students graduating 2005-2012

<table>
<thead>
<tr>
<th>Student</th>
<th>Advisor</th>
<th>Grad. year</th>
<th>Current title</th>
<th>Where placed</th>
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<tr>
<td>Boiteau, K.</td>
<td>Les</td>
<td>2005</td>
<td>Resident in Veterinary Anatomic Pathology</td>
<td>Veterinary Anatomic Pathology, University of Minnesota</td>
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<tr>
<td>Goupil, B.</td>
<td>Schultz</td>
<td>2005</td>
<td>Director of Operations</td>
<td>Sunlight Solar Energy</td>
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<tr>
<td>Britton, D.</td>
<td>Elphick</td>
<td>2006</td>
<td>Biology Teacher</td>
<td>Department of Pathobiology, University of Connecticut</td>
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<td>Rogers, K.</td>
<td>Rubega</td>
<td>2006</td>
<td></td>
<td>Sequoia and Kings Canyon N.P.</td>
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<td>Cann, C.</td>
<td>Schlichting</td>
<td>2006</td>
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<td>Bowerman, L.</td>
<td>Chazdon</td>
<td>2007</td>
<td>Middle School Math and Science Teacher</td>
<td>Hilton Head, SC</td>
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<td>Struble, S.</td>
<td>Schultz</td>
<td>2007</td>
<td>Biology Teacher</td>
<td>Department of Biology, Glastonbury High School</td>
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<td>Hamler, C.</td>
<td>Schwenk</td>
<td>2007</td>
<td></td>
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<td>Levasseur, K.</td>
<td>Silander</td>
<td>2007</td>
<td>Graduate Student</td>
<td>715 Sumter Street, University of South Carolina</td>
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<td>Fisk, K.</td>
<td>Wells</td>
<td>2007</td>
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<td>Achilli, J.</td>
<td>Schwenk</td>
<td>2008</td>
<td>Teacher</td>
<td>Yale University</td>
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<td>Steeves, T.</td>
<td>Rubega</td>
<td>2009</td>
<td>Lab and Project Manager</td>
<td>College of Veterinary Medicine, Purdue University</td>
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<td>Sanders, M.</td>
<td>Schultz</td>
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<td>Student</td>
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<td>Sulkowski, J.</td>
<td>Schwenk</td>
<td>2009</td>
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<td>Krauss, R.</td>
<td>Simon</td>
<td>2009</td>
<td>Field Validation Specialist</td>
<td>Department of Science, NEON Project</td>
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<td>Catanese, K.</td>
<td>Thorson</td>
<td>2009</td>
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<td>Barozi, W.</td>
<td>Chazdon</td>
<td>2010</td>
<td>Environmental Biologist</td>
<td>Enforcement Division, Bureau of Air Management, DEEP</td>
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<td>Grabowski, Z.</td>
<td>Chazdon</td>
<td>2010</td>
<td>Ph.D student</td>
<td>IGERT program, Portland State University</td>
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<td>Hovorka, S.</td>
<td>Rubega</td>
<td>2010</td>
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<td>Defrancesco, A.</td>
<td>Chazdon</td>
<td>2011</td>
<td>Farmer</td>
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<td>Tardiff, K.</td>
<td>Rubega</td>
<td>2011</td>
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<td>Barbieri, L.</td>
<td>Schultz</td>
<td>2011</td>
<td>Naturalist</td>
<td>Seaside Nature Center, Cape Henlopen State Park</td>
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<td>Jones, L.</td>
<td>Schwenk</td>
<td>2011</td>
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<td>Payne, S.</td>
<td>Jones</td>
<td>2012</td>
<td>Seasonal Resource Assistant</td>
<td>DEEP</td>
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<tr>
<td>Roehm, R.</td>
<td>Urban</td>
<td>2012</td>
<td>Environmental consultant</td>
<td>Houston, TX</td>
</tr>
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</table>
Appendix F1: Partial list of notable, recent and ongoing EEB outreach activities (exclusive of online outreach; see appendix F3&4)

1. Conservation

John Silander is involved in multiple grass-roots conservation efforts, including in Madagascar, South Africa and Chile. He pursues multi-level endeavors that focus on training, education, capacity building, and grassroots, community-based conservation (as well as research). These efforts are in collaboration with former students, e.g. J. Ratsirarson in the tropical wet forests and grasslands of Madagascar, with funding from the MacArthur Foundation, and with R. Rozzi in Cape Horn Region in Chile, working on sustained conservation initiatives conducted with the direct involvement of disenfranchised locals in conservation policy and management. With Rozzi, he has worked with the most southerly Native American groups in the world in developing a new (June 2005) UNESCO World Biosphere Reserve.

Bernard Goffinet is promoting (ecotourism) awareness about the hidden/inconspicuous biodiversity in Patagonia through books, lectures and training. Examples include:


2. K-12 education, stem learning activities
Outside of K-12 Schools:

Donald Les & Robert Capers, Herbarium: The George Safford Torrey Herbarium has worked with Connecticut science teachers to develop lesson plans so the state's high school students can use the herbarium’s plant database in their biology lab exercises (http://bgbaseserver.eeb.uconn.edu/database.html) in concert with their NSF-funded herbarium database project. (See: http://bgbaseserver.eeb.uconn.edu/Teacher_website/index1.html)

One of the lesson plans allows students to see how invasive species have increased in abundance over time and how they have spread in space. Another leads students through the process of analyzing whether plants are flowering earlier than they did in the past because of climate change. Still another asks students to use the database to determine if some species have become more rare and then to test ideas about why that has occurred. The exercises all draw on the 140,000-specimen database of plant specimens that the herbarium maintains and continues to expand. For details, see: Capers, R. S. and D. H. Les. 2010. Website promotes plant data as a novel educational resource. Connecticut Journal of Science Education 47(2): 35–38.

Robert Capers, Herbarium: Collaborated with the New York City Urban Barcode Project by providing plant material for analysis by high school students in New York.
Appendix F1 (continued)

Jane O'Donnell, Invertebrate Collections Manager: Is mentoring a female Hispanic high school student, who began interning in the Invertebrate Collections under Dr. O'Donnell as a middle schooler.


Charles Henry & Marta Wells: Mentored John Foster, then a senior at Glastonbury High School, in an independent study project entitled "Evolutionary song convergence in intercontinental lacewing species." Student worked 3-6 hours per week in the Henry lab, eventually producing a poster that he entered into the Connecticut Science Fair (Spring, 2011), for which he received honorable mention. He also presented the results of his project in front of an audience at his high school in the late Spring of 2011. John is now attending UConn at the Storrs campus and majoring in Engineering.

Cindy Jones: Developed summer science camp program for K-12 students. As part of UConn's Kids Are Scientist Too (KAST) program, the Amazing Biodiversity and Botany from Basic to Bizarre units gave students entering grades 5th through 10th an opportunity to explore areas of science in a hands-on and "learning by doing" environment at a university setting.

Kurt Schwenk: Developed a comparative anatomy teaching module with local 4th grade teachers to meet State curriculum demands. Students visited the comparative anatomy teaching lab every year for experience-based learning about anatomy and complex topics, such as the evolutionary 'homology' concept (e.g., what is meant by the 'same' bone in different animals). Schwenk also works with an advanced science teacher at Glastonbury H.S. to teach students about the nature and pursuit of original research, the primary literature, etc., and is helping the class to establish a digital particle image velocimetry (DPIV) system for demonstrations and student projects.

Presentations at K-12 Schools (partial list; many* are repeated annually):

- Annie Vinton Elementary School; all 3rd Grade Classes*
- Mansfield Middle School Career Day
- Cathedral School, Greensboro, NC; 6th grade
- East Hampton High School
- Lebanon Middle School
- Tolland Middle School Career Day*
- Birch Grove Primary School (Tolland)
- Glastonbury High School*
- Windham Clinical Day Treatment Program*

3. Minority recruitment activities

Elizabeth Jockusch’s support of undergraduate research by underrepresented minorities has included numerous undergraduate researchers in her lab, including 5 African Americans, 1 Latino (1
Appendix F1 (continued)

through LSAMP + NSF REU, 2 through Northeast Alliance to Enhance Minority Participation, 4 of 6 also or instead did independent study).

John Silander has secured funds from NSF RET and RAHSS (minorities) programs to integrate undergraduates from underrepresented groups into his conservation research and training in South Africa. (since 1990).

Michael Willig participated in UConn’s Northeast Alliance for Graduate Education & the Professoriate (NEAGEP) Program, as a mentor to Jacqueline McComb on a research project entitled “A Comparison of Forest-Edge and Forest-Interior Bird Species Using Automated Acoustic Monitoring”. This program is specifically directed toward transitioning students from historically underrepresented groups into doctoral programs in science and engineering.

Eric Schultz: *Member of The John and Valerie Rowe Health Professions Scholars Program Steering Committee. This group advises The Rowe Scholars Program, an endowment-funded program designed to provide opportunities for Connecticut residents from underrepresented and/or economically disadvantaged backgrounds who desire to pursue a career in the health professions.
*Member, STRONG-CT Steering Committee. Although not 'named personnel' on the five-year NSF grant that gave rise to the STRONG-CT program in STEM education for underserved minorities, Schultz assisted in proposal preparation, suggested the program’s name, and met with principal and co-principal investigators to review the program’s progress. He regularly participated in events for STRONG-CT students. 2005-2011.

4. Greenhouse activities

Because the EEB Greenhouse Facility is used in teaching and research, and centrally located at the north end of campus, public outreach is a key component of its daily operations; we list it separately here to highlight the extent and breadth of outreach activities associated with the greenhouse. Formal tours are the most visible form of outreach with 728 tours provided to nearly 12,500 visitors over the past 8 years. Drop-in guests are common most days in the facility although no formal record is kept of visitors. Greenhouse staff present talks & demonstrations to groups outside of the greenhouse both on their own time and during the regular work-day when schedules permit. All three professional staff members play an active role in outreach. Ms. Dana Ozimek has taken a lead role in reinventing the outdoor garden spaces to create a welcoming invitation drawing casual visitors in to explore the greenhouse collections. She was also featured in a recent UConn promotional video that was aired on national television and included brief glimpses into the greenhouse. Manager Clinton Morse was featured in a 2007 episode of CPTV’s Positively Connecticut program and he was awarded the Provost's Award for Excellence in Outreach and Public Engagement later that year. Mr. Morse promotes the public aspect of the greenhouse facilities via television, radio and print outlets whenever the opportunity arises. All three staffers provide regular social media content through our Facebook page and via our extensive public website.

Due to the exceptional scope and quality of the EEB living collections, our facility is a recognized source of hard to find plant material to other institutions around the country. 896 specimens have been sent to 273 different recipients during this period.
Appendix F1 (continued)

5. Exhibits, art and conferences

Kent Wells: created the exhibit ‘Charles Darwin—The Legacy of a Naturalist’, at the Dodd Library. The exhibit ran from Feb-May 2009, in celebration of the 200th anniversary of the birth of Darwin in Feb. 1809. The exhibit included rare books by Darwin and some of his associates, specimens such as mounted fancy pigeons to illustrate his work on domesticated animals, barnacles to illustrate his work on barnacle systematics, etc. It also included graphic material, including newspaper cartoons about Darwin, and postage stamps from around the world with Darwin's image or some of the animals and plants he worked on, such as Darwin's finches in the Galapagos Islands.

6. Recent press coverage of EEB research

Charlie Yarish was featured on National Public Radio’s Morning Edition (http://www.npr.org/blogs/thesalt/2012/10/12/162728509/kelp-for-farmers-seaweed-becomes-a-new-crop-in-america) for his research and work promoting seaweed farming.

Michael Willig was interviewed by local radio host Wayne Norman about climate impacts, mitigation, and adaptation for WILI-AM (Spring 2012).

Ph.D. student Alejandro Rico-Guevara’s May 2011 PNAS publication (with Rubega) was covered by the New York Times, Nature and Science, and featured on over 300 web pages, in 19 languages, in over 70 countries. A single one of these, a feature story on the Wired.com site, received more than 44,000 unique page views within the first 3 days after publication, with an average time on page of four and a half minutes, 122% higher than the average TOP for a page on Wired Science. The UConn YouTube channel posting on this study also received 80,000 hits.

Margaret Rubega was featured on NPR’s Science Friday, (http://www.sciencefriday.com/segment/05/27/2011/examining-the-hummingbird-tongue.html) about hummingbird feeding mechanics. In the last 5 years, she has also been interviewed about her research on NPR’s Living on Earth, Field Notes (local NPR affiliate WFCR) 3 times, local radio (WILI) and the Canadian Broadcasting Service’s science program, Quirks and Quarks.

Chris Elphick starred in an episode of a children’s TV show AquaKids, focused on his tidal marsh bird research, in May 2011.

Chris Simon was interviewed for two 20 min. stories that explored the biology of NZ cicadas and aired on the weekly science program, “Our Changing World” on Radio NZ, 18th and 25th March 2010.

Robin Chazdon presented at the Symposium on the Tropical Extinction Crisis at the Smithsonian in January 2009; afterward her talk was covered in in Nature News, Discover News, and Mongabay and was featured in over a dozen blogs.

Louise Lewis was interviewed for a feature story on algae, “Ode to Pond Scum,” by Laurie Sanders for the program Field Notes, WFCR Public Radio Station (88.5 FM) (2005).
Appendix F1 (continued)

Bernard Goffinet was interviewed by Susan Milius for Science News for his collaborative work on the dung mosses (Nov. 2011).

Kurt Schwenk published a paper on how horned lizards incapacitate venomous ants with mucus that engendered press reports in ScienceNow (online), Natural History Magazine, the Journal of Experimental Biology and a lengthy press report on the ‘Daily Planet, a popular Discovery Channel (Canada) television show; Another Daily Planet segment (‘Slo-Mo Tuesdays’) featured more of his research. Schwenk was interviewed by the NY Times about a recent finding suggesting that Komodo dragons are venomous (http://www.nytimes.com/2009/05/19/science/19komo.html); his comments were picked up by dozens of science blogs. He was also interviewed for the in-house blog, ‘UConn Today’ (http://today.uconn.edu/blog/2011/04/snakes-lizards-and-tongues/)

7. Citizen science activities: involving the public in research

David Wagner * Directed 2005 (East Hartford), 2007 (Middletown), and 2009 (East Hartford), Connecticut State BioBlitzes, which served several hundred citizens each year, many of which represented underrepresented groups. (Connecticut’s BioBlitzes have always targeted urban populations.) Because at the CT-BioBlitz was the largest in the nation through 2009, it enjoyed attendance from across the region, and widespread radio and newspaper coverage. All BioBlitzes included organized (and funded) commitment to science and environmental education, especially to the host school.

John Silander’s USDA grants on Invasive Plant Species were aimed at developing an interactive web-site that focuses on education and public outreach: http://www.IPANE.org/ which averages over 2000 hits/day. As part of this project they train 900+ volunteers in Invasive Species inventory methodology and mapping. They have also developed geo-referenced, relational databases and interactive GIS web mapping that is being used by many state and national GOs and NGOs. 2001-Present

Jane O'Donnell’s Connecticut Butterfly Atlas Project (published in 2007) involved thousands of hours of data collection (voucher specimens and photographs) by volunteers of all ages to document the presence and distribution of the state’s butterflies.


Andrew Bush assisted Eagle Scouts at Powder Hill Dinosaur Park, Middlefield, CT, by reviewing Exhibit Content for accuracy (2009)

Carl Schlichting has included 4 lay volunteers on his South African research trips over the last 5 years.

David Wagner worked with lay volunteers on EarthWatch expeditions to Southwest Research Biological Station during research on “Climate Change and Caterpillars,” 2009-2012.
Appendix F1 (continued)

Eldridge Adams has conducted a state-wide search for the invasive ant *Myrmica rubra* in Massachusetts, including an e-mail campaign to parks, wildlife preserves, and related organizations. This work includes collecting and identifying stinging ants reported by the public, and reports to MassAudubon and Massachusetts State Parks about the distribution of this ant on their properties.

8. Writing for the public

David Wagner * Authored *Caterpillars of Eastern North America: A Guide to Identification and Natural History* (Princeton University Press), which has gone into a new printing each year since its publication, sold more than 28,000 copies, won a national book award. It is used in classrooms and environmental education centers, by small armies of naturalists, and has found much use in the tropics and elsewhere.

Schwenk, K. 2006. Evolution illustrated. Letter to the Editor, Hartford Courant [uses recently published newspaper article on antibiotic resistance to illustrate the reality and significance of evolution in everyday life].

Turchin P. 2006. War and Peace and War: The Life Cycles of Imperial Nations. Pi Press. See it at Amazon.com


9. Advisory boards/committees

John Silander: Vice-Chair of the Board of Trustees, Connecticut Chapter of The Nature Conservancy, 2002-2009.

Jane O’Donnell; Taxonomic Advisory Committee for Invertebrates, CT DEEP Endangered Species Program.

David Wagner: * Board Member for Connecticut State Museum of Natural History, 1988-present.  
*Vice President and Board Member, Discover Life in America, steering entity for the “All Taxa Biological Inventory,” of the Great Smoky Mtns. National Park (Board Member: 2001-2007; Vice-president: 2003-2007).

Margaret Rubega: *CT State Ornithologist: since 1998, providing information and technical advice to state government (e.g., Office of the Chair of the State Senate’s Environment Committee; Dept. of Environmental Protection), NGOs (e.g., Connecticut and National Audubon, The Nature Conservancy, Connecticut Ornithological Association), birding organizations (e.g., Hartford and New Haven bird clubs) the media (e.g., migratory bird report on NPR station at: [http://www.wfcr.org/fieldnotes.html](http://www.wfcr.org/fieldnotes.html)), and the public (including 3 - 5 programs yearly for elementary/middle school children). Serves, in this capacity, on the Technical Review
Appendix F1 (continued)

Committee, National Audubon Society Important Bird Areas Program for Connecticut; the Connecticut Grassland Conservation Working Group; and the Connecticut Department of Energy and Environmental Protection Endangered Species Advisory Committee for Avian Species.

*Board of Trustees, Robert and Patricia Switzer Foundation, which provides fellowships and professional development support to environmental problem-solvers. 2006 – present.

Eric Schultz: *Environmental Policy Advisory Council. Founding member of a large faculty and staff committee that met multiple times a semester to advise the Director of Environmental Policy, launching and coordinating University environmental policy programs. Membership on the EPAC included a seat on the Environmental Outreach Subcommittee/Environmental Literacy Workgroup, which was devoted to environmentally-oriented educational programs. 2001-2010.

*American Society of Ichthyologists and Herpetologists Board of Governors. "[Has] ultimate authority, fiscal and policy; responsible for conduct of all society business except those functions explicitly delegated to [named officers and committees]." 2005-2008.


*Member, planning commission for higher education
*Member, AIBS ad hoc panel on ‘Taxonomy Services’.

Peter Turchin is a founding member and Vice President of the Evolution Institute, whose main goal is to connect the world of evolutionary science to the world of public policy formulation: http://evolution-institute.org/


Elizabeth Jockusch provides input to state (California) and Federal (USFWS) bodies on the conservation status of amphibians.

Robin Chazdon: *Serves on the founding board of a binational foundation (Costa Rica-USA Foundation) that funds sustainable development projects in Costa Rica, attending meetings twice a year in Costa Rica.

*As part of Pablo Arroyo Mora's Doctoral Dissertation Improvement grant, in 2008 organized a workshop at La Selva Biological Station to promote use of forest management plan data to tree biodiversity in tropical forests. The workshop involving government agencies and professional forestry organizations in Costa Rica as well as NGOs involved in forest management and conservation.
Appendix F1 (continued)

*Kurt Schwenk* serves as a member of the CT State Endangered Species Scientific Advisory Committee, Amphibians and Reptiles (CT DEEP)

*Kentwood Wells* serves as a member of the CT State Endangered Species Scientific Advisory Committee, Amphibians and Reptiles (CT DEEP)

10. Presentations, lectures to public groups

*Michael Willig and Greg Anderson* developed *Climate Impacts, Mitigation, and Adaptation (CIMA)* and were leaders in a University-wide initiative to heighten the awareness of students, faculty members, staff members, and the general public of the consequences of climate change to coupled human and natural systems (Spring 2012). The program developed by the CIMA Organizing Committee included a week of activities including:

- Signing by UConn President Herbst of the “University’s Sustainability Commitment”;
- Presentation by the Commissioner of the Department of Energy & Environmental Health (Dan Esty) on Connecticut’s commitment to sustainability in light of climate change;
- Presentation by National Academy Member and Professor of EEB (Gene Likens) on the role of the university community in affecting sustainable practices;
- Presentations by renowned journalist, Mark Hertsgaard on “How ‘Generation Hot’ Can Fight Climate Change … and Win” and “Inspiring Our Communities To Fight Global Warming”;
- Hosting of a “Climate Impact Expo: Actions for Cool Communities” for students and staff;
- Hosting of a Workshop on science, agriculture, and industry from the perspective of “Sustainability: What UConn Students Should Know”;
- Mini-symposium of research finding by UConn students and faculty members concerning climate change;
- Hosting an Interactive Town Discussion on “Local and Regional Climate Adaptation Strategies”
- Presentation by University Provost Nicolls on “UConn’s Academic Plan and the Environment”;
- Presentation by internationally renowned climate scientist, Michael Mann, entitled “The Hockey Stick: on the Front Lines in the Climate Wars”.

*Kurt Schwenk* gave invited public lectures for the CT State Museum of Natural History (The vertebrate skull) and the Mansfield, CT, Center for Learning in Retirement (‘Amphibians and Reptiles of Mansfield’ and ‘Aristotle’s ghost—diversity and vertical thinking’)

Tours (including Greenhouses, Collections, and Labs)

- Alumni & Family Weekend Tours
- Local K-12 school groups
- Statewide Early College Experience high school biology
- Homeschool groups
- CT Junior Science & Humanities Symposium
- Numerous classes from non-CLAS departments – Plant Science, Art School, etc
- Annual Parent Orientation Program
- Visiting guests & lecturers
- UConn Branch Campuses
- Statewide Garden Clubs & Senior Groups
- Area magnet schools
- Specialist plant societies (meetings occasionally hosted at UConn)
- Local scouting groups, including both Boy and Girl Scout troops.
Talks & Demonstrations, outside of schools
Partial list of organizations/groups faculty have presented to;
*many are annually repeated with a changing topics

- CT State Museum of Natural History: total of 34 presentations in the last 8 years to public audiences (adults & kids) through public lectures, workshops and other museum programs*
- Stephen Trumbo is the Co-coordinator of the Waterbury Campus Science Lecture Series for OLLI (Osher Lifelong Learning Institute) Program for older/retired members of the public
- Association of Educational & Research Greenhouse Curators*
- Bird Clubs across the state (many)*
- Garden Clubs across the state (many)
- Groton Open Space Association
- Student Teacher Demo (UConn MS Science Education)
- Eastern Cactus & Succulent Conference
- Connecticut Cactus & Succulent Society*
- Connecticut Ornithological Association
- Childrens Museum, West Hartford
- Manchester Perennial Planters
- Connecticut Orchid Society*
- New England Carnivorous Plant Society*
- Connecticut Flower & Garden Show*
- CT State Museum of Natural History*
- Boston Flower Show
- Tower Hill Botanic Garden
- UConn Horticulture Club*
- Connecticut Botanical Society
- Elizabeth Park, Hartford
- KAST Botany Camp*
- Cactus and Succulent Society of America
- Master Gardener Adv. Certification Class
- Philadephia Cactus & Succulent Society
- Cactus & Succulent Society of Massachusetts*
- Pioneer Valley Water Garden and Koi Club
- CPTV Family Science Expo*
- International Carnivorous Plant Society
- Massachusetts Hobby Greenhouse Assn
- Simsbury Flower & Garden Show
- Newport Flower Show
Tours (including Greenhouses, Collections, and Labs)
- Alumni & Family Weekend Tours
- Local K-12 school groups
- Statewide Early College Experience high school biology
- Homeschool groups
- CT Junior Science & Humanities Symposium
- Numerous classes from non-CLAS departments – Plant Science, Art School, etc
- Annual Parent Orientation Program
- Visiting guests & lecturers
- UConn Branch Campuses
- Statewide Garden Clubs & Senior Groups
- Area magnet schools
- Specialist plant societies (meetings occasionally hosted at UConn)
- Local scouting groups, including both Boy and Girl Scout troops.
Appendix F2: EEB living plant collections: Greenhouses

The EEB Greenhouse Collection comprises 2,500 species representing all major groups of land plants currently housed in a 13,500 sq ft facility. This is the largest collection of species held at a public institution in New England, representing a living library of ~270 plant families from all continents except Antarctica. Greenhouse materials are used extensively in teaching and as exchanges with other institutions for research and teaching.

**Facility:** Two greenhouse facilities serve the needs of EEB. The EEB Collections Greenhouse (3 small glass houses are joined by a common headhouse, with a total of 10,400 sq ft under glass) support the living collections that are used primarily in teaching, but also in outreach and research. These collections are all on ground floor level and attached to the Torrey Life Science Building. These were built in 1960 and have had no upgrades since that time except for emergency repairs. They are currently in a deplorable state, with the glazing and the electrical system not compliant with current code. Controls for raising and lowering the roof vents failed long ago and this critical climate control feature is now done manually with a ladder. In part in response to safety concerns, and in an effort to retain our top-flight greenhouse manager, the Provost's office and the Dean's office each committed to providing $500,000 for greenhouse renovation. The renovation process has been "fast-tracked." We have had an initial meeting with the architects and will meet again in two weeks to discuss various options. Because the state of decline is even more severe than originally thought, even necessary renovations to bring the greenhouse into compliance with current safety standards are likely to exceed our funding, but we at least anticipate replacing the glazing.

EEB also manages a newer greenhouse that functions in support of research for EEB and other departments (MCB, Plant Science, generally 20-25 projects/year). This rooftop greenhouse comprises 6,000 sq ft of growing space and were completed in 2003. They are modern facilities with automated climate control.

The dilapidated headhouse associated with the ground floor greenhouse provides material support for all of the needs of the ground-floor greenhouse and 60% of the needs for the roof top greenhouses. An outdoor garden on the south end of the ground floor greenhouses is planted in summers as a demonstration garden of heirloom vegetables and flowering plants of all sorts; a small section of this garden has been dedicated as the Leslie J. Mehrhoff that will specialize in exhibiting native plants for horticulture.

**Personnel:** One permanent fulltime greenhouse manager (Clinton Morse) and two horticulturists (Matt Opel and Dana Ozimek) oversee all greenhouse operations. Their efforts are supplemented by work-study students and student labor. Other than problems with coverage during weekends and holidays, the system of hiring students works fairly well. The permanent staff, Morse, Opel and Ozimek form an extraordinarily talented, knowledgeable and dedicated team and it is because of their efforts that the plant collection does as well as it does in the current facility.

**Administrative structure:** Greenhouse manager Morse oversees all daily operations of both greenhouses. Major decisions are made in consultation with the faculty head of the Greenhouse Committee (Dr. Cynthia Jones) and infrequently by the whole committee. The manager handles all plant acquisitions, deaccessions and exchanges (125-150 specimens sent to educational institutions each year). Daily operations are posted and reported on a greenhouse website designed by Morse that records all decisions for each individual plant in the collection. Use of biological controls has resulted in nearly "pesticide free" facilities. Jones, in consultation with the department head, provides the annual performance review for Morse, and Morse provides them for Opel and Ozimek.

**Extramural Funding:** Over $1,000,000 in grant funding has been received by faculty whose projects utilize the greenhouses to both large and small extents. PIs are requested to include funding to
Appendix F2 (continued)

... support greenhouse use in their grant budgets, but unfunded projects are also facilitated when space is sufficient.

**Budget:** In addition to the three professional salaries, the EEB department allocates approximately $16,000 annually as an operating budget. 25-35% of this budget is allocated to hiring student help, a substantial portion goes toward repairs and modest upgrades with the balance being used for consumable supplies for both the general collections and research projects.

**Endowment:** The collections endowment is a joint endowment shared by all EEB collections (see description under part A). Greenhouse contributions include donations from visitors as well as proceeds from paid greenhouse tours.

**Service to the department and UConn:** The greenhouse collections provide material that is used in approximately 30 courses annually, in which 300-600 plants are transported to classrooms. In addition, roughly 1,800 students in Introductory Biology for non-majors, Principles of Biology for Majors, and General Ecology tour the facility or use the facility in a laboratory exercises. The facility is also regularly used for art courses.

**Outreach:** The EEB Collections Greenhouse is open to the public from 8:00 am - 4:00 pm Monday through Friday. Each year, several hundred UConn students and other visitors wander through the collections. The collections are arranged by biome. Guide sheets detailing the highlights and plant features in particular rooms are available at the main entry and signage throughout the greenhouses provides information on ecology, economic importance and names of specific plants. In addition, 50-60 tour groups ranging local garden clubs to school classes of all ages tour the Collections greenhouse on an annual basis. Greenhouse tours are also offered during UConn's Alumni Weekend and other special occasions. Most years, Morse, Opel and Ozimek staff an EEB Greenhouse display at the Connecticut Flower & Garden Show, a venue that draws 100,000 visitors over a four-day period in February.

**ON TARGET AND BEYOND:**
Over the last 8 years, the rooftop greenhouses have fluctuated between 60% and 100% occupancy, but it is likely that with increased activity of recent years and the addition of a new plant genomics faculty member (Dr. Yaowu Yuan, beginning Sept. 2013), the demand for these facilities will exceed capacity, in which case we will develop a policy for determining priority.

The ground floor greenhouses are scheduled for renovation in summer, 2013. The greenhouse staff is currently in the process of temporarily down-sizing (both in scope & physical accession size) in anticipation of the need for relocating during renovations. Morse, in consultation with Jones, has devised a scoring system for each plant in the collection that allows him to assess the “value” of individual plants. This metric takes into account plant rarity, use in courses, taxonomic representation, ease of replacement, pest susceptibility, etc.

Long term plans for the renovated ground floor greenhouses involve establishing a docent program that will allow us to open the greenhouses to the public on the weekends, train in volunteers to offer tours, and train interested volunteers in aspects of greenhouse management.

**Greenhouse Outreach Component**

Public outreach is an integral component of the daily operations of the EEB Greenhouse facility. Formal tours are the most visible form of outreach with 728 tours provided to nearly 12,500 visitors over the past 8 years. Drop-in guests are common most days in the facility although no formal record is kept of visitors. Additionally, greenhouse staff present talks and demonstrations to groups in classes and off campus, during the regular work-day when schedules permit as well as on their own time.
All three professional staff members play an active role in outreach. Ms. Dana Ozimek has taken a lead role in designing, reinventing, and maintaining the outdoor garden spaces to draw visitors to tour the grounds and explore the greenhouses behind Torrey Life Science. She was featured in a recent UConn promotional video that was aired on national television and included brief glimpses into the greenhouse collections. Dr. Matt Opel speaks regularly to specialist societies at meetings throughout the northeast region as well as blogging about interesting UConn greenhouse subjects on his plant blog. Manager Clinton Morse promotes the public aspect of the greenhouse facilities via television, radio and print outlets whenever the opportunity arises. He was featured in a 2007 episode of CPTV's Positively Connecticut program and was awarded the Provost's Award for Excellence in Outreach and Public Engagement later that year.

Greenhouses Online

The EEB Greenhouse collections have maintained a comprehensive online presence for over 15 years, beginning with a pre-www gopher server that pre-dates the main uconn.edu website. All of the plants in the public collection have established web pages with plant information, photos, and more. A telling metric of its website success is that doing a Google search for most plant species in the collections will yield an EEB-Greenhouse-page hit in the top 10 (first page) of Google results. This is a result of stability, longevity, and quality content found within these pages. The EEB Greenhouse website also has a version optimized for mobile devices. The Greenhouse website utilizes multiple Google calendars to present an up to date staffing schedule (full-time and student) as well as tour scheduling to facilitate outside groups in coordinating their visits to the facility.

Greenhouse staff utilize a separate database website which enables real-time updating and management of the collections, frequently via mobile devices. Although this website is not available to the general public, the information updates are automatically assimilated into the public website via overnight processing routines. Portions of this website are utilized by departmental users (faculty, TA's etc) to facilitate course and lab set-ups and documentation of plant usage in courses.

The EEB Greenhouses maintain an active social media presence on Facebook with well over 600 'fans'. This venue is where we highlight new plants, activities and other information of interest to the general public. All three staff members contribute to the content delivered via Facebook and we strive to get a couple of posts up each week to maintain interest in the greenhouses.

Mr. Morse also applies his cyberspace skills volunteering as webmaster for the AERGC, an international professional organization dedicated to the management of research and educational greenhouse facilities.

The greenhouses are fully wired for WI-FI access on the UConn networks for both public and secured users.

Partial list of talks and Demonstrations to Groups since 2005 (* annual events, with changing content)

- Association of Educational & Research Greenhouse Curators*
- Garden Clubs across the state (many)
- Student Teacher Demo (UConn Ms Science Education)
- Eastern Cactus & Succulent Conference
Appendix F2 (continued)

- Connecticut Cactus & Succulent Society*
- Children’s Museum, West Hartford
- Manchester Perennial Planters
- Connecticut Orchid Society*
- New England Carnivorous Plant Society*
- Connecticut Flower & Garden Show*
- CT State Museum of Natural History*
- Boston Flower Show
- Tolland Middle School Career Day*
- Tower Hill Botanic Garden
- UConn Horticulture Club*
- Connecticut Botanical Society
- Elizabeth Park, Hartford
- KAST Botany Camp*
- Cactus and Succulent Society of America
- Master Gardener Adv. Certification Class
- Philadelphia Cactus & Succulent Society
- Birch Grove Primary School (Tolland)
- Cactus & Succulent Society of Massachusetts*
- CPTV Family Science Expo*
- International Carnivorous Plant Society
- Massachusetts Hobby Greenhouse Assn
- Simsbury Flower & Garden Show
- Newport Flower Show*

Partial list of Outreach – Tours since 2005

- Alumni & Family Weekend Tours
- Local K-12 school programs
- statewide Early College Experience high school biology
- homeschool groups
- CT Junior Science & Humanities Symposium
- numerous classes from non-CLAS departments – Plant Science, Art School, etc
- Annual Parent Orientation Program
- visiting guests & lecturers
- UConn Branch Campuses
- statewide Garden Clubs & Senior Groups
- area magnet schools
- specialist plant societies (meetings occasionally hosted at UConn)
- local scouting groups
Appendix F3: EEB Biodiversity Research Collections

The EEB BIODIVERSITY RESEARCH COLLECTIONS include the preserved specimens housed in the Biology/Physics building (treated here) and the living plant collection. The preserved collection comprises approximately 1,000,000 specimens, contributed by EEB researchers and scientists from around the world. The breadth of the collection spans invertebrates, parasites, vertebrates (dried and fluid preserved) and plants (herbarium and fossils). EEB’s collections reflects the richness of the world’s biodiversity and are unique in their comprehensive coverage of the diversity of shark parasites, Amazonian army ants and their guests, Connecticut birds and butterflies, Paraguayan mammals and the New England flora.

EEB’s biodiversity collection contributes resources essential to scientific research here at UCONN and at other national and international institutions, and serves to document the biodiversity of Connecticut through time. It also provides research and training opportunities for undergraduate and graduate students, and offers a unique platform to reach out to precollege students and their teachers and share our knowledge on local and global biological diversity.

Facility: EEB’s preserved collections were consolidated into a state-of-the-art facility completed as part of UCONN2000 in December 2001, and equipped with compactors through funding from the National Science Foundation. The space consists of the storage facility for dry specimens with an independent humidity control system and a room for fluid preserved specimens. The storage space is complemented by a central preparation area, a walk-in fridge and freezer, offices for each collection manager and for visiting scientists, a conference area, and a library housing the Storrs Olson library, a collection of literature spanning 250 years of research on bryophytes.

Personnel: curatorial activities are led by two full time collection managers (Dr. Robert Capers for plants and Dr. Jane O’Donnell for invertebrates) and one part-time collection manager (0.2 FTE; Susan Hochgraf for vertebrates). Managers oversee specimen acquisition, curation, databasing and processing for loans. They also guide tours for classes and alumni, assist visiting scientists, graduate students and postdoctoral researchers and supervise undergraduate students.

Administrative structure: the daily operation and strategic plans for each collection are developed by the collection managers and their respective faculty curatorial directors (plants: Dr. Don Les), invertebrates (Dr. Janine Caira) and vertebrates (Dr. Margaret Rubega), with the facility being headed by overall director (Dr. Bernard Goffinet).

Extramural funding: The infrastructure for the state of the art facility combining all systematic collections was developed based on an NSF grant ($ 440,876; DBI 9876793: 1999–2004). Furthermore, funding from NSF was secured ($430,130; DBI 08047111: 2008-present) to database the entire collection of preserved plant specimens, an effort further promoted through 4 supplementary annual awards from NSF ($45,909; DBI 0943027, 1027190, 1112470 & 1137615).

Budget: In addition to the salary for the collection managers, $6,000 is allocated annually by EEB, to sustain essential curatorial operations.

Endowment: the endowment in support of the collection was established in 2006. It has grown, primarily through faculty and staff donations, to $36,271 by the end of FY 2012. The spendable portion was cumulated and used to offer three summer student internships in 2009 and four in 2012.

Service to Department and UCONN: the EEB collections serve 12-15 courses in EEB annually, and provide material for the main introductory biology classes.

Collections course: collections staff offer an annual course (EEB 5894) on natural history collection, which is a prerequisite for interns and work-study students, and provides basic training in the curation of natural history collections.
Appendix F3 (continued)

Training: all three collections offer numerous opportunities for internships, independent study or work study for students in EEB, BIO and other academic units within the University. Over the last 3 years alone, the EEB biodiversity collections offered training opportunities to 26 independent study students and 28 work study students and provided research experiences to an additional 16 undergraduates. Furthermore, 43 graduate students and postdoctoral research associates have used the collections.

ON TARGET AND BEYOND

All collections are actively growing through continuous research projects led by EEB faculty, staff and students, gaining in scientific value through exceptional curation and preservation in our state of the art facility and reaching an broadening community of national and international researchers through databasing and on-line dissemination of specimen information.

Progress in the curation of the plant collection has been spectacular, catalyzed by significant funding from NSF (nearly $500K) for digitizing and databasing the entire vascular plant collection. To date 140,000 specimens (± 70% of the entire collection) are included in the on-line database. This collection also has the highest growth rate.

The entomology collection continues to grow with significant regional representation of groups of current conservation concern, especially moths, butterflies and bees. With over 1,000 paratype slides of tapeworms from elasmobranchs globally, the parasite collection now ranks among the world’s top 3 collections.

The vertebrate collection, despite operating with only a part-time manager, using student labor, has been databasing around 1000 specimens per year, and replacing outdated jars and storage media for about 25% of each taxonomic group yearly, while also accessioning new specimens.

The abilities of the collections to meet their mission of preserving historical biological records of biodiversity and training students in collection management could be strengthened by:

- expand the vertebrate collection manager position to a full time position
- increasing the annual departmental budget allocation
- building the endowment essential to summer student internships
- seeking further extramural funding
Appendix F4: EEB Online and Social Media Use for Outreach to Audiences Outside Academia

A. Blogs

Kent Holsinger’s blog, Uncommon Ground: Reflections on academics, the environment, and biodiversity (http://darwin.eeb.uconn.edu/uncommon-ground/) is written for a mixed audience of policy makers, academics and the public. He addresses climate change, environmental policy, teaching, mentoring graduate students, science communication, and the practice of science. Initiated in 2007, it has steadily built a following, and had more than 20,000 unique pages views in 2012. Holsinger also tweets (@keholsinger).

Peter Turchin’s blog, Social Evolution Forum (http://www.socialevolutionforum.com) started as an outgrowth of his research evaluating human culture and social systems with tools from population biology. It is aimed at promoting communication, discussion, and collaboration on diverse topics related to human society, and written for researchers and policy makers. Turchin established the blog in April 2012, and has already had 30,000 page views to date.

Jessica Budke, a Postdoctoral Research Associate, blogs at Moss Plants and More (http://mossplants.fieldofscience.com), where she provides “Commentary on All Things Bryological”. She has been blogging since her 2007 participation (as a graduate student) in Rubega and Holsinger’s Science Blogging seminar; writing for a general audience, she highlights and interprets bryophyte biology, describes the research process, and provides field identification guidance. Through the blog, she has responded to students looking for information on mosses for their coursework and gardeners interested in learning more about the mosses in their yard. She also aims to publicize the research of fellow scientists in order to share it with a wider audience and increase the public’s knowledge of these small organisms. Recent features include a monthly downloadable “Calender” page consisting of a high quality image of a moss or other bryophyte formatted and suitable for use as a computer monitor background.

Brigette Zacharczenko, a Ph.D. student, blogs at CaterpillarBlog: Larval Adventures (www.caterpillarblog.com) Written for a general audience, but of interest to other entomologists, her focus is on accessible, lively writing about her research on the caterpillars of the genus Acronicta, featured through photos, illustrations, SEM, and videos. She also shares stories of caterpillar rearing in the lab, collecting trips, and teaching in the entomology courses; a recent post featured details of the Insect Banquet she conducted in her field entomology course. Special categories include “Word of the day” from the Torre Bueno Glossary of Entomology, and “LOLCATerpillars”. She also maintains a Flickr Photostream for UConn’s General Entomology class (http://www.flickr.com/photos/86216499@N04)

B. Twitter:

Kent Holsinger (@kholsinger) tweets links to his blog postings, as well as commentary and insight on conservation, biodiversity, climate change, environmental policy, and university research and education.

Jessica Budke (@mossplants; Postdoctoral Researcher) tweets links to her blog postings.

Margaret Rubega (@ProfRubega) began using a Twitter-based class exercise in her EEB 4260 Ornithology course in 2009, which requires students to use Twitter to post observations of birds outside the classroom, and connect what they see to course content (using the #birdclass hashtag). She tweets to students during the course, and year round on avian biology, conservation, and research. Students have taken the assignment far past simple observations,
Appendix F4 (continued)

into connections to literature, to post poetry and hip hop lyrics, to teach members of the public about bird biology and identification, to engage in biogeography games by guessing a poster’s location by the species of birds tweeted about, and to engage in simple experiments, then tweet about them. This use of social media to teach has been featured three times in the NY Times (see: http://dotearth.blogs.nytimes.com/2011/05/05/on-birds-twitter-and-teaching/) and Rubega has been invited repeatedly in the last four years to present her method at national meetings and workshops (for example, see: http://www.aou.org/student/docs/AOU_wkshop_2009_Rubega.pdf)
Appendix F5: Websites maintained by EEB faculty.

A. DEPARTMENTAL SITES:

EEB biodiversity research collections: [http://www.biodiversity.uconn.edu/BRC.html](http://www.biodiversity.uconn.edu/BRC.html). A portal providing access to invertebrate, vertebrate, and plant collections and research. By Caira, J., Les, D. & Rubega, M.


B. FACULTY SITES:

Caira Lab Websites:

Caira, J. N., K. Jensen, and E. Barbeau 2012. The Planetary Biodiversity Inventory site ([http://tapeworms.uconn.edu](http://tapeworms.uconn.edu)) serves as a portal to the Global Cestode Database and its associated host databases, as well as a diversity of tapeworm resources, including an Illustrated Glossary of Tapeworm Terminology and links to our previous NSF Biotic Surveys and Inventories (BS&I) and PEET project websites.

Colwell Lab Websites:

Colwell, R. 2012. Biota: The Biodiversity Database Manager. [http://viceroys.eeb.uconn.edu/Biota/](http://viceroys.eeb.uconn.edu/Biota/) Biota 3, a very useful program, can be downloaded from this website.


Elphick Lab Websites:


Appendix F5b (continued)

Goffinet Lab Websites:


Les Lab Websites:

Schwenk Lab Websites:
and http://hydrodictyon.eeb.uconn.edu/eebedia/index.php/Classic_Works_in_Evolutionary_Biology—The_List_With_Links. An annotated list with links to classic books and papers in the field targeted to students and interested members of the public.

Schwenk, K. Why do snakes have forked tongues? http://hydrodictyon.eeb.uconn.edu/eebedia/index.php/Why_do_snakes_have_forked_tongues%3F Provides an accurate answer to a popular online question.

Silander Lab Websites:

Simon Lab Websites:
Cooley, J.R. Magicicada.org. Background information, Research maps, Crowd-sourced reports and mapping of periodical cicadas with Twitter Feeds and Facebook page.


recordings, photos and maps, of many of the cicada species of the western United States and Canada.


Urban Lab Websites:

Wagner Lab Websites:


Yarish Lab Website:

2004–2005
Sept. 22 Rosina Bierbaum (Dean, School of NRE; Uni. of Michigan)
Oct. 21 Tom Lovejoy (Director of the Heinz Center; Center for Science, Economics and the Environment)
Nov. 17 Barry Lopez (National Award Winning Author)
Feb. 24 William Hooke (Director of Atmospheric Policy Program; Am. Meteorological Society)
Mar 17 Carl Jones (Int. Research Fellow; Durrell Wildlife Conservation Trust; Scientific Director, Mauritian Wildlife)
Mar 24 Char Miller (Trinity University, TX)
Apr 21 Pedro Sanchez (2002 World Food Price, Director of tropical agriculture and co-chair of project hunger task force, Columbia University Earth Institute)

2005–2006
Sept. 29 Sharon Matola (Belize Zoo and Tropical Education Center)
Oct. 12 Robert A. Benner (A.M. Bateman Prof. Geology and Geophysics, Yale Uni.)
Nov. 3 James Gustave Speth (Dean School of Forestry and Environmental Studies; Yale Uni.)
Feb. 2 Vicki Been (Director of Furman Center for real estate and urban policy, NY Uni. Law School)
Feb. 16 Paul Robbins (Uni. of Arizona)
Apr. 20 Jeremy Jackson (W.E. & M.B. Ritter Professor, Director of Geosciences Research Division Scripps Institution of Oceanography; Uni. Of California, San Diego)

2006–2007
Sept. 14 Carl Jones (Int. Research Fellow; Durrell Wildlife Conservation Trust; Scientific Director, Mauritian Wildlife)
Oct. 19 William Nordhaus (Sterling Prof. of Economics; Yale University)
Nov. 9 Jerry Mander (Former President of International Forum on Globalization)
Feb. 1 Mark Klett (Regents Professor of Art, Arizona State University)
Mar. 22 Richard Somerville (Distinguished Professor, Scripps Institution of Oceanography)
Apr. 22 David Allen Sibley (Author)

2007–2008
Sep. 20 Geoffrey Heal (Paul Garrett Professor of Public Policy and Business Responsibility, Columbia University)
Oct. 4 Michael J. Bean (Attorney, Chair of the Wildlife Program, Environmental Defense Fund)
Nov. 15 Ariel Lugo (Director, International Institute of Tropical Forestry)
Feb. 7 Ivette Perfecto (Professor of Natural Resources, University of Michigan)
Mar. 20 Roger Gottlieb (Professor of Philosophy, Worcester Polytechnic Institute)
Apr. 10 Joseph Bruchac (author)

2008–2009
Oct. 16 J. B. Ruhl (Matthews and Hawkins Professor of Property Law, Florida State Uni.)
Nov. 20 Don Scavia (Professor and Michigan Sea Grant Director; Uni. of Michigan)
Feb. 5 Bud Ward (Editor, The Yale forum on Climate Change and the Media)
Mar. 5 Catherine Potvin (Professor, McGill University)
Apr. 2 Michael Mares (Presidential Professor, Uni. of Oklahoma, Distinguished Research Curator of Mammals, Sam Noble Oklahoma Museum of Natural History)
Appendix F6 (continued)

2009–2010
Sept. 24  Kerry Emanuel (POAC Director of Massachusetts Institute of Technology)
Oct. 22  John Elder (Middlebury College)
Nov. 19  Stephen Polasky (Fesler-Lampert Professor of Ecological and Environmental Economics, Uni. Minnesota)
Mar. 4  Robert J. Glennon (Morris K. Udall Professor, Uni. of Arizona)
Apr. 22  Peter Kareiva (Chief Scientist and director of Science: The Nature Conservancy)

2010–2011
Sept. 23  Gene Likens (Distinguished Professor Senior Scientist, Ecologist, Founding Director and President Cary Institute of Ecosystem Studies)
Oct. 21  Peter B. Reich (Regents Professor and Distinguished McKnight Professor, Uni. Of Minnesota)
Nov. 11  Andrew Revkin (Senior Fellow, Pace University’s Pace Academy for Applied Environmental Studies)
Dec. 9  Philip Kitcher (J. Dewey Professor of Philosophy, Columbia Univ.)
Feb. 17  Rick Bass (Author)
Mar. 31  Ruth S. Defries (Denning Professor of Sustainable Development, Columbia University)
Apr. 28  Nancy Grimm (Professor, Arizona State Univ.)

2011–2012
Nov. 17  Naomi Oreskes (Professor, Uni. California, San Diego)
Dec. 8  Daniel Esky (Commissioner of the CT Dept. of Energy and Environmental Protection)
Feb. 23  Sir Peter Crane (Dean, Yale School of Forestry and Environmental Studies)
Mar 1  David Gessner (Un. of North Carolina)
Mar. 29  Michael Mann (Professor & Director, Earth Systems and Science Center, Penn State)
Appendix H1: Indirect costs returns to EEB from extramural grants 2005–2012.

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<th>% of indirects</th>
<th>Amount</th>
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<tr>
<td>2005-2006</td>
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<td>2006-2007</td>
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<tr>
<td>2010-2012</td>
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<td><strong>Total</strong></td>
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<td><strong>$248,647</strong></td>
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Appendix H2: Departmental endowed accounts and awards made

Appendix H2a. Endowment accounts and their market value. Shaded accounts are used to distribute research awards to graduate and undergraduate students.

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<tr>
<th>Year</th>
<th># of Awards</th>
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