

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

NAME: Rebecca J. Rundell

I. INSTRUCTIONAL ACTIVITIES

1. Regular Course Offerings

	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs.</u>	<u>No. Students</u>	<u>No. of Lab. Sections</u>
SUMMER:					
EFB 202		Ecological Monitoring & Biodiversity Assessment at CLBS, 3 cr. [1 week]		143	N/A
FALL:					
EFB 797		Con Bio/Invertebrates in a Changing World (co-taught with D. Parry)		1	7 N/A
EFB 797		Evolution Discussion Group		1	6 enrolled plus other attendants
SPRING:					
EFB 311		Principles of Evolution	3 cr.	169	N/A
EFB 355		Invertebrate Zoology	4 cr.	42	2
EFB 211		Diversity of Life (10 % of course)	3 cr.	159	

NOTE: PLEASE INDICATE WHICH COURSE(S) HAD A SERVICE-LEARNING COMPONENT AND BRIEFLY EXPLAIN THE NATURE OF THIS COMPONENT. For examples of service-learning in courses, see: <http://www.esf.edu/students/service/courses.htm>. Service-learning is a form of structured experiential education in which students engage with the community to be active learners, to enrich their sense of civic responsibility, and to explore practical application for course content. Faculty oversight, reflective thinking, and reciprocity are key components of service-learning.

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

	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs.</u>	<u>No. Students</u>	
<u>FALL</u>					
EFB420		Prof Internship/Envrn Bio	8 total	2	
EFB899		Masters Thesis Research	9 total	2	N/A
<u>SPRING</u>					
EFB420		Prof Internship/Envrn Bio	6	1	
EFB495		Undergrad Experience/College Teaching	3	7	2 for 355 + 311 lec.

EFB899	Masters Thesis Research	12 total	2	N/A
EFB999	Doctoral Thesis Research	3	1	

3. Continuing Education and Extension (short courses, workshops, etc.)

4. Guest Lecture Activities

During the lab component of EFB211 Diversity of Life, I assign my Invertebrate Zoology TA to talk to the Diversity of Life students about the animals in our coldwater touch tank, show them the animals, and invite them to feed the anemones and sea urchins. This helps to enhance the lab component of the EFB211 course.

Course No.	Title	No. of Lectures
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II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 24 and unofficial advisor _____

B. Graduate Students: (list name, degree sought, starting date, month & year; if a degree was completed, please give date and full citation for the thesis or dissertation).

MAJOR PROFESSOR

Mr. Jesse Czekanski-Moir	Ph.D.
Ms. Cody Gilbertson	M.S.
Mr. David Bullis	M.S.
Mr. Logan Osterhoudt	M.P.S.

CO-MAJOR PROFESSOR

MEMBER, STEERING COMMITTEE (other than those listed above)

Mr. David Kelton Moss	Ph.D., SU Geology
Mr. Stefan Karkuff	M.S.
?Ms. Cheryl Whritenour	Ph.D.

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

Ms. Quincey Oliver M.S.

III. RESEARCH COMPLETED OR UNDERWAY

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

Collaboration with Dr. Carl Christensen at Bishop Museum (Honolulu, Hawaii) on extinct Hawaiian *Carelia* land snail causes of extinction and rat predation project, unsupported, 5%

Diplommatinid systematics and diversity, partially supported by start up, 15%

Kosrae land snail diversity and conservation, unsupported, 5%

Belau endodontoid evolution, biogeography and conservation, partially supported by Seed grant, 5%

- B. 1. Grant-supported Research (source, subject, amount - total award and current year, award period starting and ending dates; list graduate research assistants supported by each grant)

Rundell, R.J. (PI). 2014 ESF Seed Grant Program, “Belau’s islands of diversity: Development of a natural laboratory for evolutionary research and teaching,” \$3,900 April 2014 - June 2015; research of graduate students David Bullis and Jesse Czekanski-Moir supported in part (e.g. supports purchase of critical sequence analysis software). PI: R.J. Rundell

Rundell, R.J. (PI). USFWS Endangered Species Great Lakes Restoration Initiative (GLRI), “Removing the threat of stochastic extinction for the Chittenango ovate amber snail: A collaborative captive propagation effort to develop *ex situ* population in New York State,” \$100,000, 9/1/2013 – 8/31/2016; partial support of M.S. student Ms. Cody Gilbertson. Year 2 of grant.

Rundell, R.J. (PI). John Ben Snow Foundation, (Brenda Greenfield, ESF College Foundation, Inc.), Wild life on the web. Submitted/written by Support for Roosevelt Wild Life Collections cabinets and drawers and nominal support for Ph.D. student Jesse Czekanski-Moir to undertake gigapixel photography and video project in service of the Roosevelt Wild Life Collections. \$5000. July 2014 - July 2015.

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

Rundell, R.J. (PI). ACE-CESU, U.S. Army Fort Drum Fish and Wildlife Management Program. Baselines and barcodes: Developing land snails as indicator species on Fort Drum. \$73,815 requested. [Delayed, pending funding. Update from Program Manager Ray Rainbolt 18-19 Dec. 2014: May be funded in the third quarter, to begin field work in Spring 2016.] (5/1/2016-5/1/2017)

Coppolino, M., **Rundell, R.J.**, Pearce, T., Hotopp, K., Mikkelsen, P.M. and Allmon, W.D. Park Foundation. Baseline inventory of land snails of the central southern tier region of New York State: Assessing the fauna prior to hydraulic fracturing. Funding for summer salary for one graduate student requested. [Proposal originally revised by Rundell and submitted to NSF RAPID Program; it was not invited for further consideration under NSF RAPID, so we are seeking foundation funding. (5/1/2015-5/1/2016)]

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

Rundell, R.J. (PI) and Q. Wheeler (co-PI) NSF CSBR. DBI-Biological Research Collections. Submitted 11 Aug. 2014. Natural History: Expansion and Rehousing of the Roosevelt Wild Life Collections at the State University of New York College of Environmental Science and Forestry. \$499,051 requested. (6/1/2015-5/31/2017)

Rundell, R.J. (PI) and J.E. Czekanski-Moir* (co-PI). National Geographic Society Committee for Research and Exploration. Roads, rivers and radiations: Discovering the geography of diversification in Palau. [Pre-proposal accepted; Invited for full proposal, Fall 2014.] \$18,400 requested. (7/1/2015-12/16/2016)

Gibbs, J.P. (PI), Bonter, D., Folta, E., **Rundell, R.J.**, Danoff-Burg, J.A. (co-PIs). NSF AISL. Collaborative Research: Research in Service to Practice: SquirrelMapper—A Program of Informal Education. \$1,252,944 requested. (9/2015-8/2019)

Hayes, K.A. (PI), Yeung, N.W., Dirks, C., Meyer, W.M., **Rundell, R.J.** (co-PIs). Burke, J., Nelson, D.R., Bartels, P.J., Nichols, P.B., Slapcinsky, J. (Senior personnel). NSF DEB Systematics and Biodiversity Cluster; Biodiversity: Discovery and Analysis. Pre-Proposal. Tardigrades across mountains: Ecology of tardigrade community structure across elevational and environmental gradients.

* Graduate Student

IV. PUBLICATIONS (Full bibliographic citation, i.e., do not use "with Jones," or "Jones, et al."; please list only publications published, in press, or actually submitted during this reporting period --- **do not list manuscripts in preparation**).

A. Refereed Publications

- Rundell, R.J.** and J.E. Czekanski-Moir*. In Press. The land snails of Kosrae (Caroline Islands, Micronesia) including the rediscovery of endemic *Delos oualanensis* (Pease, 1866) (Mollusca: Pulmonata: Rhytididae). *Malacologia*.
- Campbell, S.P., J.L. Frair, J.P. Gibbs, and **R.J. Rundell**. In Press. Coexistence of the endangered, endemic Chittenango ovate amber snail (*Novisuccinea chittenangoensis*) and a non-native competitor. *Biological Invasions* DOI 10.1007/s10530-014-0763-5
- Yamazaki, M., K. Yamazaki, **R.J. Rundell** and R. Ueshima. In Review. Systematic review of diplommatinid land snails (Caenogastropoda, Diplommatinidae) endemic to the Palau Islands. (3) Description of eight new species and two subspecies of *Hungerfordia*. *Zootaxa*

* Graduate Student

B. Non-refereed Publications

- Gilbertson, C. and **R.J. Rundell**. 2014. Developing captive *ex situ* populations of the endangered Chittenango ovate amber snail *Novisuccinea chittenangoensis* (Gastropoda: Pulmonata: Succineidae) for population augmentation in New York State. Technical Report. *Proceedings of the Invertebrates in Education and Conservation Conference 2014*. 9 pp.
- Furth, D., D. Gernandt, **R.J. Rundell**, M. Labrecque, C.A. Medina Uribe, L. Lara, R. Valenzuela. 2014. Report of the external commission to evaluate INECOL collections. Unpublished Technical Report. 3 p. Recommendations/summary submitted to INECOL leadership following 16-19 June meeting in Xalapa, Veracruz, Mexico and discussions from 19 June through 17 July 2014.

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

- Rundell, R.J.** 2014. Evolutionary radiation and conservation in endemic western Pacific island land snails. American Museum of Natural History, Richard Gilder Graduate School Seminar Series, New York City, New York. Invited Seminar. 27 October. (Talk)
- Rundell, R.J.** and J.E. Czekanski-Moir. 2014. Evolution and conservation of land snails. Paleontological Research Institution Summer Symposium. Ithaca, New York, 2-3 August. (Talk)
- Rundell, R.J.** and J.E. Czekanski-Moir. 2014. Conservation threats and assessment in a western Pacific archipelago: The land snails of Belau (Republic of Palau, Oceania). Mollusca 2014. The Meeting of the Americas. Mexico City, Mexico 22-27 June. (Talk)
- Bullis, D.A. and **R.J. Rundell**. 2014. Phylogeny, biogeography and conservation of the endodontoid land snails of Belau (Republic of Palau, Oceania). Mollusca 2014. The Meeting of the Americas. Mexico City, Mexico 22-27 June. (Poster)
- Bullis, D.A. and **R.J. Rundell**. 2014. Phylogeny, biogeography and conservation of the endodontoid land snails of Belau (Republic of Palau, Oceania). Paleontological Research Institution Summer Symposium. Ithaca, New York, 2-3 August. (Poster)
- Czekanski-Moir, J.E. and **R.J. Rundell**. 2014. Contrasting diversity patterns in a neontological assemblage: Land snails and ants of Palau. Paleontological Research Institution Summer Symposium. Ithaca, New York, 2-3 August. (Talk)
- Gilbertson, C. and **R.J. Rundell**. 2014. Developing captive *ex situ* populations of the endangered Chittenango ovate amber snail *Novisuccinea chittenangoensis* (Gastropoda: Pulmonata: Succineidae) for population augmentation in New York State. Invertebrates in Education and Conservation Conference. Rio Rico, Arizona 22-16 July. (Talk)
- Gilbertson, C. and **R.J. Rundell**. 2015. Captive Breeding of the endangered Chittenango ovate amber snail (*Novisuccinea chittenangoensis*). SUNY-ESF Student Research Spotlight. (Poster)

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

Informed members of the Camp Fire Club and Roosevelt Wild Life Station Honorary Advisory Council about the importance of Collections in understanding and conserving wild life:

Rundell, R.J. 2014. The Roosevelt Wild Life Museum in the new Gateway Building. Roosevelt Wild Life Station Honorary Advisory Council Meeting. Camp Fire Club, Chappaqua, New York. 22 September. (Talk). Attendance: 20

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

1. Government Agencies (Federal, State, Local):

2. Industrial and Commercial Groups, etc.

Sotheby's. Consult on conservation status (CITES, etc.) for art objects and artifacts that include invertebrates

B. Unfunded Service to Governmental Agencies, Public Interest Groups, etc.

Elected Representative-at-Large, Board of Directors. Natural Science Collections Alliance (part of the American Institute of Biological Sciences (AIBS)) (Term: 3 years beginning Fall 2014). [The NSC Alliance is a national organization that influences policies and resources for institutions that house collections (e.g. connecting to congress, NSF and other agencies.) Participated in Board of Directors meetings at national headquarters in Washington, D.C. 17-20 December 2014, and remotely at the Society for the Preservation of Natural History Collections (SPNHC) at the Florida Museum of Natural History in Gainesville, Florida on May 18, 2015. Contributed to visioning, mission statement and strategic planning for the organization and represented small university Collections.

Invited Collections Expert: External Review Commission for Collections at INECOL (Xalapa, Veracruz, Mexico). INECOL holds diverse, large, and nationally important natural history Collections and is preparing a move to a new integrated Collections facility. Advised and provided oversight for curatorial organizational structure, Collections Management Policies, planning for upcoming collections move, and mission, vision, and expansion. 16-19 June meeting in Xalapa, Veracruz, Mexico and discussions from 19 June through 17 July 2014.

VI. PROFESSIONAL DEVELOPMENT

A. Professional Honors and Awards (for teaching, research, outreach, etc.)

Research Associate, Paleontological Research Institution, Ithaca, New York (3-yr term beginning January 2015)

B. 1. Activities in Professional Organizations (offices held, service as chairman, member, participant or consultant)

Member and Specialist, IUCN (International Union for Conservation of Nature) Species Survival Commission, Molluscs

Participated in Women in Science (AMNH chapter) event at the American Museum of Natural History, New York City, New York. 28 October 2014.

2. Professional Society Membership

3. Other Professional Activities

a. Editorial activity

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

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
<i>Biological Invasions</i>	1
<i>ZooKeys</i>	1
<i>Zootaxa</i>	3

<u>Agency</u>	<u>No. of proposals</u>
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National Geographic Society Committee for Research and Exploration 1

Other

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
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C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

D. Foreign Travel (Where, When, Purpose)

Xalapa, MEXICO; 16-19 June 2014; **INECOL External Review Commission**

Mexico City, MEXICO; 22-27 June 2014; **Mollusca 2014: Meeting of the Americas**

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

Head Curator, Roosevelt Wild Life Collections (development, planning and oversight of Collections);
Leadership committee of RWLS, contributing to e.g. Visioning and Strategic Planning

GPAC

CLBS Advisory Committee (invited by Dr. Kimmerer)

Biotechnology Major Committee

Press in service of Department:

Informed general audiences about endangered species research in EFB:

On camera interview for Chittenango ovate amber snail project (16 June 2014):

Today's Going Green segment is about efforts to save an endangered snail living at Chittenango Falls. It is available on Time Warner

Cable News in Syracuse (ch 10), Rochester (ch 8), Albany (ch 9), Kingston (ch 6) and Buffalo (ch 9) at 1:55pm, 4:55pm, 7:55pm, 10:55pm, 1:55am and 4:55am. It is also available at:

<http://centralny.twcnews.com/content/lifestyles/745148/madison-county-waterfall-is-home-to-endangered-snail/>

Graduate student Cody Gilbertson developed a story for the USFWS outreach site "Conserving the Nature of the Northeast" (29 Sept. 2014):

<http://usfwsnortheast.wordpress.com/2014/09/29/need-to-slow-down-your-fast-paced-life-for-a-moment/>

B. College-level

Head Curator, Roosevelt Wild Life Collections (development, planning and oversight of Collections); includes service in Destiny, USA meetings at the college level and ESF travelling exhibit planning as well as planning and oversight of new lower level Gateway museum space

Leadership committee of RWLS, contributing to e.g. Visioning and Strategic Planning

Secured donation of musk ox full mount to ESF from the William D. Hutchens North American Wildlife Collection.

Produced and installed a professional musk ox exhibit (display case and museum interpretive panel) in Gateway Building at ESF, which highlights ESF's Wildlife Science, Conservation Biology and Natural History Programs

Negotiated white-glove service move-in of display case and musk ox, as well as a second professional display case, both at no cost to ESF. Worked to facilitate damage claim process between Gaylord and FedEx (result of small crack in vitrine corner).

Applied and approved for NOAA/NMFS Marine Mammal Hard Parts Permit to acquire specimens through NMFS' Greater Atlantic Region Marine Mammal Stranding Network for specimen use for research, deposition in a scientific collection and in public educational display as well as supervised "hands on" close-up study in our organismal and comparative biology courses, including Comparative Vertebrate Anatomy, Vertebrate Museum Techniques (Specimen/Skeleton/Skin Preparation), Marine Ecology, Conservation Biology, Evolution, Mammal Diversity, and Diversity of Life. Specimens approved for donation include northern Atlantic whales, dolphins, and seals as well as California sea lion.

Established connection with Massachusetts Division of Fisheries and Wildlife Assistant Director Dr. Tom French and secured the donation of 3.5 whale skeletons and data (federally endangered fin whale complete, adult minke complete, humpback juv. complete, humpback juv. partial); fin whale baleen (full rack), minke baleen (full rack), and blue whale baleen (and data). Also secured the donation of a **Kemp's Ridley sea turtle** skeleton (the world's most endangered sea turtle) and a **northern gannet skeleton**. Picked up and coordinated moves of specimens from Massachusetts in three separate move events in Fall 2014 (phase I: frozen marine mammal pick up at Woods Hole Oceanographic Institution with Ron Giegerich; phase II: fin whale; phase III: minke, humpbacks, turtle, gannet, baleen)

Established connection with Misty Niemeyer, Necropsy Coordinator, Marine Mammal Rescue and Research at the International Fund for Animal Welfare (World Headquarters, Yarmouth Port, Massachusetts) and secured the donation of 14 complete marine mammal skeletons (dolphins, seals, and small toothed whales including a mother and baby) and level A necropsy data.

Judge, Graduate Student Association Elevator Pitch Competition. 27 March 2015

Presidential Inaugural Bioblitz at Onondaga Lake: Led land snail and meiofauna team and members of the public in searching for and identifying land snails and microscopic sand-dwelling invertebrates and unicellular eukaryotes. Coordinated acquisition of curatorial materials and deposition of specimens into collections with other EFB faculty.

Press in service of College

Informed general audiences about natural history educational programs and connection to the public at SUNY-ESF:

- Interviewed on camera for musk ox exhibit in Gateway Building in order to develop the following video for the College with Communications staff member Dave White:

[MuskOx-tjL8Jr_s7EO1Z9ZcN...](#)

- Interviewed on camera by Time Warner Cable about whale donation and use of specimens for ESF education programs (courses) and public outreach:

<http://rochester.twcnews.com/content/797811/after-new-law--whale-bones-become-hard-to-curate-for-education/>

- Interviewed on camera by Tara DeSantis (Reporter, NCC News) who is developed a longer story on the whales (3rd set of donations: minke, humpbacks), and our related programs at ESF for Improve Your World:

[491YWWhalesandGeese-3Xqk...](http://www.nccnews.com/491YWWhalesandGeese-3Xqk...)

- Interviewed by Syracuse.com about fin whale donation and contributed to story:

http://www.syracuse.com/outdoors/index.ssf/2014/11/suny_esf_excepts_donation_of_full_skeletal_remains_of_a_40-foot_fin_whale.html

- How we will use whales in EFB's natural history courses; ESF coverage and Rundell & baleen video:

<http://www.esf.edu/communications/view.asp?newsID=3140>

- Inaugural Bioblitz, snails and meiofauna:

<http://www.esf.edu/communications/view.asp?newsID=2906>

C. University-wide, including Research Foundation

VIII. SUMMARY OF SIGNIFICANT ACTIVITIES AND ACCOMPLISHMENTS DURING THIS REPORTING PERIOD, ESPECIALLY THOSE MOST NOTEWORTHY AND RELATIVE TO THE COLLEGE'S AND DEPARTMENT'S MISSION.

One paragraph on each of the following (**i.e., three paragraphs total**) would be most helpful: this past year, what have you done for our **students, department/college, and self** professionally? NOTE: The information in this section (along with the supporting specific information elsewhere in this report) should be your strongest case for being considered for a discretionary raise (when available), which I'll continue to award based on your contributions to the department and college this reporting period.

Students. My Invertebrate Zoology (EFB 355) course has gained in popularity and this year's labs were over-full. Most rewarding has been the positive response I've gotten from students who didn't realize they would be this excited about invertebrate animals, as well as the evidence of hard work I've seen in the lecture exams. I have seen consistent voluntary attendance in lecture, as well as enthusiasm about the hands-on components of the class, particularly the coldwater touch tank, the inverted "flip" classroom demos each student pair performs in class, and the emphasis on dissections and learning about the whole organism, from evolution to behavior to conservation. To ensure a high-quality experience for everyone in this lab-intensive course, I may need to turn away some students next year, so that there is enough room for students to safely move in the lab room. This year it was difficult to turn seniors away, and next year I expect it to be just as difficult, if not more so. Students in Diversity of Life are also becoming increasingly interested in the course through my lectures and the coldwater tank demos we do for their labs, where they learn about and feed live sea urchins and anemones.

Despite (or perhaps because) of our land-locked campus I have discovered many of our EFB students are enthusiastic about marine biology and the new Marine Science Minor. EFB 355 allows students to engage with these interests, since marine invertebrates embody the greatest morphological, developmental, evolutionary and ecological disparity among animals. Coincidentally, marine invertebrates are central to some of the greatest emerging conservation threats of our time: ocean acidification, sea temperature rise, rising sea levels, coastal modifications and pressures, and collapse of fisheries (the most economically important fisheries in the U.S. are marine invertebrates, e.g. scallops, shrimp, lobster). Since I study rainforest invertebrates myself, I certainly do not ignore terrestrial inverts, but EFB 355 is also contributing to a baseline of courses our EFB students will need to help conserve our aquatic planet in the future. The addition of marine mammal skeletal material to ESF

through RWLS this year will also help build excitement for emerging aquatic biology and conservation fields.

My Evolution course (EFB 311) has continued to be a large investment of time and energy, and I am starting to see some pay-off for this in the quality and depth of the Darwin Day posters that interpret this year's evolutionary research, and students that approach me to work in my lab or who simply ask great questions in class. Other successes include the live Skype discussion with Dr. Jerry Coyne (author of *Why Evolution is True*) and the fossil field trips to two Middle Devonian sites and a special educational program with paleontologist and Stephen Jay Gould student Dr. Rob Ross at Ithaca's Museum of the Earth. Through these experiences, our students have the opportunity to confront controversy (if they wish) and immerse themselves in evolutionary biology from modern findings to the distant past. They discover and take home with them physical evidence that life on Earth is 1) old, and 2) changing. This year I also brought additional hands-on specimens into the classroom, including a dinosaur bone, a set of owl specimens and skeletal materials (to teach about adaptation), and a whale vertebra from our recent donation of 3.5 whales (to teach about whale evolution). An otherwise large and unwieldy lecture is infused with energy by using these specimens as a jumping off point, and I plan to do more of this in the future as appropriate. I think it also helps students make the connection between an evolutionary way of thinking and their other courses.

This year I also led the Evolution Discussion Group as well as co-taught a seminar course in Invertebrate Conservation Biology with Dylan Parry. In the latter course it was especially interesting to introduce some marine conservation themes to our more terrestrially-oriented EFB grad students. Students also led discussions on captive breeding of endangered invertebrates and a broad range of other conservation topics (abstract to practical) both in and out of their comfort zones. This course is an important forum for our critical mass of EFB students entering this field.

I am also building my lab and mentorship of graduate students. I have one new Ph.D. student, two MS students, and one MPS student. I actively mentor students to focus on their ultimate career goals; to this end they have all presented in national or international meetings this year and/or submitted a paper or technical report for publication. I just completed a series of meetings with grad student Cody Gilbertson, where we interviewed everyone involved in Hawaiian endangered tree snail conservation and captive breeding, from state officials to university researchers to direct field managers who maintain remote enclosures and trap rat predators. The purpose of these meetings and field experiences was to both develop the endangered species captive breeding program in EFB but also to further develop Cody's career in this conservation field. Acquiring such a deep understanding of the nuances, working relationships, roadblocks, successes and failures in invertebrate conservation through this intense series of meetings is an experience I would like all of our graduate students to have, and I hope to integrate this into my mentorship and perhaps future course development.

Department/College.

I am serving the department and college as Head Curator of the Roosevelt Wild Life Collections, where I am involved in the development, planning and oversight of our collections, particularly the vertebrates. I have invested significant time, expertise and energy to not only basic collections functions such as strategically acquiring specimen donations (e.g. 3.5 complete whale skeletons, 14 other marine mammal specimens, a Kemp's Ridley sea turtle skeleton, northern gannet skeleton, and full musk ox mount) but also working with Gibbs, Frair, Leopold, Rentz and Heaphy in strategic planning for RWLS, presenting to the Honorary Advisory Council, and planning for renovated and modern collections, as well as exhibits, and space planning in Gateway and other Collections spaces. I have also represented Collections in meetings with Destiny USA and discussions about the potential for ESF traveling exhibits to promote ESF and our educational programs (e.g. wildlife, ecology, conservation). A big push in the next few years is collections safety, followed by increasing accessibility. To this end we submitted a half million dollar NSF CSBR grant to greatly augment our capacity to finish out the new lower level Gateway museum space and move some of our Collections there. In light of this new planned collections educational space, I worked with Ron Giegerich and Wendy Moore to produce a professional museum exhibit on the musk ox, which highlights ESF's Wildlife Science, Conservation Biology and Natural History programs and helps build connections with visiting members of the public. I've engaged the communications department in developing stories on the baleen whale skeleton moves, musk ox, and importance of Collections in general. These big and charismatic specimens have both immediate teaching use and broader marketing possibilities for talking about ESF and the things we already do so well. I look forward to engaging more members of the faculty and staff with Collections in the coming year and will appreciate their input on securing and building the Collections that are so important to our teaching and research programs here.

On a national level, I represent ESF's Collections interests and other small university Collections through my recent election to the Board of Directors for the Natural Science Collections Alliance (through AIBS), where I recently contributed to strategic planning and visioning.

I also am a member of GPAC and the CLBS advisory committee.

Self. Some of the highlights of this year have included being invited to give a research seminar at the American Museum of Natural History and serving in an advisory role for some of Mexico's most important natural history collections at INECOL in Xalapa, Mexico. I was the most junior member of a small group that advised and provided oversight for curatorial organizational structure, Collections Management Policies, planning for upcoming collections move, and mission, vision, and expansion. This year I was also named Research Associate at the Paleontological Research Institution (PRI) in Ithaca, New York, which not only helps to facilitate my own research collaborations at PRI but makes an important link to this institution for collaborations with ESF (e.g. outreach and exhibits through PRI's Museum of the Earth and Cayuga Nature Center).

Overall my research program is focused on 1) the diversification and correlates of species diversity in species-rich and understudied invertebrate taxa; and 2) the conservation of imperiled Pacific and northeastern US land snails. Central to both of these goals is training the next generation of researchers in the systematics and biology of understudied invertebrate lineages e.g. Pacific endodontoid snails (Bullis, M.S.), narrow endemic northeastern snails (Gilbertson, M.S.) and Pacific ants and snails (Czekanski-Moir, Ph.D.). In order to support the lab's research, as well as related departmental training opportunities, since I arrived at ESF I have submitted as PI or co-PI \$3,810,492 in grants (USFWS, NSF AISL, NSRC, NSF CSBR, National Geographic Society Committee for Research and Exploration, ACE-CESU (US Army), ESF Seed Grant Program, and Snow Foundation).

I have continued to develop a new research program in northeastern United States land snail conservation and am making new connections to sustain this work. Although the majority of my research has been and continues to be based in the Pacific, the philosophy behind starting a new local arm for my research is to focus attention on the threatened yet poorly known North American land snail fauna (about half of remaining species are considered imperiled). Exacerbating this land snail biodiversity crisis is that, like in the Pacific, North America also lacks the taxonomic expertise that is a critical foundation for solid conservation work on our snails. We continue to put time into the new endangered species captive breeding program in our department for the Chittenango ovate amber snail (COAS) and a new field effort for these snails at Chittenango Falls, which leverages past work by Ringler, Frair, Gibbs and others (e.g. Campbell, Frair, Gibbs & Rundell, In Press) as well as collaborations with both Rochester and Syracuse zoos. In order to implement this program I worked with USFWS Officers Robyn Niver and John Wiley to recruit an M.S. student Cody Gilbertson, who is funded in part through my USFWS grant. Cody has flourished in this role (technical report: Gilbertson & Rundell, 2014; talk at a national meeting: Gilbertson & Rundell, 2014).

I have continued my research in Belau (Republic of Palau) including forging a collaboration with three Japanese colleagues at the University of Tokyo (Yamazaki et al., In Review). I also was invited to submit a full National Geographic Society Committee for Research and Exploration grant with my Ph.D. student Jesse Czekanski-Moir as co-PI. Our full submission was rejected but we were invited for a second round submission. Jesse and I also expanded our biogeographic reach into broader Micronesia with our recent paper on the fauna of Kosrae (Rundell & Czekanski-Moir, In Press). No one had collected or reported on land snails from Kosrae since the 1930s, making our contribution a significant one for the future conservation and understanding of the Kosrae fauna and Micronesia's terrestrial invertebrates more generally.

IX. A. FUTURE PLANS, AMBITIONS, AND POTENTIAL CONTRIBUTIONS FOR YOUR OWN PROFESSIONAL DEVELOPMENT AND THE ENHANCEMENT OF THE PROGRAM IN ENVIRONMENTAL AND FOREST BIOLOGY (brief summary)

Self:

Two major events this year have presented obstacles to my establishing myself as the sole authority on Belau land snail evolution: 1) publication of taxonomic works on Belau diplommatinid land snails by three colleagues in Japan who have collected in the same areas that I have, essential following a similar path, but with greater resources; 2) the recent burning of the lab I use as my home base in Belau, and which provides the ethanol needed for preserving specimens there. While these obstacles are significant and difficult, I hope that neither is insurmountable. To address the former I have gingerly worked to collaborate with my Japanese colleagues, and divide the work that needs to be done. I am also working to establish a new line of genomics research on these snails by enhancing the training of my Ph.D. student Jesse Czekanski-Moir through the Molecular Evolution course at Woods Hole and through additional training in bioinformatics at the University of Arizona this Fall. Jesse will also be visiting Belau this summer both to collect specimens for preservation for genomics work, and also to assess what if anything can be done by us to assist in fundraising for the lab in Belau.

We will also continue to establish ourselves in Micronesia more broadly, through our new and continuing work on land snails and ants. Another group of researchers is focused on Hawaiian land snails, but I have aimed to forge meaningful collaborations with them, as well as carve out my own novel research. My newest project is on extinction in the largest-bodied group of leaf litter dwelling land snails in Hawaii, *Carelia*. My preliminary data provide interesting clues about the timing and intensity of rat predation on these snails. Still, my ambition is to publish two books on Pacific island land snail evolution and conservation, one early in my career that will set up the big questions, and one later in my career that will check on what we learned and what needs to happen next. It will take more digestion from my recent Hawaii trip and discussion with colleagues there to understand how best to approach this, for the sake of keeping the Pacific a collegial place to work. However it is clear that peer-reviewed publications are the priority for the coming year, while maintaining connections and long-term conservation goals (e.g. involving the partulid tree snails in Belau as well as endodontoids).

EFB:

I think the best ways for me to enhance our programs in EFB is through 1) my teaching (Invertebrate Zoology, Evolution, and Diversity of Life), and 2) Collections. Some of the strengths I bring to the former are: specimen-based and hands-on learning (e.g. live or dead biological specimens in class, field trips) and broad knowledge of taxa (from birds and mammals to jellyfish and sea urchins). Some of the strengths I bring to the latter are: e.g. the ability to forge connections with donors, 18 years of accumulated Collections expertise and broad knowledge of many aspects of Collections from direct specimen-based work to exhibit work to museum leadership, and new connections on a national level (e.g. NSC Alliance).

I think EFB is fairly unique in having so many faculty that make live or dead organisms and experiences outdoors a central part of their teaching. I think this is a strength for SUNY-ESF, in that it sets us apart from most other colleges in the country. This approach aligns with my own educational philosophy—that the best way to learn abstract concepts in ecology and evolution was through the prism of an actual organism, alive, or, sometimes even better: once-alive. Given this strength at ESF (especially in EFB), I think our Collections are among our most important educational and research resources, and I think we therefore not only need to treat them as such (e.g. through adequate space, pest control, climate control, data quality, specimen protection, planning and management), but continue to enhance them (e.g. grow the Collections, provide exhibitions, education, online access and other venues for their accessibility). The above is a huge job that is enough for the entire full-time curatorial, educational and collections management support staff of a museum. The new Gateway Roosevelt Wild Life Collections Education and Research Center will be a big step toward ensuring the safety and accessibility of our Collections, as well as building Collections at ESF. However, my role in helping make this a reality is a daunting one, as is working with existing non-vertebrate Collections, staff and faculty to ensure a broader plan for all natural history resources at ESF. The challenge for this upcoming year and many subsequent years, will be to bolster the entire educational and research foundation of the Department through securing and enhancing our Collections. While it will be difficult, I also think that the collections focus presents the college with some really exciting opportunities to bring the best students here, as well as investment in these students. So many of our incoming students point directly to specific organisms and their desire to save them as their inspiration for coming to ESF. I think charismatic specimens like whales and the ability to curate, prepare, preserve or do research on these specimens are important avenues for capturing, retaining and propelling these students forward in their careers.

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2015

a. Course(s) to be offered

b. Proposed research activity

write NSF CAREER grant

write NSF CSBR grant

Revise and re-submit National Geographic Society grant to NG Waitt (NGS venture capital arm), as recommended by the Senior Program Officer handling our grant

Revise build-up of *Belau* diplommatinids ms.

Collaboration with Dr. Mike Barker (University of Arizona) on animal polyploidy research

Collaboration with Dr. Carl Christensen at Bishop Museum (Honolulu, Hawaii) on extinct *Carelia* land snail causes of extinction and rat predation project

Collaboration with Ph.D. student Jesse Czekanski-Moir and Dr. Rei Ueshima, University of Tokyo, Diplommatinidae of Belau systematics (Czekanski-Moir visiting University of Tokyo, June 2015)

Collaboration with Jesse Czekanski-Moir during field research in Republic of Palau, June-July 2015. Preservation of specimens in RNAlater for genomic research, and gathering additional data for next grant

Collaboration with M.S. student David Bullis in Illick Hall on Belau endodontoid land snail evolution and conservation research

Collaboration with M.S. student Cody Gilbertson in Illick Hall CIRTAS on endangered NYS land snails, which as of last week are mating!

c. University, professional society, and public service

RWLS Collections Head Curator: Gateway Roosevelt Wild Life Education and Research Center
Planning and Execution

Herbarium Flood aftermath and Collections salvage: Training students in curation and pressing plants with Dr. Weir in collaboration with Cornell University Herbarium

Invited Reviewer, *Invertebrates*. Edited by Richard Brusca, Wendy Moore, and Stephen Milbourn Shuster. Sinauer Associates, Inc. Will provide feedback and corrections for entire textbook (29 chapters). This is the classic Brusca and Brusca invertebrate zoology textbook, the third edition, and the first one following the death of Dr. Gary Brusca. This is also the textbook I use in my Invertebrate Zoology course in EFB.

Invited talk. Pacific Island Land Snail Symposium. **American Malacological Society.** University of Michigan.

Natural Science Collections Alliance Elected Representative at Large

2. Fall Semester 2015

a. Course(s) to be offered

b. Proposed research activity

Collaboration with Dr. Mike Barker (University of Arizona) on animal polyploidy research

Collaboration with Ph.D. student Jesse Czekanski-Moir on bioinformatics and genomics research and training incorporating Belau land snails while in residency at University of Arizona (Barker Lab)

Collaboration with Dr. Carl Christensen at Bishop Museum (Honolulu, Hawaii) on extinct *Carelia* land snail causes of extinction and rat predation project

Collaboration with M.S. student David Bullis in Illick Hall on Belau endodontoid land snail evolution and conservation research

Collaboration with M.S. student Cody Gilbertson in Illick Hall CIRTAS on endangered NYS land snails, which as of last week are mating!

c. University, Professional society, and public service

RWLS Collections Head Curator: Gateway Roosevelt Wild Life Education and Research Center
Planning and Execution

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Natural Science Collections Alliance Elected Representative at Large

3. Spring Semester 2016

a. Course(s) to be offered

EFB 311	Principles of Evolution	3 cr.
EFB 355	Invertebrate Zoology	4 cr.
EFB 211	Diversity of Life	3 cr.

b. Proposed research activity

continue above research activities

c. University, professional society, and public service

RWLS Collections Head Curator: Gateway Roosevelt Wild Life Education and Research Center
Planning and Execution

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