

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

NAME: Stephen Teale

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>
FALL:	EFB 352	Entomology	3	59	4
	EFB 552	Entomology	3	4	2
SPRING:	EFB 217	Peoples, Plagues & Pests (co-taught w/ JDC)	3	106	0
	EFB 570	Insect Physiology	3	9	0

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>
SUMMER:	EFB 999	Doctoral Thesis Research	1	1
FALL:	EFB 420	Prof Internship/Envrn Biology	3	5
	EFB 498	Independent Research/Envrn Bio	3,3,2,3,2	5
	EFB 797	Behvr Assays/Chem Ecol Rsrch	1	3
	EFB 899	Masters Thesis Research	9	1
	EFB 999	Doctoral Thesis Research	5,5,6,6	4
SPRING:	EFB 498	Independent Research/EFB	2,4,2,3	4
	EFB 899	Masters Thesis Research	1	1
	EFB 999	Doctoral Thesis Research	5,3,9,8	4

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 16 and unofficial advisor 3

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

1. Kristen Doherty, MS, started Jan. 2013
2. Laura Hansen, PhD, started June 2012
3. Tian Xu, PhD, started August 2012
4. Alejandro Mieles, PhD, started August, 2012
5. Hajar Faal, PhD, started June, 2014

MEMBER, STEERING COMMITTEE (other than those listed above)

1. Jonathan Cale, PhD

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

1. Jipeng Yan, PhD, ERE (Chairman)
2. Ashley Simpson, MS, FRM (Chairman)

C. Postdoctoral Associates

1. Dr. Katalin Böröczky, October, 2013 – July, 2014
2. Dr. Dong Cha, March, 2015 - present

III. RESEARCH COMPLETED OR UNDERWAY

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

1. “Oviposition attractants for *Culiseta melanura*, the principal vector of Eastern Equine Encephalitis” (1%)

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)

1. USDA APHIS “Development of chemical attractants and improved trap designs to facilitate detection of exotic Cerambycidae” PIs: Millar, J.G., L. Hanks & S. Teale \$139,897 01-SEP-2013 To 31-AUG-2014 (**\$30,586** to SUNY-ESF).
2. USDA APHIS “Targeted Identification of Pheromones and Related Attractants for Invasive Cerambycid Beetles from Asia” PIs: Millar, J.G., L. Hanks & S. Teale \$145,000 01-SEP-2014 To 31-AUG-2015 (**\$33,396** to SUNY-ESF).
3. Alphawood Foundation, PI: Teale, S. “Asian Longhorn Beetle Research at SUNY-ESF” \$ **61,407**; 25-FEB-2013 To 25-FEB-2015
4. Alphawood Foundation, PI: Teale, S. “Asian Longhorn Beetle Research at SUNY-ESF” \$ **92,137**; FEB-2014 To FEB-2016
5. Alphawood Foundation, PI: Teale, S. “Asian Longhorn Beetle Research at SUNY-ESF” \$ **95,078**; MAY-2015 To MAY-2017
6. USDA Forest Service STDP, PIs: Teale, S., J.D. Castello, J.G. Millar. “Fungal Attractants for *Sirex noctilio* and its Parasitoids” \$123,630 July 1, 2010 - June 30, 2015 (on NCE JUN 2014 – JUN 2015)
7. Helmsley Trust/International Community Foundation, PI: C. Causton. ~\$800,000/3 yr. **\$85,061** to ESF in year 1 (15-OCT-2013 To 14-SEP-2014).
8. Helmsley Trust/International Community Foundation, PI: C. Causton. ~\$800,000/3 yr. **\$81,693** to ESF in year 1 (SEPT-2014 To NOV-2015).

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

1. Cale, J.A., S.A Teale, M.T. Johnston, G.L. Boyer, K.A. Perri, J.D. Castello. 2015. New ecological and physiological dimensions of beech bark disease development in aftermath forests. *For. Ecol. Mgmt.* 336: 99-108.
2. Cale, J.A., Ashby, A.W., West, J.L., Teale, S.A., Johnston, M.T., Castello, J.D. (2015) Scale insects, decay, and canker fungi in American Beech. *Forest Pathology* 45: 71-75.
3. Cale, J.A., S.A. Teale, J.L. West, L.I. Zhang, D.R. Castello, P. Devlin and J.D. Castello. 2014. A Quantitative Index of Forest Structural Sustainability. *Forests* 5(7), 1618-1634.

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

1. Hansen, L, J. Wickham, S. Pocock and S. Teale. Discrimination of *Anoplophora glabripennis* (Coleoptera: Cerambycidae) host and non-host tree species by antennally active volatiles. Annual National Meeting of the Entomological Society of America. Portland, OR, Nov. 2014
2. Collignon, R.M., K. Boroczky, A. Miele, C. Causton, P. Lincango, S. A. Teale. Cuticular lipids and mate attraction in the avian parasite *Philornis downsi* (Diptera: Muscidae). International Society of Chemical Ecology, Urbana, IL, July 2014.
3. Hansen, L, J. Wickham, S. Pocock and S. Teale. Discrimination of *Anoplophora glabripennis* (Coleoptera: Cerambycidae) host and non-host tree species by antennally active volatiles. 26th USDA Interagency Research Forum on Invasive Species. Annapolis, MD, January, 2015
4. Miele, A., S. Teale, and K Doherty. Ecologia Química de *Philornis downsi*. II Taller. Búsqueda de soluciones para el control del parásito aviar, *Philornis downsi* (Second Workshop on finding solutions for the control of the avian parasite, *Philornis downsi*). Puerto Ayora, Ecuador, Feb. 9-10, 2015.

VI. PROFESSIONAL DEVELOPMENT

B. 2. Professional Society Membership

Entomological Society of America
International Society of Chemical Ecology

3. Other Professional Activities

a. Editorial activity

<u>Journal (s)</u>	<u>Responsibility</u>
Frontiers in Ecology and Evolution (Chem. Ecol.)	Review Editor

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
Agricultural and Forest Entomology	
PLOS ONE	
Journal of Chemical Ecology	
Frontiers in Ecology and Evolution	
Journal of Economic Entomology	

D. Foreign Travel (Where, When, Purpose)

Charles Darwin Research Station, Puerto Ayora, Galapagos, Ecuador, 8 Feb. – 1 March, 2015 for field work and a meeting.

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

1. Promotion and Tenure Committee (member, Chair)

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.

My research group currently includes a postdoc and four PhD, one MS, and six undergraduate students. Research projects being conducted by my group include laboratory and field work in the U.S., Ecuador (Galapagos) and China and address problems of concern to both biodiversity conservation and forestry. All of my current projects involve invasive insect pests. In Ecuador, the parasitic fly, *Philornis downsi*, is a serious threat to the endemic avifauna of the Galapagos Archipelago including the IUCN critically endangered mangrove finch. Our work with this parasite is supported by the Helmsley Trust and is focused on identifying pheromones and other attractants that can be used in support of environmentally harmless pest management strategies in this sensitive island ecosystem. Our work with longhorned beetles in China is focused on identifying pheromones and host odors that can be used to detect and monitor populations of the Asian longhorned beetle, which is established in the U.S., and several other damaging species that are considered to have high potential for future introduction to the U.S through international trade. Locally, a U.S. Forest Service funded project on *Ibalia leucospoides*, a parasitoid of the non-native, invasive Sirex woodwasp is investigating the chemical ecology of multi-trophic level interactions.

Since approximately 1999, I have been working with the ESF administration and Physical Plant toward the construction of an arthropod containment greenhouse. After a number of false starts and delays, this facility is now complete and the only remaining tasks to make it operational are regulatory in nature. This is a high-level containment facility that will enable our faculty and students to conduct timely research on a wide variety of non-native insects that pose a threat to regional and distant ecosystems.

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)

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2015

- a. Course(s) to be offered
 - EFB 345 Forest Health
- b. Proposed research activity
 - Continuing with currently funded projects:
 - i. *Philornis downsi* – Galapagos
 - ii. Asian longhorned beetle
 - iii. Exotic woodboring cerambycids
 - iv. Parasitoids of Sirex woodwasp
- c. University, professional society, and public service
 - i. Chair, EFB P&T Committee
 - ii. Chair, ESF Biosafety Committee

2. Fall Semester 2015

- a. Course(s) to be offered
 - EFB 352 Entomology
 - EFB 552 Entomology
- b. Proposed research activity
 - i. *Philornis downsi* – Galapagos
 - ii. Asian longhorned beetle
 - iii. Exotic woodboring cerambycids
 - iv. Parasitoids of Sirex woodwasp
- c. University, professional society, and public service
 - i. Chair, EFB P&T Committee
 - ii. Chair, ESF Biosafety Committee

3. Spring Semester 2016

- a. Course(s) to be offered
 - EFB 217 Peoples, Plagues and Pests
- b. Proposed research activity
 - Continuing with currently funded projects:
 - i. *Philornis downsi* – Galapagos
 - ii. Asian longhorned beetle
 - iii. Exotic woodboring cerambycids
 - iv. Parasitoids of Sirex woodwasp
- c. University, professional society, and public service
 - i. Chair, EFB P&T Committee
 - ii. Chair, ESF Biosafety Committee