

ANNUAL REPORT: June 1, 2016 – May 31, 2017
(i.e., Summer 2016, AY 2016-2017)
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>
SUMMER:	EFB345	Forest Health (co-taught w/ JDC)	3	7	1
FALL:	EFB351	Forest Entomology	3	54	4
	EFB551	Forest Entomology	3	3	4
SPRING:	EFB217	Peoples, Plagues and Pests (co-taught w/ JDC)	3	84	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>
Fall:				
	EFB420	Prof Internship/Envrn Biology	3	1
	EFB295	Undergrad Exp/Coll Teach	3	1
	EFB899	Masters Thesis Research	1	1
	EFB999	Doctoral Thesis Research	2-9	5
Spring:				
	EFB498	Independent Research/Envrn Bio	3	3
	EFB899	Masters Thesis Research	1	1
	EFB999	Doctoral Thesis Research	1-9	5

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 19 and unofficial advisor 2

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
6. Shannon Peterson, PhD, started August, 2016

MEMBER, STEERING COMMITTEE (other than those listed above)

1. Kim Adams, PhD, completed May 2017
2. Rebecca Policello, MS

III. RESEARCH COMPLETED OR UNDERWAY

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

1. Fungal Attractants for *Sirex noctilio* and its Parasitoids 5%
2. Detection of resistance to beech bark disease and its phytochemical basis (2%)

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 "Targeted Identification of Pheromones and Related Attractants for Invasive Cerambycid Beetles from Asia" PIs: Millar, J.G., L. Hanks & S. Teale \$163,074 01-SEP-2015 To 31-AUG-2016 (**\$34,609** 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 \$190,218 01-SEP-2016 To 31-AUG-2017 (**\$38,192** to SUNY-ESF).
3. Alphawood Foundation, PI: Teale, S. "Asian Longhorn Beetle Research at SUNY-ESF" \$ **95,078**; MAY-2015 To MAY-2017
4. Alphawood Foundation, PI: Teale, S. "Asian Longhorn Beetle Research at SUNY-ESF" \$ **95,895**; 1-FEB-2016 To 31-JUL-2017
5. Helmsley Trust/International Community Foundation, PI: C. Causton. "Protect Galapagos Landbirds from Invasive Species" ~\$800,000/3 yr. **\$84,123** to ESF (23-NOV-2016 To 22-NOV-2017).
6. Helmsley Trust/International Community Foundation, PI: C. Causton. "Protect Galapagos Landbirds from Invasive Species" ~\$800,000/3 yr. **\$98,350** to ESF (31-NOV-2015 To 31-OCT-2016).

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

1. USDA APHIS "Targeted Identification of Pheromones and Related Attractants for Invasive Cerambycid Beetles from Asia" PIs: Millar, J.G., L. Hanks & S. Teale \$194,128 01-SEP-2017 To 31-AUG-2018 (\$40,171 to SUNY-ESF).
2. NSF IOS BSC Preliminary Proposal Collaborative Research: "DARWIN - the evolution of an ecological trap in the Galapagos Islands" PI: Voss, M., co-PIs: JR Welsh, C Causton, B Fessl, S Teale, B. Potter, A Mieles
3. Austrian Science Fund (FWF) Host versus parasite: the early stages of a recently established interaction between the invasive parasitic fly *Philornis downsi* and Darwin's finches; an arms race for survival?" PI: S Tebbich, co-PIs: C Causton, S Teale, G Heimpl, H Richner, Q Zhou 320,000€/3 yr. 23,107 to ESF
4. Alphawood Foundation, PI: Teale, S. "Asian Longhorn Beetle Research at SUNY-ESF" \$ 96,122

3. Research Proposals submitted, but rejected (include information as in B.1, above) - None

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

- Cale, JA, MT Garrison-Johnston, **SA Teale**, JD Castello. 2017. Beech bark disease in North America: Over a century of research revisited. *Forest Ecology and Management* 394: 86-103
- Cimadom, A, C Causton, DH Cha, D Damiens, B Fessler, R Hood-Novotny, P Lincango, AE Mieleles, E Nemeth, E Semler, **SA Teale**, S Tebbich. 2016. Darwin's finches treat their feathers with a natural repellent. *Scientific Reports*. 6, Article number: 34559 doi:10.1038/srep34559
- Cha, DH, AE Mieleles, PF Lahuatte, A Cahuana, MP Lincango, CE Causton, S Tebbich, A Cimadom, **SA Teale**. 2016. Identification and Optimization of Microbial Attractants for *Philornis downsi*, an Invasive Fly Parasitic on Galapagos Birds. *J. Chem. Ecol.* 42(11):1101-1111.
- Xu T, H Yasui, **SA Teale**, N Fujiwara-Tsujii, JD Wickham, M Fukaya, L Hansen, S Kiriyama, D Hao, A Nakano, L-W Zhang, T Watanabe, M Tokoro, JG Millar. (In review) Identification of a male-produced sex-aggregation pheromone for a highly invasive cerambycid beetle, *Aromia bungii*. *Scientific reports*

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

- Teale, S.A.** "Longhorned beetle pheromones and sustainable forest pest management" IUFRO Regional Congress for Asia and Oceania, October 24–27, 2016, Beijing, China (Invited)
- Cha DH (presenter), A Mieleles, C Causton, P Lahuatte, A Cahuana, P Lincango, **S Teale**. "Identification and field evaluation of yeast volatiles attractive to *Philornis downsi*, a hematophagous invasive parasite of Darwin's finches in the Galapagos" XXV International Congress of Entomology, Orlando, FL, 27 September, 2016
- Faal H (presenter), D Cha, **S Teale**. Response of wasp parasitoid *Ibalia leucospoides* to volatiles from fungal symbiont (*Amylostereum areolatum*) of *Sirex noctilio*. XXV International Congress of Entomology, Orlando, FL, 29 September, 2016

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

- Teale, SA. "Pheromones of Longhorned Beetles in China" Department of Forest Protection, Nanjing Forestry University, Nanjing, China, 20 Oct 2016; invited departmental seminar, attendance \approx 100
- Teale, SA. "Seeing the Forest for the Trees: Assessment of Forest Insect Impacts" Department of Forest Protection, Nanjing Forestry University, Nanjing, China, 22 Oct 2016; invited departmental seminar, attendance \approx 50

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

2. Industrial and Commercial Groups, etc.

Provided forensic analysis of extensive wood boring insect damage to cabinetry in support of plaintiff's law suit.

VI. PROFESSIONAL DEVELOPMENT

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

Appointed as Adjunct Faculty in the Department of Forest Protection, Nanjing Forestry University

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

2. Professional Society Membership

Entomological Society of America

International Society of Chemical Ecology

3. Other Professional Activities

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
Oecologia	1
Journal of Insect Science	1
Journal of Economic Entomology	1
Journal of Insect Behavior	1

D. Foreign Travel (Where, When, Purpose)

Nanjing, China, 19-23 Oct 2016, Purpose: To meet with collaborators, to give two departmental seminars, and to receive Adjunct Faculty appointment

Beijing, China, 23-27 Oct 2016, Purpose: To give an invited presentation at the IUFRO Regional Congress for Asia and Oceania

Galapagos, Ecuador, 2-28 Mar 2017, Purpose: To conduct field research on *Philornis downsi*, an invasive parasite of Galapagos landbirds

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

Promotion and Tenure Committee (member, Chair)

B. College-level

Biosafety Committee (member)

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.

In October, I was pleased and honored to be offered an adjunct faculty position in the Department of Forest Protection, Nanjing Forestry University. I have been collaborating with faculty at NFU since 2013 and look forward to further strengthening our mutually beneficial relationship. PhD student Laura Hansen received

an award from the NSF East Asia and Pacific Summer Institute (EAPSI) Program to support her dissertation research on semiochemical interactions between the Asian longhorned beetle, *Anoplophora glabripennis*, and its co-occurring sister species, *A. chinensis*. Ruixu Chen, a PhD student at NFU, joined my lab in April as a Visiting Scholar for one year and will be conducting research on the chemical ecology of longhorned beetles and other forest insects. In September, post doc Dr. Dong Cha left ESF for a position as a Research Biologist with the USDA-ARS in Hilo, HI where among other things, he supervises two former students from my lab, Max Collignon and Dominick Skabeikis. PhD student Alejandro Mieles received the Gerald N. Lanier Award to support travel to the Annual Meeting of the International Society of Chemical Ecology in Kyoto in August where he will present his work on the chemical ecology of *Philornis downsi*, an invasive parasite of Darwin's finches and other land birds.

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 2017

a. Course(s) to be offered

b. Proposed research activity

Continuing with several projects:

- i. *Philornis downsi* – Galapagos
- ii. Asian longhorned beetle
- iii. Exotic woodboring cerambycids
- iv. Parasitoids of Sirex woodwasp
- v. Detection of resistance to beech bark disease and its phytochemical basis

c. University, professional society, and public service

- i. Chair, EFB P&T Committee
- ii. ESF Biosafety Committee

2. Fall Semester 2017

a. Course(s) to be offered

EFB 351 Forest Entomology

EFB 551 Forest Entomology

b. Proposed research activity

- i. *Philornis downsi* – Galapagos
- ii. Asian longhorned beetle
- iii. Exotic woodboring cerambycids
- iv. Parasitoids of Sirex woodwasp
- v. Detection of resistance to beech bark disease and its phytochemical basis

c. University, Professional society, and public service

- i. Chair, EFB P&T Committee
- ii. ESF Biosafety Committee

3. Spring Semester 2018

a. Course(s) to be offered

I am planning to develop and offer a new course in Sensory Ecology

b. Proposed research activity

- vi. *Philornis downsi* – Galapagos
- vii. Asian longhorned beetle
- viii. Exotic woodboring cerambycids
- ix. Parasitoids of Sirex woodwasp
- x. Detection of resistance to beech bark disease and its phytochemical basis

c. University, Professional society, and public service

- iii. Chair, EFB P&T Committee
- iv. ESF Biosafety Committee