

**ANNUAL REPORT: June 1, 2010 – May 31, 2011**  
**(i.e., Summer 2010, AY 2010-2011)**  
**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	3	10	
FALL:	EFB351	Forest Entomology	3	74	4
	EFB551	Forest Entomology	3	2	
SPRING:	EFB217	Peoples, Plagues & Pests	3	161	

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>
	EFB899	Masters Thesis Research	51	5
	EFB420	Internship/Env&Forest Bio	20	6
	EFB498	Resrch Prob/Env&For Bio	7	6
	EFB999	Doctoral Thesis Research	14	2

4. Guest Lecture Activities

<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
EFB 215	Interpreting Science Through Art	2

**II. STUDENT ADVISING**

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

B. Graduate Students: (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. Wei Xiao, PhD. started Aug. 2009
2. Paul Bryant, MS. started Aug., 2007, completed Aug. 2010. "Kairomonal attraction of the parasitoid *Ibalia leucospoides* (Hymenoptera: Ibalidae) to volatiles of the fungus *Amylostereum areolatum*, an obligate symbiont of the European woodwasp, *Sirex noctilio*"
3. Robert Collignon MS. started January, 2009
4. Dominick Skabeikis, MS, started Aug. 2009

5. Daniel Cucura, MS, started Aug. 2009
6. Sarah Pocock, MS, started Jan., 2011
7. Kevin O'Brien MS, started Jan., 2011

MEMBER, STEERING COMMITTEE (other than those listed above)

1. Kim Adams (PhD)
2. Jonathan Cale (MS)

**III. RESEARCH COMPLETED OR UNDERWAY**

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

1. Beech bark disease 10% – Several aspects incl. (1) relationship between the scale insect and the fungal pathogen, (2) impacts of beech thickets on forest biodiversity, (3) development of a digital image analysis methodology for measuring scale insect density, and (4) development of systemic insecticidal treatment for manipulating scale insect density.
2. Sugar maple borer pheromone identification – 2%
3. Chemical attractants of *Philornis downsi* – 5%. This insect is a parasitic fly that attacks neonate passerine birds. It has been unintentionally introduced from South America to the Galapagos Islands where it is causing high levels of mortality among several bird species including “Darwin’s finches” and the endangered mangrove finch which is down to ~50 breeding pairs. There is an urgent need for an effective means of control that will not adversely affect non-target organisms. This is currently a pilot study being conducted in collaboration with scientists from the Charles Darwin Foundation; we plan to go for full funding of the project in the coming year.

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, J. Allison & S. Teale \$123,347 Sept 1, 2010-Aug 31, 2011 (Award divided among 4 PIs - \$29,268 to SUNY-ESF). Graduate student supported: R.M. Collignon
2. Alphawood Foundation, PI: Teale, S. “Asian Longhorn Beetle Research at SUNY-ESF” \$91,425 February 1, 2010 - January 31, 2011 Graduate student supported: Wei Xiao
3. Alphawood Foundation, PI: Teale, S. “Asian Longhorn Beetle Research at SUNY-ESF” \$ 81,232 FEB-03-2009 - FEB-02- 2011 Graduate student supported: Wei Xiao
4. Alphawood Foundation, PI: Teale, S. “Asian Longhorn Beetle Research at SUNY-ESF” \$ 81,232 Jan 28-2011 – Jan 27 2012, Graduate student supported: K.M. O'Brien
5. 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, 2013 (\$40,000 in first year); Graduate student supported: D.M. Cucura
6. Northeastern States Research Cooperative, PIs: McNulty, S. J.D. Castello & S. Teale. “The influence of American beech thickets on biodiversity in the northern hardwood forest.” \$34,785 October 1, 2009 – September 30, 2010, Graduate student supported: J. Cale (summer only)

7. McIntire-Stennis Cooperative Forestry Research Program, PIs: Quackenbush, L. & S. Teale. "Remote Sensing Based Classification of Forests Infested by Sirex Woodwasp." \$78,236 Oct. 1, 2008 – Sept. 30, 2010. Graduate student supported: W. Zhang
8. USDA-APHIS, PI: Teale, S. "SUNY-ESF/NYSDEC, Division of Lands & Forests Partnership Technology to Combat Asian Long-Horned Beetles in New York Forests" \$437,703 01-JUN-2010 to 18-JUL-2012 Graduate student supported: Wei Xiao, Sarah Pocock
  2. Research Proposals pending (include information as in B.1., above).
1. McIntire-Stennis Cooperative Forestry Research Program, PIs: Johnston, M.T., S.A. Teale and J.D. Castello. "Fresh taste from a stale pickle: An altered perception of beech bark disease" Awarded, Start date: 10-1-2011, end date: 9-30-2013.
  3. Research Proposals submitted, but rejected (include information as in B.1, above)
1. USDA Forest Service FHP, PIs: Teale, S. & J.G. Millar. "Chemical Attractants for *Laricobius nigrinus*" 1 Sept. 2010 – 31 August 1012 \$79,762

**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., S. Letkowski, S.A. Teale, J. Castello. 2011. Beech bark disease: An evaluation of the predisposition hypothesis in an aftermath forest. *For. Path.* 41: xxx-yyy
2. Teale, S.A., J.D. Wickham, F. Zhang, J. Su, Y. Chen, W. Xiao, L.M. Hanks and J.G. Millar. 2011. A male-produced aggregation pheromone of *Monochamus alternatus* (Coleoptera: Cerambycidae), a major vector of pine wood nematode. *J. Econ. Entomol.* In press.
3. Shumate, A.M., S.A. Teale, B.D. Ayres and M.P. Ayres. 2011. Disruptive selection maintains variation in pheromone production by the bark beetle *Ips pini*. *Environmental Entomology*. In press.

B. Non-refereed Publications

Abstract

1. Cale, J.A., Stacy A. McNulty, Stephen A. Teale, and John D. Castello. 2010. Beech Thickets Impact Northern Hardwood Forest Biodiversity. *J. For.* 108: 423.

Books

1. Castello, J.D. and S.A. Teale (Eds.). 2011. *Forest Health: An Integrated Perspective*. Cambridge Univ. Press. 384 pp.

Book Chapters

1. Teale, S. A. and J. D. Castello. 2011. The Past as Key to the Future: A New Perspective on Forest Health. Pp. 3-16 In Castello, J.D. and S.A. Teale (Eds.). 2011. *Forest Health: An Integrated Perspective*. Cambridge Univ. Press. 384 pp.

2. Castello, J.D., S.A. Teale and J.A. Cale 2011. How do we do it, and what does it mean? Pp. 50-78. In Castello, J.D. and S.A. Teale (Eds.). 2011. *Forest Health: An Integrated Perspective*. Cambridge Univ. Press. 384 pp.
3. Teale, S.A. and J.D. Castello. 2011. Regulators and terminators: the importance of biotic factors to a healthy forest. Pp. 81-114. In Castello, J.D. and S.A. Teale (Eds.). 2011. *Forest Health: An Integrated Perspective*. Cambridge Univ. Press. 384 pp.
4. Parry, D. and S.A. Teale. 2011. Alien invasions: the effects of introduced species on forest structure and function. Pp. 115-162. In Castello, J.D. and S.A. Teale (Eds.). 2011. *Forest Health: An Integrated Perspective*. Cambridge Univ. Press. 384 pp.
5. Castello, J.D. and S.A. Teale. 2011. What did we learn, and where does it leave us?: Concluding thoughts. Pp. 344-355. In Castello, J.D. and S.A. Teale (Eds.). 2011. *Forest Health: An Integrated Perspective*. Cambridge Univ. Press. 384 pp.

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

1. Wickham, J.D. and S.A. Teale. The missing link: How mating status influences the volatile and contact sex pheromones of female Asian Longhorn Beetle. Symposium on Semiochemicals of the Cerambycidae. Annual National Meeting of the Entomological Society of America, San Diego, CA, December 2010. (Invited, symposium)
2. Teale, S.A. Female-Produced Pheromones in the Asian Longhorned Beetle, 11 Jan 2011, USDA Interagency research Forum on Invasive Species (side meeting), Annapolis, MD
3. Teale, S.A. "Asian longhorned Beetle: biology, detection and eradication" 10 May, 2011, North American Forest Insect Work Conference, Portland, OR (Invited, symposium)
4. Teale, S.A. "Fungal attractants for *Sirex noctilio* and its parasitoids" *Sirex noctilio* Research Updates Conference, Sponsored by the USDA APHIS and USDA Forest Service, 24 May, 2011, Riverdale, MD (Invited)

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

1. Teale, S.A. Chemical Ecology of the Asian Longhorned Beetle. Department of Entomology, Northeast Forestry University, Harbin, P.R. China, June, 2010

## VI. PROFESSIONAL DEVELOPMENT

2. Professional Society Membership

International Society of Chemical Ecology  
Entomological Society of America

3. Other Professional Activities

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
Agricultural and Forest Entomology	1
Environmental Management	1
Journal of Chemical Ecology	1
Environmental Entomology	1
Journal of Applied Entomology	1

<u>Agency</u>	<u>No. of proposals</u>
NSF, IOS - Processes Strucs & Integrity	1

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
1. “Workshop on Chemical Attractants of the Asian Longhorned Beetle” Workshop organized by S. Teale at the request of USDA APHIS as a ‘side meeting’ of the USDA Interagency research Forum on Invasive Species, Annapolis, MD, 11 Jan 2011		

D. Foreign Travel (Where, When, Purpose)

1. P.R. China, 11 June – 2 July, 2010.
  - a. Fuzhou, Fujian Province – Conducted field research on chemical attractants of 13 species of longhorned beetles with cooperation from the College of Forestry, Fujian Agriculture and Forestry University.
  - b. Harbin, Heilongjiang – Conducted field research on pheromones of the Asian longhorned beetle and 13 other species of longhorned beetles with cooperation from Northeastern Forestry University.

**VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)**

A. Department-level

B. College-level

1. Secretary, Faculty Governance, beginning 18 May, 2011

**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 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, which I’ll continue to award based on your contributions to the department and college this reporting period.

1. John Castello and I completed our Forest Health textbook. Since it is not yet available for sale in North America, it is too early to know if it will be well received, however, we are very pleased with it.
2. Our course, EFB 217 Peoples, Plagues and Pests continues to very successful. The enrollment seems to have plateaued at 160-170.
3. The introductory entomology courses (EFB 351 Forest Entomology and EFB 352 Entomology) continue to grow and have received very favorable evaluations. EFB 352 had 47 students in 2007, pre-enrollment for 2011 is 90 likely making it the largest entomology course in the country. The restructuring of these introductory entomology course offerings so that both Entomology (EFB 352) and Forest Entomology (EFB351) have graduate counterparts (EFB 552 & EFB 551, respectively) and the alternate-year scheduling so they don't compete against each other has been successful.

**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 2009

a. Course(s) to be offered

EFB345 Forest Health (CLBS)

b. Proposed research activity

- Field and laboratory-based experiments on fungal attractants of the Sirex woodwasp and its parasitoids in central NY.
- Field testing in China of chemical attractants of Asian species of longhorned beetles considered to have significant potential for introduction to the U.S.
- Field testing of pheromones of the Asian longhorned beetle in China. Also, a study of volatile emissions from native Asian hosts of ALB.

2. Fall Semester 2009

a. Course(s) to be offered

- EFB 352/552 Entomology (four sections)

b. Proposed research activity

- Field and laboratory-based experiments on fungal attractants of the Sirex woodwasp and its parasitoids in central NY.
- Laboratory-based studies of ALB pheromones and host attractants.

c. University, Professional society, and public service

- Secretary, ESF Faculty Governance

### 3. Spring Semester 2010

#### a. Course(s) to be offered

- EFB 412/612 Chemical Ecology
- EFB 217 Peoples, Plagues and Pests

#### b. Proposed research activity

- Field and laboratory-based experiments on fungal attractants of the Sirex woodwasp and its parasitoids in central NY.
- Laboratory-based studies of ALB pheromones and host attractants.

#### c. University, professional society, and public service

- Secretary, ESF Faculty Governance