NC STATE UNIVERSITY

January 2016

Wolfpack's Waggle

January 2016 Newsletter

NC State Apiculture Program

Dedicated to the dissemination of information and understanding of honey bee biology and management

Issue 1, January 2016

More inside

What have we been up to?

The beginning of a new year always brings reflection about the previous. We've had another successful year, with seven peer-reviewed publications and 13 presentations at scientific meetings. We had 15 active grants totaling $1.8M, and we have more people in the program than ever. We have been joined by a new postdoc, Dr. Parry Keitzman, from the University of California at Riverside, and Erin McDermott and Hannah Levenson have both joined us as temporary research technicians in the lab and field, respectively. Mike Simone-Finstrom landed a prime research position at the USDA Baton Rouge lab last fall, and our long-time Genetics Technician Margie Gurganus left the lab to attend veterinary school—their presence and collegiality will be sorely missed. On the extension side, collectively we delivered ~25 presentations and workshops to various beekeeper groups for ~4,700 individual contacts, and we were covered by 11 media stories on our work. New courses on our BEES network continue to be on hold until the migration to the DELTA server is finalized (see page 2), but we hope it will once again gain some traction. Overall, 2015 was a great year, and we hope the same for 2016!

Big changes in the department and college

It has recently been announced that the Department of Entomology, home to the NC State Apiculture Program, is being merged with the Department of Plant Pathology and housed within the new school of Plant Sciences.

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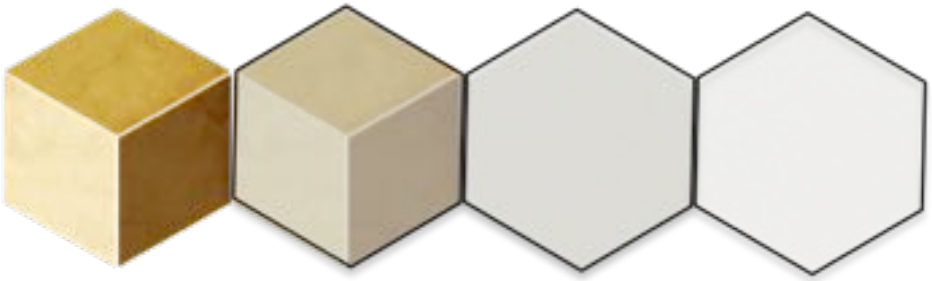
Beekeeper Education & Engagement System



New developments in the BEES network

DELTA now charging 43% overhead for all courses, so each mini-course will now cost $36.72

The BEES network has moved! What was once hosted on the Extension server of the College of Agriculture and Life Sciences (CALS) has now migrated to the Distance Education server. While we will be able to continue these courses for the time being, to recover costs DELTA is now including a 43% overhead on each person for each course. We are monitoring traffic to see if we will continue these offerings.

Beginner level

BEES 1.01: Basic honey bee biology and life history (1.66 hours)

BEES 1.02: Introduction to beekeeping and hive management (1.95 hours)

BEES 1.03: Importance of bees and beekeeping to society (1.71 hours)

Sign up today @:

http://go.ncsu.edu/BEES

Advanced level

BEES 2.01.02: Honey bee anatomy

BEES 2.01.05: Queens and mating

BEES 2.01.07: Foraging biology

BEES 2.02.03: Pathogens, parasites, pests, and problems

BEES 2.02.04: Varroa mite IPM

BEES 2.02.05: Queen rearing and bee breeding

BEES 2.03.01: Africanized bees

BEES 2.03.07: History of beekeeping

Lab spotlight: Carl Giuffre

Carl Giuffre (pronounced “jif-REY”) is a Ph.D. student in our program for the past 3 years and is busily finishing up his doctoral work. Carl is unique in our program in that he is a member of the elite Biomath program here at NC State, where he straddles the line between biology (focusing on honey bees) and hardcore mathematics (focusing on computer image processing).

Carl’s three chapters of his thesis focus on automating body grooming of adult bees (which may hasten studies on disease control), the dynamics of how varroa mites move, and the means of automatically identifying different types of pollen by distinguishing their color.

We’re all very proud of Carl’s progress and successes, and we look forward to him finalizing his degree!

Restructuring in the College of Agriculture & Life Sciences

College of Agriculture & Life Sciences at NC State University

The Entomology Department is being merged with Plant Pathology. It remains unclear how this new union will affect the various priorities of the NC State Apiculture Program.

There have been many changes of the last few years, and none bigger than the restructuring of the College of Agriculture & Life Sciences late in 2015 just before the winter break.

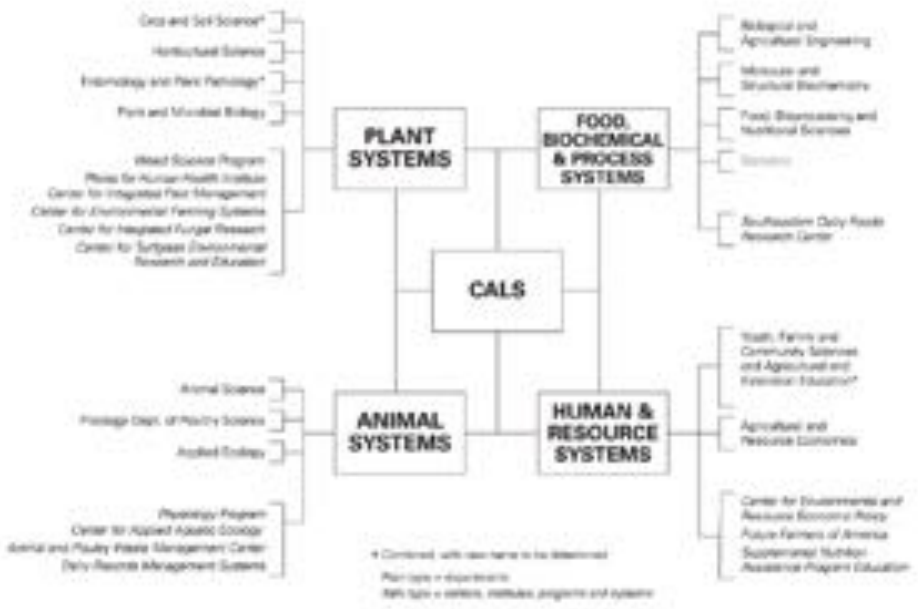
These systemic changes have whittled our extension component from 70% to 50% (when we incurred a heavy teaching load), to 15% where is remains today (when we took on larger research responsibilities). The continuing cuts to all components of our program, but particularly to extension and state-funded research, have caused us to make repeated systemic changes in our program, which reflects those in our department and college in general.

Recently announced is a new mandate from our CALS administration that dramatically alters the framework of our college (see also Figure on Page 4). In doing so, our entire Entomology Department has been merged with the Plant Pathology Department under a greater umbrella of a 'Plant Systems' focus area (along with other departments, such as the newly merged Crop and Soil Science, Horticulture, and Plant and Microbial Science). While it is still far to early to predict or anticipate how this will alter our focus as a program, it seems increasingly unlikely that it will be reverting to a past model of apiculture extension. The revised partnership with our greater apiculture community, however, remains to be seen.

I will continue to keep the NCSBA and NCDA&CS apprised about the ongoing changes in our college, and I hope that we will be able to continue evolving with the times and reach a new stability point where we can continue our productive relationship to help beekeeping and the honey bee population in the state and beyond.

Our bee lab on Lake Wheeler and genetic facilities on campus should remain in our program in the new Department of Entomology and Plant Pathology.

New changes in CALS (Continued)



The new structure of CALS, with four different "schools" focusing on either plants, animals, food, and humans. Entomology is now merged with Plant Pathology under 'Plant Systems'. Our specific program—the NC State Apiculture Program—will remain intact for the time being, and our responsibilities will remain at 65% research, 25% teaching, and 15% extension. However, it remains unclear as things evolve whether our emphasis will shift more towards pollination biology (because of the affiliation with plants, which is not our traditional strength) and away from addressing issues related to honey bees as an animal system (=beekeeping). Next month, the newly merged department will be holding a faculty retreat, where we will be discussing the future direction and focus of the new department.

NC State Apiculture Program

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Sam Freeze, Jennifer Fulp, Cameron Johnson, Genna King, Omar Halawani, Jackie Fitzgerald, Andrea Fitzgerald, Claire Collins (media intern), Joli Stavish, Allison Fowler, Brooke Ganser

Support the NC State Apiculture Program!

The Apiculture Science fund-raising efforts operate under the auspices of the North Carolina Agricultural Foundation, Inc. a 501(c)3 organization. You will receive an official receipt for your donation.

All miscellaneous gifts and donations to the NC State Apiculture Program go into our Apiculture Science Fund, which are critical in helping our research program particularly by supporting students in our program.

There are three main ways to contribute to this fund. First, earmark a donation to the NCSBA, or participate in their silent auction, the proceeds of which are generously slated to eventually be deposited into our Apiculture Science Fund. Second, send us a check directly, although a specifically worded letter must accompany it to avoid NCSU from charging overhead. Third, use our convenient "Make a Donation" button on our website to contribute using your credit card.

Because online donation are anonymous, we cannot thank each individual personally for their support. We have received well over $2,000 in direct support in 2015, and we are thankful to everyone for their generosity. Even though we can't thank you directly, your generosity is very much appreciated!

Tarpy lab in the news

Results from our ongoing collaboration with Steve Frank's lab, spearheaded by our recently departed MS student Holden Appler, is starting to come out in the scientific literature. This research paradigm is focusing on how urbanization affects honey bee immunology and disease ecology, which is providing important insights into bee health and management.

LINK

Webinar series on hiatus

We thank the Guilford County Beekeepers for our most recent webinar. The topic was "**Potential threats to beekeeping in the US**." Regrettably, this was the last apiculture webinar that we'll be doing, at least for the time being. We hope to resume them if there is sufficient demand and traffic from the county chapters.

LINK

Random notes

Recent publications

Tarpy, D. R., M. Simone-Finstrom, and T. Linksvayer. (2016). Honey bee colonies regulate queen reproductive traits by controlling which queens survive to adulthood. *Insectes Sociaux*, **43**: 169-174.

Youngsteadt, E.*, R. H. Appler*, M. Lopez-Uribe, D. R. Tarpy, and S. D. Frank. (2015). Pathogen pressure of honey bees (*Apis mellifera* L.) across an urban gradient. *PLoS ONE*, **10**: e0142031.

Appler, R. H., S. D. Frank, and D. R. Tarpy. (2015). Within-colony variation in the immunocompetency of managed and feral honey bees (*Apis mellifera* L.) in different urban landscapes. *Insects*, **6**: 912-925.

Welcome aboard!

We have over 20 people in the lab now, in no small part because of the great crew of undergraduate researchers. Our newest undergrads are Claire Collins, Joli Stavish, Alison Fowler, and Brooke Ganser. Claire is our newest 'Media Intern' for the program, and she's been doing great in our FaceBook and Twitter posts, and will be starting a new blog. Joli and Alison will be helping with Margarita's project, and Brooke is working with Hongmei in the genetics lab. Welcome!

Congratulations!

Margarita Lopez-Uribe, an NSF postdoctoral fellow in our lab, is now the proud mother of two new twin girls! Simona Maria and Leonor Maria Duque-Lopez were born over winter break, on December 27th, at 33 weeks. Mother, father, and daughters are all doing great, and they are now out of neonatal care and home. Congratulations Margarita!

New research funding

We've received some good news in the past couple of months, where we were awarded three new grants. The first was from the National Honey Board to help continue the Queen & Disease Clinic, specifically to survey beekeeping operations for their population-wide genetic diversity.

The second is in collaboration with Seth Barribeau (a new hire at ECU) and Olav Rueppell (UNCG) through the new TriCEM center. We will be assisting Seth in testing the possibility of an inducible immune resistance in bees.

Finally, we received some funding from SARE (Sustainable Agriculture Research & Extension) to work with Marla Spivak and Katie Lee at the University of Minnesota. We'll be helping them with their projects on queen quality and determining reasons for their decline.

Teacher's corner:
Courses at NC State

We will not be teaching any courses this Spring 2016 semester at NC State, which only happens once every 6 semesters. This past fall semester, our ENT 203 course, "An introduction to the honey bee and beekeeping", regained traction and was once again at maximum enrollment of 180 students. It was a terrific set of students, some of my favorite in the last 8 years. We will take this spring and summer to gear up for yet another successful semester this fall!

http://go.ncsu.edu/honeybees

Tarpy's back page

Despite having 180 students each fall, our ENT 203 course has only one dedicated teaching assistant (TA) devoted to it every semester (if you've ever TA'd before, you'd know that 180 students is a lot!). While students in our program would obviously get the most out of helping to teach a course about honey bee biology, management, and society, very few of our TAs have been in our program.

Hopefully, that will change going forward. Our departmental administration has recognized this logic, and we are actively recruiting a new graduate student for this upcoming fall semester. In doing so, I am attempting to do something quite different than what is typical. Normally, an advisor would write and receive a grant with student support associated with it (~$35k/year), then solicit and select a qualified candidate. With this opportunity, I've endeavored to make it more of a competitive process, and well ahead of the June deadline for acceptance.

While the deadline has now passed (Dec. 31), I'm incredibly pleased to have received over two dozen applicants. Moreover, the quality of prospective students has generally been outstanding! Because the proposed work is not tied to a grant, and therefore an already-defined topic, the scope of their research is completely open-ended. Most of the applicants had really interesting and intriguing ideas for what they would work on if they attended NC State, which will make the final decision all the more difficult!

I'm hoping this model will be successful and continue to bring in top-notch graduate students into our program.

Sincerely, David