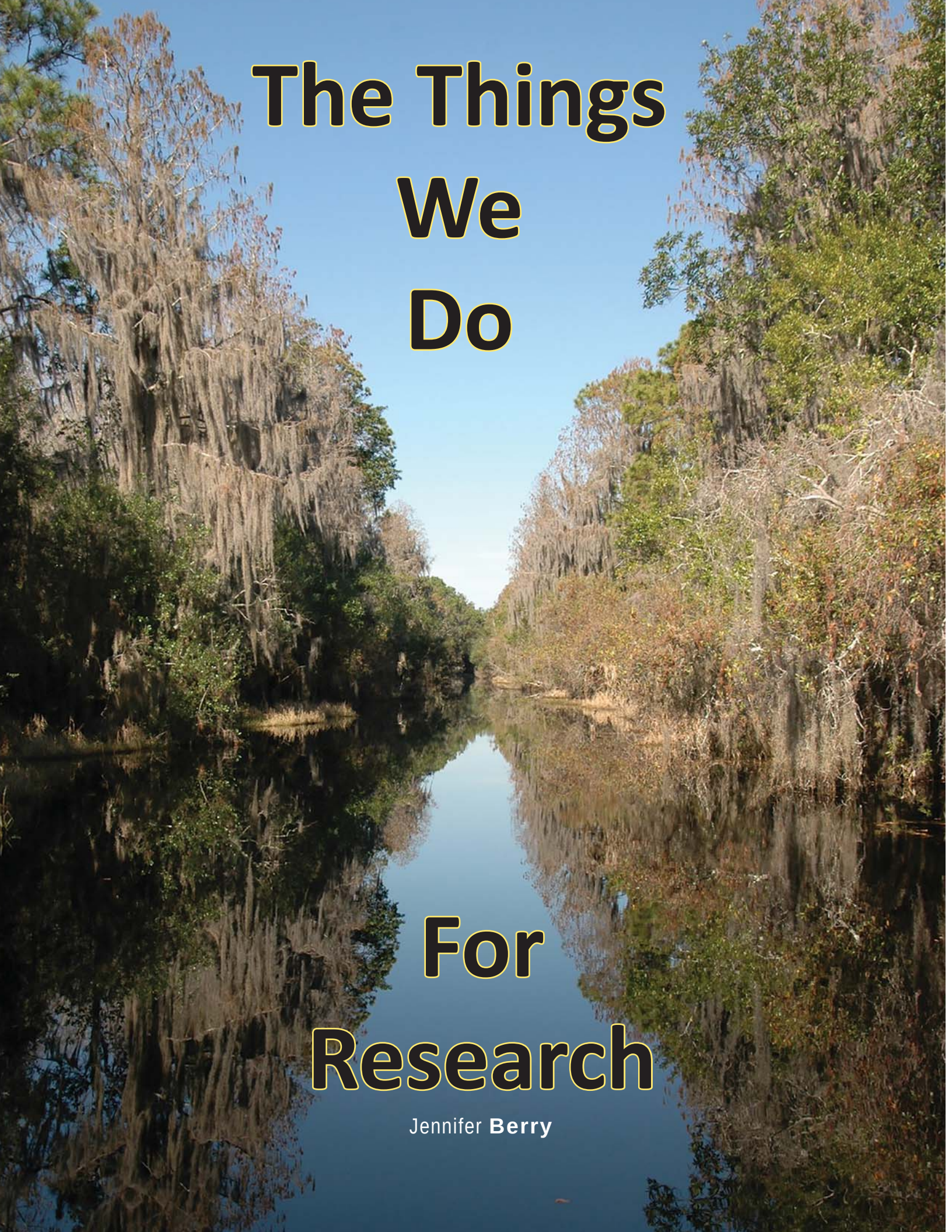

The Things We Do For Research

Jennifer **Berry**

In the last article I mentioned how difficult research can be at times and that the current project we are working on has been the most challenging. Coming up with a research idea and getting it on paper is only the beginning of the process. Then, one has to find the funding to bring it all to life. Still, this is only another small step on the long road of completing a research deliverable.

After the funding is in place, what lies ahead is taking the ideas on the proposal and making it a reality – in the field! Now, there's the real challenge. And, any such project is going to be especially ambitious when you are dealing with honey bees. Their behavior can best be described as fickle. As wild creatures, they do their own thing, and "their own thing" very rarely tracks our experimental protocols (expectations) for very long.

One of the particular obstacles of our current project has been the collection of feral stock. And, I mean truly feral. They can't simply be swarms from a neighboring beekeeper's apiary. The bees have to have been free of human manipulation for several seasons. Pragmatically, this is as truly feral as it's going to get on a continent where the entire *Apis mellifera* population was originally (and has been regularly) imported and transported by humans. Even so, this single task in our research proposal has proved to be much more formidable than ever expected.

It's easy to postulate the best way of going about doing something, but just try to carry it out and you can find yourself in a serious struggle against Mr. Murphy (of Murphy's Law – "*If something can go wrong, it will go wrong, and at the most inopportune time.*")!

After perusing the literature, we believed that we were experts in the matter of swarm trap hives and would have no problem collecting the bees we needed in the spring. Our thoughts were to hang double-decker, five-frame nucleus hives in trees, about nine meters in the air, to capture feral swarms in Georgia's abundant national forests and wildlife areas – far from agricultural or residential properties. "Shouldn't be a problem!" we said. "Bees will flock to these wonderfully thought out traps, each strategically furnished with an old frame of drawn, 'stinky' comb, as well as a Nasonov pheromone bait lure and plenty of natural-wax-coated foundation for them to expand on."

The first year, we headed south to locations in the Oconee forest, an area chosen for its remoteness from beekeepers. After many hours of deliberation, we came up with a brilliant plan to shoot an arrow, with a rope attached to the end, over a particular branch. The chosen branch would have to be big enough to bear the weight of such hive and afford the proper height. Once the rope was over the branch, we would attach the hive and hoist it into position. Easy, right?!?

So, into the woods we went, lugging nucs, ropes, bows, arrows and a variety of other equipment. Well, the task of hanging hives proved to be not nearly as easy as we had expected. Over the coming days, numerous modifications had to be made to our less than brilliant plan. For instance, the bow and arrow idea simply did not work. Of course, the fact that none of us were proficient in the art of archery might have had something to do with it. We spent more time chasing arrows through the woods, trying to pull them out of trees and each other (if anyone reading this article is from OSHA, I was just kidding about the last one . . .), and searching for them amidst the leaves, sticks and branches on the forest floor, than we should have. Finally, after many a wasted hour, we abandoned the whole "Robin Hood" idea.

UGA bee lab crew Brett Nolan, Nicholas Weaver, Jennifer Berry and Ben Rouse deep in the swamp.

As we were scratching our heads, trying to figure out a better plan, one of our team members, Travis Dynes, PhD student from Emory University, bent down, and picked up a rock. He tied a rope to it, and tossed it through the air like an Olympic athlete. The next thing we knew, the rock and rope had flown over the branch and was hanging within reach on the other side. "Great," I exclaimed, "Let the games begin!" While it still wasn't child's play, at least it was working. After several weeks of enduring tick and chigger infestations, soaking rains, getting lost, tripping into gullies, and miscellaneous scratches and bruises on top of our scratches and bruises, we had 50 traps dangling in the trees. Then, we imagined, all we had to do was sit back and wait for the bees to move in. Enter, Mr. Murphy! Despite all the hard work, the weeks passed and all we had to show for it were a few swarm colonies.

The next year, we decided to divide and conquer to improve our odds. So, we placed hives again in the Oconee National Forest to our south, but we also tried placing trap hives in the Chattahoochee National Forest to our north. Again and again, we traipsed deeply into the woods, lugging our equipment over fallen logs and creek beds, stepping into the occasional (and very pissed-off) yellow jacket nest, and swatting at clouds of mosquitoes. It was worth it. We definitely had better luck in year two. Yet, it was still not what we had hoped for. Why were the bees not flocking to these trap hives in droves?

During one of our lab meetings, someone jokingly mentioned that we should travel to the Okefenokee

Swamp (Georgia's Okefenokee National Wildlife Refuge) and hang traps there. At first, we all laughed because it was a lot farther away than we had been venturing (not to fail to mention the snakes & gators!), but, then we thought, "Heck yeah! This may be the ticket." So, we decided to amend our operation – yet again – and head down to the wet land of cypress trees and Spanish moss. Surely, there must be eager feral bees down there.

The Okefenokee is the largest blackwater swamp in North America, covering over 700 miles of contiguous wilderness in the southeast corner of Georgia. The swamp is a shallow basin, which was once an ocean floor. It took over 6,500 years of accumulating vegetation matter and peat to form this wilderness wonder, which is home to over 440 species birds, fish, amphibians, reptiles and mammals. The tannins from the peat are actually what stain the water mahogany, rendering it more reddish-brown than truly black. Small islands poke up throughout the waters, providing sunny hangouts for the numerous alligators, turtles and snakes.

We began our new adventure by contacting the Okefenokee park headquarters and arranging to have two flatboats with guides motor us deep into the swamp. There are numerous commercial beekeepers around the perimeter of the park, and our goal was to get as far away from them as possible.

The first morning, we arrived early and met our two guides, Chip Campbell and Joe Knight. I could tell right off that this was going to be a very interesting trip. Chip had been living in the area most of his life and had worked for the park for decades. His wealth of knowledge about everything that lived on, swam in, and flew over the swamp was amazing. Joe was a Vietnam Vet and a romantic; he provided us with a steady stream of insider tales of broken hearts, murder, and even dead bodies buried deep in the swamp. This balance of interesting facts and local flavor kept us enthralled as we traversed the 11.5 mile Suwannee canal.

The canal was actually dug in the late 19th century in an attempt to drain the swamp. It was believed the land would be better suited to the cultivation of rice, sugar cane and cotton than home to all of its natural inhabitants. Fortunately, the Suwannee Canal Company went bankrupt, but, soon after logging companies swept in and exploited the land for over 431 million board feet of timber in 18 short years. The swamp was eventually purchased by the Feds and protected as a wildlife refuge.

UGA PhD student Brett Nolan and Okefenokee guide Chip Campbell on day one, loaded and ready to go.

And a refuge it is. There are birds everywhere. There are amazing backdrops of gnarled scrub trees draped with Spanish moss, and massive cypresses towering overhead. As we were led deeper and deeper into the heart of the swamp, we gave up trying to keep a count of the multitudes of alligators lining the shores. To confess, we were like little kids at first, pointing in all directions. Look over there – it's an alligator! And, over here – it's a crane, turtle, snake, egret, etc., etc.!!! Eventually, though, it was time to get to work.

At first, we envisioned two crews, each supplied with nuc boxes and a ladder. Why ladders and not rocks, you ask? Well, before leaving the lab, we did some research and checked out images of the swamp. Most of the trees didn't have branches low enough to toss a rock over and I doubt there would be many rocks to be found in the swamp. I could just imagine the reaction of our guides if, in addition to us and the rest of our equipment, we expected to load a box of rocks into one of their modest crafts – They would probably have just shook their heads and motored away – leaving us on the dock!

Once we got started we quickly realized that it was a real job just getting our people and equipment from the boat to the trees. Also, our two-man team approach to installing the nucs, with one person on the ladder and the other on the ground passing up equipment, needed some serious tweaking. It was precarious for the person on the ladder to hold onto the tree, as well as lift and affix a 30-pound swarm trap. The ground beneath the tree was often soft, out of level, or covered in tree roots and offered little in the way of stable footing for either the ladder or the person on the ground. So, our plans continued to adapt accordingly.

Chip and I formed a search team and motored ahead to locate suitable trees with enough solid ground underneath to place TWO ladders, one on each side of the tree. Once a suitable tree was located, the guide would power the engine and, using the front of the boat as a wedge, literally punch through the underbrush. My job was to take clippers and cut away bramble and brush to form a hole for the crew with the ladders and nuc boxes to walk through.

Fortunately, it was February, so the alligators and snakes weren't highly mobile. Yet, I have to say that jumping from the safety of the boat into the murky waters (sometimes thigh-high) and thick brush, concealing untold numbers of slithering, crawling critters with big teeth, was a bit unnerving – especially when landing on something that quickly moved from underfoot!

By the time it would take me to clear a spot of thorny debris, our now three-person installation crew would show up and begin to offload equipment. Then Chip and I would head off in search of the next tree. Once the ladders were set-up on each side of the tree, two crewmembers would ascend them, and one would hand up equipment from the ground. With two people aloft, one could hold the swarm trap nuc to the tree in the right position, while the other strapped it in place, which worked out much better than working solo. In the photo, notice that the nucs were painted in camouflage. This was a pattern that we affectionately referred to as "Desert Storm." Then, we added a touch of Spanish moss to complete the disguise. We went to this trouble because the park officials advised

Nicholas Weaver and Ben Rouse finishing strapping the last hive.

us that bright white boxes hanging from trees might attract the unwanted attention of any potential saboteurs paddling by. We had had a few of our forested traps shot by bored hunters; so, we were happy to comply.

Over the two day period, working from sunrise to sunset, we were able to hang 50 swarm traps over a six-mile stretch inside the swamp. It undoubtedly was an experience of a lifetime. The wildlife and scenery were spectacular. And, our guides were amazing. Both nights, they were able to motor us out of the swamp in pitch darkness, without the aid of any headlights, flashlights, or even moonlight to guide them. Crazy! I couldn't see a thing, yet they just tooled along, slicing through the dark waters and mysterious overhanging corridors of the Okefenokee swamp, in unwavering confidence of their knowledge and skills.

Several months later, we returned to the swamp to gather our loot (full swarm traps!). Yet, we were sorely disappointed again, as only one trap had bees. Oh, well. Chalk another one up to ole Murph! But, we left the others hanging, and plan to head back to the swamp once the temperature cools a bit and the flies stop biting. Fortunately, in terms of getting our current study underway, our split strategy succeeded when many of the traps left hanging in the National forests turned out to be occupied this time around.

So far, lots of work has gone into this project, and we are certainly making progress. However, as you have read, the smooth transition from our propitious words on paper to their successful implementation in the field has certainly not gone as planned. Why won't honey bees just do what we want them to, when we want them to do it? I guess that it's because they don't read the books on bees and beekeeping. So, despite our educated strategies and fancy equipment, sometimes we just have to humbly wait for Mother Nature to unfold her plan!

And, a word of travel advice, if you ever get the chance take a trip to the Okefenokee, I highly recommend it! It is beautiful. You will want to make reservations early in the Spring to avoid blood-suckers and high temperatures. Also, be sure to ask for Chip or Joe and take advantage of their guided tour services. They can answer just about any question about the swamp. And, they will entertain you with all sorts of stories and show you things about one of the natural wonders of Georgia that you would never see otherwise. But, if you spot one of our swarm traps, stay clear! Those are my bees. See Ya! BC

Jennifer Berry is the Research Director at the University of Georgia Honey Bee Lab.