

CFRF Midterm Report

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Tupelo forests and honey production along the Apalachicola River of Northwest Florida: Participatory approaches for enhancing community adaptivity in a changing rural landscape

Overview of work completed

In mid-August 2006 I completed and defended my preliminary doctoral exams and advanced to candidacy following the acceptance of my dissertation research prospectus. Since this time, I have worked on a regular basis with my participant community of beekeepers in Gulf County, Florida—usually while donning a bee suit, building hive boxes, or bottling honey. I have also continued to expand the number of tupelo honey producers that I work with, often by trading manual labor for their time and insight. This work has yielded a wealth of new information.

In October I attended the Annual Conference of the Florida State Beekeepers Association and established contact with several important state beekeeping officials, including Florida's Chief Apiarist Jerry Hayes, and Dr. Jamie Ellis, head of the State Honey Bee Research and Extension Laboratory at the University of Florida. It was rewarding to learn that state officials are very interested in our efforts, and exceedingly cooperative in ensuring our work moves forward

In September and October I set up a working database in ArcGIS and acquired Landsat images for 1999 and 2003, which were kindly provided to me by a biologist at the Florida Fish and Wildlife Conservation Commission. I assembled the images into a mosaic over the study area. I also began working with two botanists from the US Geological Survey, Melanie Darst and Helen Light, who are studying the effects of changing river hydrology on riverine tree species, including tupelo (see Light et al. 2006). I accompanied Darst and Light on several trips to field sites along the Apalachicola River in order to better learn how to sample vegetation, collect GPS data, and identify tupelo species. These skills are important aspects of the geo-spatial component of the research. I also worked with Darst and Light to select several field locations where I will use vegetative and hydrologic data from their existing research as a guide for ground truthing tupelo-cypress swamps.

In November I conducted a formal interview with a biologist from the US Forest Service. The objective of the interview was to learn more about apiary permits and locations in the Apalachicola National Forest. Also in November I made four attempts to collect GPS points of a nearly homogenous stand of Ogeechee tupelo trees (*Nyssa ogeche*) shown to me by a tupelo honey producer. On both of the first two attempts the GPS unit did not receive a signal, most likely because the canopy was too dense. On the third attempt I entered the swamp armed with the GPS and an antennae, but the GPS unit mysteriously malfunctioned and I came close to being swallowed up in mud as deep as my waist. On the fourth attempt I was successful: I wore hip-wader boots and borrowed the University's \$8,000 Trimble backpack GPS (VERY nervous I would sink into the depths of the mud and need to use half of my CFRF fellowship to pay for damaged equipment!).

I spent the first two weeks of December back in Tallahassee, fulfilling my obligations to the geography department and to the professor I was assigned to as a TA—who saved quite a bit of grading for me.

Preliminary Findings

Thus far I have primarily focused on the first of three research objectives, which asks: 1) How environmental changes compare to social, political, and economic factors affecting tupelo honey production? 2) How do these issues impact the placement of hives in the forest?

When I initially began working with tupelo honey producers their problems were many and seemed to differ from beekeeper to beekeeper. However, the more time I spend in Gulf County, the more I recognize the connections between what first appeared as a variety of disparate issues. One beekeeper complained of increasing labor demands and costs to run his operation; another beekeeper stated pesticides were his greatest obstacle; and yet another said he could not maintain access to locations for his bees during the tupelo flow. With further investigation I have developed a more complex understanding of these issues, and it is increasingly apparent many of these problems are symptoms of a much greater concern: land-use change and development.

However, not all beekeepers feel that the changing landscape is a problem. For example, when I asked one beekeeper if he thought development was having any effect on his operation, he replied: “No. Development isn’t bad for the bees. Crape myrtles provide nectar and the lawns provide pollen during the summer when the tupelo isn’t blooming.” Later the same beekeeper told me that one of his biggest obstacles is losing bees to pesticides: “Mosquito trucks literally killed them [bees] last year when they were gathering tupelo nectar.” Yet development and vulnerability to pesticides are closely related: the mosquito control trucks are a more frequent occurrence now that Gulf County is being transitioned from rural to suburban, and the organophosphate commonly sprayed to control mosquito populations in residential areas is lethal to bees.

In my preliminary work it appeared that beekeepers were having trouble finding and maintaining suitable places to keep their hives. This is certainly an issue, especially during the tupelo flow in the spring when beekeepers must bring their hives to the tupelo trees. However, a new facet of the research also seeks to understand how tupelo honey producers navigate the landscape during the rest of the year when bees forage on other important floral sources. In both instances, it appears that access to suitable hive locations is the primary obstacle. Particularly as natural resource managers seek to conserve the forest by promoting a particular version of forest—one that largely excludes beekeepers.

Beekeepers find it increasingly difficult to gain access to public lands, despite an increasing need to locate apiaries in these areas. Development and the resultant suburbanization of rural Gulf County is affecting beekeepers both directly and indirectly, through forest clearing and wetland draining, changes in zoning, rising property values, and greater exposure to pesticides. Federal, state, and county lands are enclaves—forests protected from the land-use change carving up much of Florida’s landscape. Thus, beekeepers are increasingly dependent upon these public lands for good hive locations—both during the tupelo trees’ nectar flow in the spring, and during the rest of the year when bees forage on other important forest floral sources.

However, one of the biggest difficulties for tupelo honey producers (in addition to the devastation caused by honey bee pests like the Varroa mite and the South African small-hive beetle) is securing a place to put their bees. According to beekeepers, large areas of public land that could provide ideal hive locations include land owned by Florida Fish and Wildlife Conservation Commission, the Northwest Florida Water Management District, and the Apalachicola National Forest. Permitting systems to allow beekeepers access to apiary sites on these public lands do exist, however beekeepers complain that they cannot readily access these permits. Through my interviews, I have discovered that very few beekeepers are actually ever approved for a permit, and they are seldom told why their applications are denied. However, one tupelo honey producer was told (only after persistent phone calls) that he could not have a permit because all of the apiary locations on the Florida Fish and Wildlife Commission land were already in use. But when he drove to the site locations, the apiaries were empty. Upon questioning other beekeepers, no one claimed to hold a permit for these areas.

Several years ago state beekeeping representatives made a push for more permits on land owned by the Northwest Florida Water Management District—much of which is land along the banks of the Apalachicola River and an area with some of the best and most geographically accessible tupelo forests. Yet beekeepers that were granted permits complain that locked gates often blocked roads to the apiary sites. When they demanded access to the apiaries their requests were ignored or denied, essentially rendering the permits useless. Other tupelo

honey producers complain that the permits are too expensive and are thus only economically feasible for large, commercial-scale beekeepers.

After hearing these stories from numerous beekeepers, I have begun to explore why public land managers are so reluctant to welcome beekeepers. Initial background research and a very interesting interview with a biologist employed by the US Forest Service has shed some light on one possible reason beekeepers and public land managers are at odds in the Apalachicola National Forest. The US Forest Service is presently engaged in a massive effort to restore the Apalachicola National Forest to a longleaf pine ecosystem. This process involves the large-scale eradication of many understory species through prescribed burns and even the use of herbicides, which is aimed at reducing wildfires, preserving native vegetation, and promoting the recovery of species like the endangered red-cockaded woodpecker.

However, several species found in the forest understory—namely swamp titi (*Cliftonia monophylla*) and gallberry (*Ilex glabra*)—are among the most important nectar producing plants for Florida beekeepers. Tupelo honey producers rely on these plants during most of the year when tupelo trees are not in bloom. According to the biologist I spoke with, beekeepers want to maintain a version of the forest that is not consistent with the US Forest Service's longleaf pine restoration project.

Political ecologist Paul Robbins' (2004, p.213) "hybridity thesis" asserts that powerful institutions, such as the US Forest Service, work to "divide and police the boundaries between human and non-human nature." The discord between beekeepers and public land managers raises very interesting questions as to who decides how public lands are conserved and managed. Biologists may argue that longleaf pine should be restored because it is in the best interest of the forest environment and is the "natural" state of Florida's forests—but are national forests anything if not hybrid environments? Especially if we consider that approximately forty percent of the Apalachicola National Forest is currently classified as land suitable for timber production and managed as such. And according to the US Forest Service the management of national forests is for multiple uses and benefits and for the sustained yield of renewable resources such as water, forage, wildlife, wood, and recreation. Multiple use means managing resources under the best combination of uses to benefit the American people while ensuring the productivity of the land and protecting the quality of the environment (USDA FS 2006).

Do the needs of beekeepers warrant consideration? Should they have a voice in the development of long-term forest management practices on public lands? Does the potential exist for the conservation of forest species important to beekeepers? These are the questions we will continue to explore. Honey producers want to be part of this decision making process, as their way of life is connected to forest resources. As development pressures necessitate use of public lands beekeepers will increasingly demand access to these areas, which provide prime foraging habitat for bees.

Successes and Challenges

Overall, the research is developing well and we are making positive progress. One of the most remarkable accomplishments is that prominent state beekeeping officials are increasingly interested in the research. They regularly send emails requesting updates, to offer assistance, and to keep me actively engaged in state beekeeping activities. I have even been asked to write newsletter articles and to give presentations, which provides the opportunity to give greater exposure to the challenges faced by tupelo honey producers.

Working with my participant community is a very rewarding process, both personally and professionally. The beekeepers increasingly rely on me to develop and carry out the research agenda and thus it often feels as if I am working for the beekeepers, rather than working with them. But, a small core of tupelo honey producers maintains interest and close ties with the work. I am also gradually establishing contacts with new beekeepers. Two of the most prominent tupelo honey producers are still not part of the research as neither has responded to

my requests for their involvement. They are also not members of the Tupelo Honey Beekeepers Association. However I have not yet lost hope for their involvement.

The technical aspect of the research—the geo-spatial analysis of tupelo density and distribution—is slightly behind schedule. This is largely because many of the tasks have required more time than anticipated. As I mentioned previously, working with the technology is perhaps the most challenging aspect of the research thus far, particularly collecting GPS points in the field. Accessing images, setting up a database, downloading, organizing and re-projecting all of the parcel information is also a slow process that requires me to spend more time behind a computer more than I would like. I intended to ground truth several sites by the end of 2006, but the trees lost their leaves before I could complete the fieldwork. I will continue the geo-spatial analysis in the spring when the trees have regrown their foliage.

The greatest challenges in my fieldwork revolve around a number of ethical concerns. First, the participatory mapping work is proving somewhat tricky, as I am concerned with how the final map will be used and distributed. At a recent meeting with several members of the Tupelo Honey Beekeepers Association, it was brought to my attention that beekeepers from Alabama and Georgia are looking for ways to enter into the tupelo honey business by hauling their bees south to Florida. Until now these out-of-state beekeepers have not been able to find and access suitable hive locations, and they are not welcomed by many of the local producers. Thus, I am concerned with how a map of suitable hive locations may bring competition and undermine local producers. Therefore I am working with the Association to develop strategies for managing this situation, as well as discussing the equitable allocation of map data amongst local beekeepers.

Finally, many of the beekeepers have long-standing rivalries with one another, and at the end of the day my work sometimes feels like a complicated game of chess. For example, two of the beekeepers I interact with regularly live on the same street and several years ago they filed trespassing charges against each other—tit for tat. I respect both of the beekeepers, but it can be a very awkward situation. Another prominent beekeeper seems to worry that I might be some kind of spy. Needless to say, gaining trust within the beekeeping community has been a long and precarious process.

Future Progress

From January 2007, I will be spending even more time in the field, continuing to work with my participant community and finishing interviews with local and state authorities. I will be adding more interviews to my research, as I plan to speak to representatives from all three of the publicly managed land areas deemed important by beekeepers. Hopefully we will be able to better understand the disagreement between public land managers and beekeepers, and foster dialogue between the two groups. Perhaps beekeepers can contribute to the process of managing public lands and thereby improve their access to crucial apiary sites. In early February I will meet with several state beekeeping authorities to discuss strategies to improve beekeeper access to public lands. I am currently aware of two areas in Florida where beekeepers and public land managers are in cooperation, and I would like to learn more about this experience to determine how it can be replicated.

By the late spring the tupelo trees will have regrown foliage, and I will focus on the geo-spatial component of the research. I plan to begin an intense period of collecting field data, map creation, and a geo-spatial analysis of forest areas that are important to beekeepers. I am currently working with members of the Tupelo Honey Beekeepers Association to determine the amount of information the map will provide and how this information can be equitably distributed.

References

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USDA FS (US Department of Agriculture, Forest Service) 2006 "Meet the Forest Service" <http://www.fs.fed.us/aboutus/meetfs.shtml>