A Tale of the Adventure, Frustration, and Value of Fieldwork
Dawn Gibas

Editor’s note: Do you have a tale you’d like to share—good or bad—about life as a soil scientist or an experience you’ve had in the field? If so, email it to Dawn Gibas at dgibas@sciencesocieties.org. You may remain anonymous if you like.

I am pretty certain that many people reading this column could write their own version of this tale, and I invite people to do so and share their experiences. Fieldwork is an experience unto itself, especially if you are working in remote areas, although I have had adventures in urban settings too. This is just a sample of some of my early experiences in the field, which as you may guess from the title, can be categorized as full of adventure and frustration, but also very valuable. I don’t want to give the impression that fieldwork is horrible—it’s not. The field is where I have learned the most in my career. I would still maintain that it is essential to gain field experience to shape perspectives on not only the interactions between soil and the environment, but as insight to yourself and how to deal with complex systems in the midst of nature and all its uncertainties. Over the past few years, I have written about various events throughout my career, and in this issue, I will go back to where I began: learning about fieldwork while I was a graduate student.

My first real experience with what I would consider fieldwork (not just a field trip) was during my Ph.D. work. I was exclusively lab oriented in completing my master’s research, but the Ph.D. research was primarily based on field study. I learned quickly that whatever you have planned in the field and whatever timeline you associate with it will not work. Something always happens that sets you back, whether it be the equipment, the unaccounted for issues with the field site, the weather, or a myriad of other things that tend to appear with no warning. This introduced me to levels of frustration I hadn’t really had before but also very quickly taught me that problem solving is the key to success.

The research for my Ph.D. was based at the Marcell Experimental Forest north of Grand Rapids, MN where I studied hydrologic linkages between uplands and peatlands. At that time, the graduate students stayed at a U.S. Forest Service cabin within the experimental forest (think Forest Service green paint inside and out). The cabin was several miles from the nearest neighbor and had no phone (yes, this was prior to cell phones). It was isolated and many times I was the only student in residence. The sheriff checked in from time to time, and a few forest service employees were there most days, but I got in the habit of carrying my rifle, and I also had my Doberman, who was my constant companion.

The General Location of the Marcell Experimental Forest. Courtesy of the U.S. Forest Service.
In this column, Dawn Gibas talks about some of her early fieldwork experiences, which were both full of adventure and frustration, but also very valuable.

I should point out that I absolutely loved being at my research site. I would say it was quiet, but if you have spent time out in the forest, it is really not quiet at all. There are frogs, birds, and the wind blowing through the trees, any combination of which at times can actually be quite loud. The one thing I always looked forward to was that first smell of the forest when I got out of the truck after the drive up from the Twin Cities.

Trials and Tribulations of Fieldwork
So what of the trials and tribulations with the fieldwork? The Marcell Experimental Forest...
Forest is in an area where three different glacial lobes contributed to the glacial till: the Rainy Lobe, the Winnipeg Lobe, and the Koochiching Lobe. The result was soil and parent material that were not easy to work with in terms of using a soil auger or installing equipment (wells and piezometers). My research plan included nested piezometers on the upland, in the lagg and in the peatland (bog) along with a well at each of the five sites around the bog. In addition, I was installing two deep wells on the upland area. This is where my brilliant work schedule started falling apart in epic proportions. Where I thought I could advance auger holes to determine the depth of piezometers and wells, I hit rocks with the auger and had to keep starting over. What I had imagined would take me a week or two for the soil auger portion took me more than six. The subsequent installation of the piezometers and wells didn't go any better.

Then there were the porcupines. They love salt. The boxes for my recording equipment were made from particle board, which is salty. Losing data to porcupines is not fun, nor is it conducive to obtaining a useable data set. This is where the rifle came in handy. There was no “season” on porcupines in Minnesota (they were fair game all year long), so let’s just say I protected my data. Of course there were also the bored hunters who roamed around the forest and used those equipment boxes for target practice, so they had to be reinforced to withstand being shot at too.

Also add to the mix the bugs. I learned by the end that the pests come in seasons. First came the ticks, then flies, then deer flies, then horse flies, and mosquitoes were a constant. Head nets were a must for the mosquitoes if you didn’t want to inhale them. The ticks you learned to pick off several times per day. As far as the flies, I had long hair to keep them off of my neck, but it still took the right frame of mind to ignore the constant buzzing. I have to say the ability to ignore bugs and buzzing was valuable later in my career when I did a lot of wetland work; it continually drove my co-workers crazy.

Numerous pests can make fieldwork challenging in the Marcell Experimental Forest, including (top to bottom) mosquitoes, horseflies, and ticks (courtesy of University of Minnesota Extension). Not to mention porcupines! (below, courtesy of Dave Hanson, University of Minnesota)

There were some other considerations in working in a remote area of Minnesota, especially when I had my dog with me all the time. The state Department of Natural Resources had many of the bears radio-collared. You could tell when a bear was in the area when the small plane was circling overhead. There was also a wolf pack in the area—evidenced by an occasional deer kill. Then there was deer hunting season—anyone could hunt the national forest land (the experimental forest is part of the Chippewa National Forest). My dog, thankfully, always stayed with me, but he and I had to wear orange vests during hunting season. The hunters were never thrilled (and sometimes rude) when we came walking through to check equipment and collect data because we made a lot of noise to make sure everyone knew we were coming.

When I think of my time at Marcell Experimental Forest, it is with many good memories. The frustration faded fast, and the value has remained with me to build upon throughout my career. I learned a lot about field research and observation, data collection and the associated importance of detailed notes, and working in sometimes harsh conditions while still producing a viable product that stood up to scrutiny and earned a degree. While I didn't realize it at the time, it was also great training for a career in consulting. There were many amazing things that I saw: bobcats, snowy owls, great horned owls, snowshoe hares, and many other species of wildlife along with brilliant episodes of northern lights, shooting stars, beautiful snowfalls, and that inner sense of peace that comes from being immersed in nature. As a popular commercial always says, the experience was “priceless.”

Safety and the Importance of doing Fieldwork

To wrap up this Tale, I would like to focus on two things with respect to fieldwork: safety and the importance of actually doing fieldwork.

Safety should always be an essential consideration with fieldwork. I was alone a lot, and while I had a dog that protected me, I could have easily slipped and fell and gotten in trouble. In a remote area,
I would have been hard to find once someone even realized that perhaps something was wrong (which at that time, could have been a few days). As I have since managed employees and students over the years, I have tried to make sure that they always let someone know where they were and when they would return or check in. It is easier now with cell phones, but in remote areas, I like people working in pairs if possible. The other thing we don’t always think about is training people on the precautions they need to take when working in different areas. Training on tick-borne diseases, snake bites, etc. is essential. Don’t assume everyone knows these things.

Since my days in grad school, many things have changed. We now all have cell phones and the internet, we can collect data from the field remotely, and with the aid of GIS and remote sensing, we can gather a multitude of data without ever stepping foot in the field. Further, we can use that data in ever more sophisticated models to predict numerous outcomes to varying scenarios. All good, right? Well, yes and no. Yes, advances in technology are good things and certainly help us to further understand these complex systems we work in. But I have found technology gives people a false sense of thinking that they know or understand what is going on in the field. It also gives people an excuse to not have to go out in the field. And that is the underlying message of this Tale:

There is no substitute for fieldwork!

I have seen too many students, professors, and also professionals decide that it is OK to skip the field visit because they feel like they have all the information they need from data collected via their computers. Fieldwork isn’t always comfortable or fun, but the ability to walk on the land and observe the complex system in which we are working provides invaluable insight and input that we cannot get from our computers. This input should not be minimized or disregarded. To do so is an injustice to the science we profess to study and practice.