Contributions

Methods for Young Fieldworkers

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Introduction

Modern ecology is built on the backs of a large and often anxious army. On the front lines of many projects, one can find young, nervous researchers hoping desperately not to lose their GPS—not this time! Each evening, many of these field technicians tediously review their mistakes. Did I cover all the pit traps? Was that lizard too stressed? Wait, wasn't there supposed to be a third egg in that nest? Each morning, staring down the barrel of a coffee mug, they prepare themselves for even more problems.

As this new generation of scientists characterizes itself, it finds a mountain of stress, depression, and anxiety (Levecque et al. 2017, Woolston 2017). Seeing as these are the muddy hands on the pencils, it is a small wonder that some supervisors have been content to offer an underwhelming recipe of consideration: measured affirmation, a day off every month or so, and a moderate supply of beer or coffee. As field technicians ourselves, our aim was not to reject the aforementioned—God forbid—but rather to begin a more open conversation about the realities of fieldwork. In that spirit, and inspired by discussions with our colleagues, we wanted to begin with some observations and advice for other fieldworkers.

Isolation

The start of the field season can mean arriving at a distant, unfamiliar place. It may be your first time so far from home. Familiar faces will likely be replaced with a cohort of experts whom you are eager to impress, who demand difficult tasks of you, and who continually demonstrate how easy those tasks are for them. You may face obstacles, from tying certain knots to cooking your dinner, which appear absolutely trivial to everyone else. Accidentally or as part of the scientific process, you may harm the very organisms that have engendered the passions that brought you to the field in the first place. In this situation, even the smallest of obstacles can feel heart-wrenching.

All of these characteristics foster a feeling of isolation. Although the physical and emotional isolation of fieldwork can be daunting, there are some coping strategies. Try to develop a rapport with your supervisors and coworkers, as your time and attitude will often be driven by their actions. Note, however, that not every field partner will, or should, become your best friend. It is completely acceptable to treat colleagues in the field as coworkers, and it is completely acceptable to demand the same minimum levels of respect and privacy as expected of any other coworker.

Maintain contact with your friends and family when you can. Your support network has not disappeared, and these people will be glad to hear from you. Communicate with yourself as well, whether through an artistic endeavor, a journal, an observation notebook, or a bird list. Most importantly, relish contact with your study species, and develop a relationship with these organisms. They are alive too, and that is the whole point.

The "Most Miserable" Trap

An upsetting competition festers beneath both fieldwork and the hobbies (e.g., camping, backpacking, scholarship) common to young researchers: *Who is having the least fun*? This fixation on "Type II" fun, or the accumulation of generally unpleasant experiences that will someday serve as humorous-enough stories, is dangerous. If you pursue this path too deeply, you will lose the ability to find joy in fieldwork.

Instead, strike the same balance as you would in any other activity. If your work lacks short-term goals, develop your own units of progress and achievement. Recognize each banded bird, or surveyed hectare, or new waypoint as a minor but measurable success. Do not avoid recreation, sleep, or a minimum level of hygiene just for the title of "most miserable." If you make a mistake or have a problem, discuss it with your supervisor or field partner. Do not expect others to guess that you are miserable. You are a biologist, so you already know to drink water.

Find ways to appreciate your study site as *nature* rather than a well-trodden laboratory. Devoting time to simple activities in nature, such as unstructured walks, empirically reinforces the most valuable currencies in fieldwork: patience and focus (Kaplan 1995). Being miserable, on the other hand, is just miserable. Do not sacrifice the unique occupational privileges of ecological fieldwork just so you can start reveling in how bad it was as soon as it ends.

The "Eternal Sublime" Trap

But the field is not a Wordsworth poem. In the face of grievances, real or imagined, many of us have been met with a familiar response: "But all that fresh air! I'd kill for that to be my office." We are expected to view our fieldwork as an instance of eternal sublime, or as a vacation from "real" work. Doubly challenging is the fact that these non-responses to the problems of young researchers most often come from friends and family *outside* of the field. This perspective is a trap.

There are moments when you cannot bear another walk in the woods, when no new subspecies of antlion or foliage-gleaner can overcome the threat of another insect bite or your general desire to remain in your dark tent with your headphones on (at least until dinner). The advice here is simple:

You are allowed to be unhappy in a beautiful place. Ignore those that would pretend that nature can be forced—rather than welcomed—as a spiritual balm. You do not need anyone's permission to feel upset or exhausted. Fulfill your obligations, but consider the ways in which flexible deadlines can be adjusted. Not all data are time-sensitive, and it will be OK if you validate those quadrat records tomorrow.

Data and the Research Process

As a field technician, you are on the front lines of the scientific process. The quality of any publication, no matter how esoteric or prestigious, will proceed directly from the work you do in the field. Danger lurks here. The day-to-day tedium of your protocols may make you lose track of the importance of the data. It is frighteningly common to watch an otherwise respected coworker start to drift from protocols, fill in gaps, or try to recapitulate hazy observations from memory. These instances of, essentially, fraud (driven more from poor training, boredom, or desperation than malevolence) defeat the purpose of science.

To avoid even approaching these issues, become as engaged with the entire research process as you can. Use a meta-scientific process to observe the problems with boring or inefficient protocols, hypothesize solutions, and present the results. Learn why you are collecting your data in the first place. Read papers to better understand the taxa you are investigating. Find out if you can become involved with analysis or publication-level projects. No researcher should reject a well-reasoned, sincere, and enthusiastic offer of help, especially from those most closely acquainted with their data.

Maybe you have learned that you are not as interested in fieldwork as you thought you were. If so, find ways to pull your methods and data into other disciplines. Interested in computer science? Develop and test tools to automate the collection, organization, or analysis of the data. Interested in statistics? Use your intimate relationship with the protocol to develop intuitions about uncertainty, sample size, and effect size that nearly everyone else will lack. Leverage your dissatisfaction with merely observing the research process, and actively engage to become a better academic.

Conclusion

Paid or unpaid, freezing or overheating, dehydrated or with wet socks, field research is a job. You will have certain, sometimes unpleasant, obligations. Chief among those obligations is the collection of data in a timely and honest way. You also have the obligation to be a thoughtful and respectful coworker, to admit and correct your mistakes, and to be ready to respond to the unexpected. You do not, however, have to retreat from the world, needlessly suffer, or constantly exalt in your surroundings. You have a right to your emotions, and you have a right to more support than a cup of coffee in the morning and a beer at night. Remember, for both the good and the bad, the field season will end.

We believe that the self-care of fieldworkers is aligned with the goal of better research. A generation of more enthusiastic field technicians means a generation of more engaged scientists. A conversation with and about those who collect data will help bring to light a set of human "covariates" which, like it or not, affect the entire discipline's research. This discussion benefits young field technicians and wizened department chairs alike.

Unfortunately, we still have to end with an obvious axiom: Neither prestige nor genius should shelter cruelty. If you or a young fieldworker you know experiences sexist, racist, emotional, or physical abuse, stop work when it is safe to do so, seek help, and seek recourse. Know that a large, anxious army has your back.

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