

## CHAPTER 8

### THE FIELD STATION ERA

In 1960, as I approached 40, I became concerned about: (1) my total dependence on extramural funding; obtaining funds often took time from synthesis, and the funding did not always correspond with my target research areas, (2) whether considerable field work would be as appealing in my middle age as in my youth, (3) my increasing responsibility to educate four children when my livelihood depended on extramural funding, (4) whether I could survive in academe with arduous university demands, (5) the timing of a transition to academe, and (6) whether some transitional experience was possible. A transitional opportunity came at that time from my advisor at Swarthmore College, Robert K. Enders (who was then also director of Rocky Mountain Biological Laboratory [RMBL]), who invited me to teach a course in comparative limnology at RMBL during summer of 1961. I had taught a course for high school teachers at Temple University on Saturdays for an entire academic year, but this summer opportunity would be my first teaching experience at a field station. Furthermore, RMBL had a mixture of undergraduate and graduate students from a wide variety of institutions. The field station did not pay salaries but offered board for two, plus a free cabin. I recall receiving \$100 for roundtrip travel expenses for the approximately 1700 miles from Philadelphia to Gothic, Colorado. The summer months were the peak field season at the Academy of Natural Sciences Philadelphia (ANSP), and I would be unavailable to act as field crew orchestrator. On the other hand, I had never had a full two-week vacation with the entire family because summers, when the children were free from school, were the height of the field season. I saw the invitation to teach as a test of whether I could perform adequately in a university when I became older and the work on a field team became less appealing. Considerable resistance was voiced to the possibility of my being absent during summer at the ANSP, but, as I recall, relatively little of the resistance was from Patrick, who would probably suffer the most from my six-week absence.

The time at the field station reinvigorated my interest in research, and, as usual, students often asked penetrating questions that people who do the same thing for years had somehow forgotten to ask. Interacting with the students, especially since they were from a wide variety of institutions in both North America and abroad, was extraordinarily energizing and increased, rather than decreased, my research productivity. I partially offset the loss of my services to ANSP during the first summer by doing a preliminary site visit on the Green River near Moab, Utah.

During the early 1960s, faculty usually taught only three summers at RMBL since the facilities were small and the course offerings had to be rotated to provide opportunities for repeat enrollment. During summer 1963, Professor Alfred H. Stockard (then Director of the University of Michigan Biological Station [UMBS] headquartered at Douglas Lake, Michigan, near the straits of Mackinaw between Lake Michigan and Lake Huron) contacted Director Enders to determine whether RMBL would be upset if UMBS offered me a position with its summer faculty to teach protozoan ecology. Enders told Stockard about the three-year, unwritten rule and apparently gave high recommendations for my field capabilities. UMBS had previously offered a course in protozoan parasitology and wanted to refocus on field ecology of the protozoans of local lakes and streams, particularly their community structure, an interest that continues at the Station to this day with Rex Lowe's algae course.

UMBS is located on Douglas Lake and has a wide variety of lakes, swamps, bogs, fens, wetlands, and streams within a short drive. At RMBL, I was required to transport my equipment from Virginia to Colorado for teaching each course; at UMBS, all equipment was supplied. In addition, exceptionally good water chemistry laboratory facilities (at least for a field station) literally abutted the lake, so that I could get samples from lake to laboratory in less than five minutes. My non-teaching days, including weekends, were devoted to research. Furthermore, I was provided with a teaching assistant (William Yongue, Jr.) who was also interested in protozoans.

Having two of us in the laboratory offered the opportunity for replication—an extremely difficult task for one individual working with perishable/changeable material.

For my entire tenure at ANSP, I had worked almost entirely on streams and rivers and only rarely studied reservoirs. Lakes, bogs, fens, and swamps, the common habitats at UMBS, were new to me, and I spent the first few summers (in what ultimately became a 19-year relationship) familiarizing myself with the protozoan species in these new habitats. This research was the beginning of my study of colonization dynamics, which was to take much of my attention in summers, even when my relationship with UMBS ended in 1983.

In the mid-1960s, UMBS bought new microscopes, some of which were allotted to my class. I found that the microscopes were packed in polyurethane foam (essentially limber, sponge-like material). My research with protozoans in streams and rivers previously focused entirely on species associated with natural substrates. I continued this study design at UMBS and added artificial, uncolonized substrates. In fact, many species inhabiting both types of substrates were old friends living in quiet sections of rivers and streams and on the substrates in lakes, ponds, etc. I had the good fortune to hear Robert MacArthur discuss the equilibrium model that he and E. O. Wilson had developed. I speculated that, since substrate-associated protozoans were usually quite different from the truly planktonic species, a substrate anchored in the lake would be an ecological island. As a consequence, I cut the polyurethane packing from the microscope shipment into small cubes, tied them between two floats, and anchored the floats to the bottom of the lake by cement blocks—much like an aquatic clothesline. The colonization dynamics of the lake matched those hypothesized by MacArthur and Wilson quite well (Cairns et al. 1969).

Five summers at RMBL and UMBS were enough to convince me I could handle the rigors of university life. I had lecture notes for two courses (limnology and protozoology) and nearly enough for two more (stressed ecosystems and aquatic toxicology). As it turned out, all this preparation was entirely unnecessary except to build my confidence. I had badly overestimated the performance level needed to survive in academe. However, not until I joined William Argersinger's Graduate School Committee at the University of Kansas was I exposed to faculty curricula vitae in large numbers and was then able to judge my own academic performance in the proper perspective. I could have slowed down my research without endangering my position, but to what end?

Although I had originally regarded my field station experiences as aids in a transitional career period, they rapidly became a passion. I spent every summer from 1961–1994 at a field station. When I ended my summers at field stations in 1995 for medical reasons, Jean and I both felt a sense of loss. Nothing will ever replace the field station experience, and I am thankful to have enjoyed it for so many years!

One reviewer questioned why I left UMBS after summer 1983 and never returned. This information was omitted because that experience was painful, but the reviewer deserves a reply. At the conclusion of the 1983 summer session, Director David Gates informed me that my invitation to teach at UMBS would not be renewed in 1984. Some University of Michigan faculty thought my course “Stressed Ecosystems” was not suitable. I neither asked for a formal letter justifying this decision nor did I appeal. I knew that I was no longer wanted. The students in my class immediately began a “Save Stressed Ecosystems” effort and were joined by many former students. Although I was both touched and honored by their concern, I simply did not wish to stay where I was no longer welcome. David Gates generously informed me that extramural funding for my salary was available if I wished to continue teaching. When I thanked him but refused, he stated that Jean and I could continue to occupy the cabin we had been using if I would return as a research investigator. Again, I refused—neither Jean nor I wished to remain where my academic efforts were not welcome. We decided to return to RMBL where we had spent many delightful summers. I would be a research investigator and give up teaching at field stations entirely. However, soon after my arrival at RMBL, Enders asked me why I was no longer teaching and I gave him my reasons. He explained why I should continue teaching, and the next summer I resumed field station teaching and continued to do so until January 1995 when some blood clots in my legs changed my mind. It was

simply not fair to the students for me to teach when the blood clots might disrupt the course study. The picture of Jean and me standing on a Colorado mountain top in 1994 gives some evidence of our joy in what was to be our last field station summer. After my return to RMBL, I began to teach restoration ecology, and this location was a superb area for teaching such a course. Despite the conditions under which I left UMBS, my attachment to it and the many people I spent summers with remains strong.

Since I have always felt transdisciplinarity is essential to both understanding and developing sound policy for environmental problems, I encouraged students from a variety of disciplines to enroll in my courses. This upset some faculty who felt a substantial number of science prerequisites should be required for enrollment. Students from all over the world wanted to discuss humankind's ethical responsibility for other life forms and the interdependent web of life. One of the most interesting students was Tashi Wangchuck from Bhutan, a small country with an impressive diversity of wildlife. Moreover, Wangchuck was interested in living sustainably and ethically with these other life forms. Other students from both developed and third world countries had very similar interests, but were coping with dissimilar issues.

Naturally, I was interested in the reasons for the excitement generated by field stations. My first insight was the unique ambiance of field stations. Without question, living together reduced, but did not eliminate, the barriers between students and faculty. For those students who had been born, reared, and educated in cities, field stations were clearly a defining moment in their lives. However, actually standing in ecosystems, both damaged and pristine, had a profound effect upon the discussions. Field station experience is usually limited to a few disciplines, such as biology, forestry, fisheries, and geology. Fortunately, all our children shared this experience with Jean and me. Our oldest child Karen had only one full summer (1961) at a station. The other three children, Stefan, Duncan, and Heather, had many years at field stations. Individuals can develop a sense of eco-ethics in a variety of ways—both emotional and intellectual. Field stations are notable because they foster both kinds of eco-ethical maturation.

Invariably, I do ponder some "what ifs."

- (1) What if a natural system was not easily accessible during my childhood? If I were growing up in the same area today, access to natural areas would be extremely limited. Other residents of the Warm Hearth retirement community where I now live indicate that my experience in the loss of the natural systems of my childhood was all too common.
- (2) What if I had not had extensive field station experience? I did not initiate either of the RMBL and UMBS experiences. My initial expectation of a field station experience was to increase my teaching abilities, which it did. The bonus, which became more and more important as the years passed, was development of a sense of eco-ethics.
- (3) What if my family had not shared my love of field stations?
- (4) What if population growth and the consequent explosive growth of recreational facilities (e.g., ski resorts) had not encroached upon field stations, thereby diminishing their ambiance?

#### Literature Cited

Cairns, J., Jr., M. L. Dahlberg, K. L. Dickson, N. Smith, and W. T. Waller. 1969. The relationship of fresh-water protozoan communities to the MacArthur-Wilson equilibrium model. *Am. Nat.* 103(933):439-454.