I have been writing in this space for a little over a decade. In that time I have received several hundred letters of inquiry from students asking for advice about education and careers. Most want to know how to craft a useful life. The letters and emails often are written in a tone of frustration. An undergraduate biology major, for example, writes, “I have been researching my options, and I have come to the conclusions [sic] that there are quite a number of programs labeled ‘conservation biology’ or ‘environmental studies’ around the country. It is fairly easy to become lost in a sea of them. I attended the Society for Conservation Biology meeting in MD, but failed to find any prospective advisors. Would you have any advice to offer on this topic?”

Similarly, a recent Ph.D. in wildlife biology writes, “I am struggling to translate my professional training into a life well lived that in some way might contribute to preserving the natural world and not just documenting its decline. . . . my professional training did not prepare me well for these tasks.” Dozens of other letters have the same plaintive themes. The problem is not simply that there are many more students who want to practice conservation biology than find good ways to do so. The deeper problem has to do with the experience of students as they pass through the system of higher education.

Whatever they once may have been, institutions of higher education have become vast and expensively operated machines that work much like any for-profit corporation. Students are fed through a conveyor belt of requirements, large classes, deadlines, and general busyness. What they learn seldom adds up to anything like a coherent, ecologically meaningful world view. The scale of most institutions is not conducive to humane interaction. Seldom encouraged to discern an inner calling, students are more often counseled to find secure careers that pay well. Nonetheless, many students still feel a calling toward service that runs counter to the incentives, values, and structure of their formal education.

This was brought home to me during a recent conference to review various fellowship programs, including some in conservation biology, offered through prominent universities. Without question, fellowships such as these have helped a number of young scholars complete their graduate work and move into professional careers. Judged by most conventional criteria, all the programs we reviewed have been successful. The proceedings, however, were permeated by a sense of self-congratulation that seemed oddly remote from the larger backdrop of global trends. When asked, for example, how she defined success, one participant replied that success meant “well trained students who finish their Ph.D.s on time.” Another argued that “depth and rigor in a particular field promoted collegial interaction across disciplines,” a view that would astonish many in higher education. While a third agreed that it had taken his field a long time to discover a connection with the environment, that tardiness required no further explanation or analysis. A fourth noted that graduate studies seldom generated a “critical class” of scholars, but he found that unworthy of further comment.

Over and over again the word training (appropriate for a dog) was used when the appropriate word would have been education. This is more than a semantic quibble. It represents a view of learning and higher education that deserves to be challenged. The university participants, good people all, regard themselves as “professionals” perhaps even as “knowledge technicians.” Under the right circumstances the academy pays well and provides indoor employment, but it also can generate bullet-proof complacency.

In a subsequent analysis, one conference participant voiced the opinion that the problems of the world will be solved only by “detailed knowledge. . . . created through empirical research” disseminated by universities. Accordingly, we provide “young people in the first stages of careers. . . . a perspective for understanding complex systems and a basis for developing analytic skills.” Similarly it was assumed that “academic institutions. . . . confer prestige and legitimacy” otherwise not available and that this is a necessary thing for those embarking on professional careers. And the fact that conventional discipline-based university programs were often “stultifying” was dismissed as a minor problem.

On reflection, I think it is a mistake to presume that what ails the world has much to do with a lack of empirical knowledge, a shortage of information, or a scarcity of professional,
career-oriented scholars. It is likely that we suffer far more from a lack of courage, good heartedness, creativity, and a larger vision of how we might weave human societies into natural systems. But these traits often are not rewarded or even recognized in places that dispense “prestige and legitimacy.” To the contrary, often they are penalized in such places. In large part the reasons are to be found in the close relationship between the modern university and particular disciplines, with corporations promoting, among other things, agribusiness, genetic engineering, artificial intelligence, the consumer economy, weapons research, and the excessive resource extraction necessary to all of the above.

One of our charges was to consider the adequacy of financial support for various fellowship programs. But funding in institutions with billion-dollar endowments is seldom a problem. . . for the things that are valued in such places. The problem is that many things essential to the long-term health of the world in which our students will live are seldom high on the priority list of institutions of higher education, but parking decks, athletic facilities, and administrators flourish like mushrooms after a spring rain. What often appears as a funding problem is first and foremost a problem of values and priorities.

A few of us hoped to find programs that encouraged fellowship recipients to boldly cross the boundaries of disciplines and to connect fields of knowledge. Alas, the modern university facilitates the crossing of disciplinary boundaries with about the same fervor as, say, some Balkan countries facilitate interregional tourism (Noss 1997; Meffe 1998). As a result we often launch promising young people into academic careers that eviscerate their idealism and energy. By the time students have enrolled in graduate programs they will have made major decisions about their career paths. Soon thereafter they will have been socialized into the ethos of graduate school by a combination of fear of failure, financial dependency, and the asymmetrical power relationships that pervade such places. To succeed, they must invest more than just money and time in an effort to get a Ph.D. They must buy into a particular world view congenial to professionalized, disciplinary knowledge and institutionalized science. Dissidents are mostly invited out. By the time a student has been exposed to four years of college and four or more years of graduate school, the psychological investment is large, as is that in time and money. There should be no great mystery why such systems do not turn out a higher percentage enrolled in the “critical class” of scholars who are able and willing to critique the kinds of knowledge generated in some of our proudest institutions of higher learning and how such knowledge is used.

For the readers of this journal there is a related problem. Most of us hope that conservation biology will be more than a rigorous documentation of biotic impoverishment. If so, we must be open to the disconcerting possibility that the lens of western science distorts as often as it clarifies. Describing the ways by which the native Yup’ik people of Alaska understand nature, for example, historian Calvin Martin (1991: 111) writes that “Their call for respect for old ways has no soil, in our reality, to take root and grow.” To minds that perceive reality as participatory, western-style research is “strange, discourteous, and vaguely dangerous. There is,” he continues, “a crazy objectification going on here” (meaning western science) by which animals “are removed from the individual’s experience with them [and rendered] into ‘resources’ or ‘objects’ to be managed or studied.” The heart of the issue for Martin lies in the choice we make between measuring the world in fear or in trust. “That decision appears to usher its bearer inexorably into one realm of reality or another, mutually exclusive of one another” (p. 205).

Such observations bring us to an inconvenient truth that other cultures armed with far less “hard science” but much more of what we disparage as “myth” have made far better “management” decisions than we do.

If there is some fatal flaw in a science intent on “enlarging the bounds of the human empire, to the effecting of all things possible” as Francis Bacon put it in New Atlantis (1627), how would a student in a typical college or university come to recognize it? How would they learn to see the dangers in, say, efforts to reengineer the gene pool of the planet, or those to displace humans with machines that will be vastly more “intelligent”? How would they learn the humility, compassion, and perspective that should discipline the search for knowledge and its use? Could they learn to trust the world like the Yup’ik?

All of this is a way of asking, If graduate “training” is the solution, what is the problem? Do we intend to perpetuate an academic system well integrated with the status quo, or do we wish to preserve the Earth’s biota? The relation between the values built into the machinery of higher education and the values that animate most students seeking careers in conservation biology is not great.

If we intend to turn out not just scholars but whole people who create and use knowledge in order to make a difference, how would we do it? Is there a “teachable moment” in the lives of our students who want careers in conservation biology? I believe there is and that it occurs most often between the undergraduate experience and graduate school. At this point in their development most young people have a fair grasp of one or more disciplines but only a vague idea of what they want to do with their lives. Many have taken a lien on future income to pay for their undergraduate degree. At that point, however, their choices generally narrow down to staying in school supported by a combination of scholarships and loans, or employment. But
a small minority goes on to the Peace Corps and other service organizations, often with illuminating results. Most describe such experiences as “life changing” because of exposure to different cultures, ideas, and particular persons. The impact of such exposure has little to do with formal learning and everything to do with coming to see the world through different eyes. Whether they go on to graduate school or employment, most have been profoundly deepened by the experience and understand themselves and the world in ways that otherwise would not have been possible.

This suggests an alternative to the standard academic career track that would better use the time between undergraduate education and graduate school. What do students need to experience before they make decisions on one career or another? More than further exposure to the professorate, at this time they need exposure to people doing great things with courage, stamina, and creativity. They need mentors and role models, and these are most often found among those actually changing the world. Instead of career planning, they need a deeper and more vivid concept of what it means to live a life of service and commitment in what surely will be the most fateful period in human history. They need a compass to chart a life course that combines intellect, heart, judgement, and professional skills. There are a few precedents for this kind of experience, including the Watson Fellowship Program, which provides support for recent graduates who are likely to go on to leadership positions, and the Ashoka Network of "social entrepreneurs" assembled by Bill Drayton (Bornstein 1998). Drayton’s entrepreneur is a "pathbreaker with a powerful new idea, who combines visionary and real-world problem-solving creativity, who has a strong ethical fiber and who is totally possessed by his or her vision for change."

I propose that conservation biologists use such models to develop programs that broker a mentoring arrangement between graduating seniors wanting careers in conservation biology and a group of extraordinary practitioners in the field. Such a program would entail development of a selection process to identify applicants, selection of a group of conservation practitioners, creation of an application process that would match the two, and administration and assessment.

Students wanting to pursue careers in conservation biology could be identified by a discerning group of nominators—faculty as well as people in the field working in parks, wildlife refuges, environmental not-for-profit organizations, and wilderness areas. Mentors would be nominated by people who are in a good position to know who’s doing what around the world. In this category I would include foundation officers, newspaper reporters, members of nongovernmental organizations, government officials, and clergy. The goal is to identify people of significant stature and accomplishment working at the intersection of conservation and human improvement with courage and stamina, and often with little public acknowledgement.

The application process would entail several steps. First, nominees would submit an application describing their background, interests, and ambitions. Those selected at this first stage would be given a list of mentors with detailed information about their work. In a second submittal, applicants would describe the mentors with whom they wish to spend time, the reasons for doing so, and the nature of the final product of their journey. Any applicant could identify an itinerary that would involve some time with people on the list of mentors. A third stage in the process would entail brokering a working relationship with particular mentors and their organizations. At regular intervals during the year or two, applicants and mentors would submit reports about their progress. At the end of the designated time, recipients would submit their final project that might take various forms: a book, journal, reports, articles, or documentary film.

A program of the kind outlined above would require competent, discerning, and cost-effective administration. It would require a larger view of what it means to be qualified to teach than mere possession of academic credentials. It would require shrewd judgement about the capabilities and potentials of young people. I think that a program of the kind described here might be best run by a resourceful, agile, and well-connected nonprofit organization.

The kind of experience I’m suggesting is the kind that clarifies priorities, deepens commitments, extends horizons, and informs students that the world is rich in possibilities. And those going on to graduate school would have a clearer sense of why they are doing so, along with a lower tolerance for trivia.

According to its founders, conservation biology was intended as a revolutionary enterprise that joined good science with its application in order to preserve biological diversity (Soulé 1986). In the intervening years it has indeed come a long way. But as an academic endeavor it is situated within institutions that have yet to demonstrate a substantial commitment to an ecologically viable future. Ours is the age-old problem of trying to put new wine into old wineskins: we have a revolutionary credo about human responsibilities for the natural world but we work mostly in institutions still dedicated to extending human mastery over the world. I know of no easy solution for this problem, but there are many things that can be done to expand the ecological imagination of our students, to stretch their sense of possibilities, and to connect them to people changing the world.

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