



Integrating Science and Passion in Conservation Education

As conservation biologists, we can be proud. We have awakened to the war on biodiversity and wielded our scientific insight in the battle to prevent ecological catastrophe. But are we doing enough? And, perhaps more importantly, are we going about it in the right way? What models are we providing for the students who will replace us in the trenches? Do we take a *balanced* approach in our efforts to understand—and avert—the current biological crisis?

Conservation biology fails to reach its potential because it suffers from an overly narrow focus, which elevates biological inquiry above the messiness of real-world conservation work and negates the validity of its practitioners' emotional responses. Biologists often refuse to recognize the essential importance of emotional force and commitment, while grassroots activists often lack solid understanding of scientific concepts, facts, and principles. The cast of conservation players ranges from detached academics at one end of the spectrum to fiery-eyed but poorly informed fighters at the other. The needless dichotomy between these two extremes plays into the hands of those who would raze every rain forest, drain every marsh, and pave every vacant lot. Regrettably, both society at large and our educational system emphasize these extremes, rather than the rich and potent ground of the center. Just as many activists would benefit from better scientific training, many biologists could become more effective by embracing the passion and the real-world savvy of the activist.

How can passion help us as conservation biologists? Why should we consider emotion to be an ally rather than a liability? Simply because *Homo sapiens* is an emotional critter, and it is the behavior of this species that we are trying to change. All people are motivated by their emotional responses, not by a simple accumulation of factual information. Most of us chose to work in conservation because of experiences that touched deep emotional chords. When senators or industrialists make decisions regarding conservation versus "development," they too are motivated by what has touched their hearts. I know, for example, of a federal wilderness area that was established here in Arizona because an

influential congressman was captivated by the story of a mountain lion that a biologist was not afraid to share in his congressional testimony. The emotional image of the big cat roaming the mesa moved this decision-maker more than the reams of data submitted concurrently.

So why is there reluctance among conservation biologists to be overtly passionate about saving the world? In part, it is due to the fact that many of us are academics. Academia has not traditionally rewarded expressions of emotion; thus, expressing emotion is risky business for academics. But we would do well to heed Webster's reminder that one meaning of "academic" is "merely theoretical, having no direct practical application."

Richard Hugo, a poet and former college professor, encountered one of his university colleagues coming out of a theater as he waited in line to enter. When Hugo asked his friend if he liked the movie the reply was, "I'm not sure. I'm going to have to go home and think about it." As Hugo pointed out, the friend mistrusted his own emotions; what he needed to think about was not if he liked the movie, but if he could defend his opinion. Similar inhibition is palpable throughout much of the academic community, including conservation biology. Yet the fact of the matter is, taking personal risks is necessary; biodiversity will not be saved from within the safety net of the status quo.

Similarly, trust in the scientific process alone (see, for example, Dennis Murphy's paper in the June, 1990, issue of this journal) is misguided. Despite our cherished notions about the efficiency and clean objectivity of the scientific method, decisions in our world are not made by simple reference to tested hypotheses. Rather, decisions are based on the way people *feel* about an issue. Scientific evidence is but one strand in the web of human response. Human emotions and the politics of the real world can be chaotic, and thus anathema to many scientists. But saving the world is not an orderly process.

Those of us who educate future conservation biologists must, therefore, strive toward several related goals. We must encourage learners to trust their own emotional responses and to see them as an important

strength. Similarly, we must encourage them to clarify their own values and to be willing to take stands on behalf of these values. Conservation, by definition, implies such courage. Also, we must develop interdisciplinary programs that do not mask the complexity of conservation issues. And we must actively push students to develop their communication skills, both written and oral. Lacking these, they will become ineffective observers rather than integral participants in the future of conservation.

What comprises the "typical" college conservation biology course? A large dose of population genetics is blended with theories of population viability and island biogeography. This is an excellent beginning, but what about the passion that moves us to act? What about land management? Politics? Economics? Conservation biology began, at least in part, in recognition of the need for biologists to become more activist and mission-oriented. Being an effective activist means learning how power works in society and taking clear-headed action to change the world. Is this skill taught in academia?

The integration of biological, political, economic, and historical perspectives on conservation issues is crucial. During the symposium on biological conservation in the Neotropics at the 1990 meeting of our Society, speaker after speaker, from several Latin American nations, stressed the need for interdisciplinary workers. Jorge Orejuela of Columbia's La Planada Reserve described "the complete scientist" as one able to deal with economics and marketing as well as biology, and pointed out that many conservation projects have failed "because scientists have failed to take the extra step" to communicate and create political pressure. Eduardo Santana of Mexico observed that the role of many conservationists in Latin America has changed; many who began as biologists now find themselves in new interdisciplinary roles for which they have not been properly prepared.

Here at Prescott College, I have been involved in designing and teaching a conservation biology course as well as designing an environmental conservation degree program. My colleagues and I strive to synthesize and intermingle many academic threads, honoring interconnection in practice as well as theory. In our conservation biology course, class topics range from island bio-

geography to the history of the American conservation movement to discussion of our personal responsibilities and what motivates us to action. Students develop both written and oral communication skills through research papers, debates, and mock public hearings. Biology is the beginning, not the end, of our studies.

Students majoring in environmental conservation must delve into a blend of courses—biology, field ecology, environmental politics, and economics—designed to provide a broad perspective on the field. A narrowing and deepening of a student's personal emphasis occurs only *after* an interdisciplinary overview is obtained. Emphasis is on discovering connections between disciplines, and between academia and "the real world," not on fostering the delusion of their separateness. Helping students achieve a sense of these connections is one of our highest priorities. Within all this work we not only honor the validity of emotion, but actively seek to clarify it. I begin each quarter's class by explicitly stating my own assumptions; foremost among these is that "feelings and facts are both important."

Implicit in this approach is the value of balance in our inquiry. Of course, specialization is necessary to further theoretical underpinnings, but too much of it amounts to wearing blinders. Every Forest Service official need not follow each theoretical advance in population genetics, nor does every biologist need to memorize the Code of Federal Regulations that prescribes Forest Service action. But both workers must recognize each other's relevance to their own efforts to preserve nature in as intact a form as possible. The myopia of overspecialization and the fear of our feelings both contribute to the sad situation that nature preserves don't preserve nature.

Saving the world begins at home. Ultimately, it is up to each individual to seek connections between disciplines and to accept the validity and the power of his or her own emotional responses. The real question is: are we willing to change ourselves, that the world may change?

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