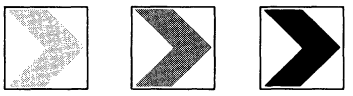
Diversity



Teaching Conservation Effectively: A Lesson from Life-History Strategies

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We have followed with interest the discussions in *Conservation Biology* regarding higher education and its importance to conservation (Meffe 1994; Jacobson et al. 1995; Strauss 1995; Gerht 1996; Uhl et al. 1996; Dunning 1997; Mattingly 1997). We believe, however, that informing college students about environmental issues falls short of addressing the large-scale problem of environmental apathy in today's world.

To illustrate our point we cite two examples. The first is an event that took place in Panama, where a fellow ecologist was conducting some field research. She and other researchers stopped at a restaurant by the coast where the menu listed, among other items, "turtle soup." Most of the researchers ordered the soup, but our friend (a native Spanish speaker) asked the waiter what kind of turtle it was. He responded matter-of-factly, "green sea turtle." Our friend translated this to her peers, but to her surprise they showed little reaction; the most concerned among them stated that as long as it was not a female, it was okay to eat. The researchers then proceeded to enjoy their meal.

In contrast to this is an event observed by one of us while working in an aquaculture farm in the foothills of central Venezuela. A medium-sized caiman (an abundant relative of the alligator) had invaded one of the ponds and consumed a sizable amount of the fish being farmed. When the intruder was finally caught, one of the farm workers begged that the animal not be hurt and that it be relocated to a deep river from which the caiman would most likely not return.

The researchers in Panama were post-doctoral and Ph.D. students in tropical biology and behavioral ecology. The worker at the Venezuelan farm had at most a first- or second-grade education and was raised in an area of little conservation awareness. Perhaps these are not examples of any particular trend, but they are two extreme points that illustrate a broader issue: lack of knowledge is not the problem.

Lack of knowledge is certainly not the problem when lumber companies decide to clearcut a large extension of land in the old-growth forests of western Canada or the Brazilian rainforest. Insufficient education about conservation issues is not the missing ingredient when large industrial companies decide to build factories in developing countries where local environmental regulations are not well enforced, if they exist at all. It is clear that for the most part the real cause of environmental irresponsibility is not a lack of knowledge but a lack of caring. Information will not make a real difference in our environmental attitudes and behavior, but feelings will because love cannot be bought, corrupted, or intentionally ignored the way knowledge can.

Only people who feel strongly about the environment and have established some bonds of respect and awe for nature are going to fight to protect it (Gould 1991; Orr 1992). Now, how can we teach people to care? College students are poor targets for promoting environmental responsibility for several reasons: not only are their personalities already mostly shaped, but they have many newfound priorities and concerns. The final stages of a stubborn adolescence, the responsibilities of early adulthood (choosing a career, finding a job, finding a spouse), and the demands of their programs of study do not leave the time or desire to devote efforts to environmental issues. Therefore, we believe college students should not be the prime targets of our teaching efforts.

To teach and instill love and respect for nature, our best target audience is children. Children, especially grade-school children, are still developing their personalities, and unlike most teenagers and adults, they are receptive to new ideas and philosophies. The seeds planted in children will grow into feelings as the child matures.

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The idea that children are a better target for teaching the love of nature is well known (Norton 1989; Paul & Serpell 1993), yet conservation academicians consistently ignore this important issue or at least seem to be waiting for somebody else to take care of it. We cannot depend solely upon overworked and underpaid primary-school teachers, who also lack proper education in this field.

Teaching in lower educational levels versus higher ones can be compared with life-history strategies. We can invest a lot of time and effort in training a few Ph.D. students to develop theories, models, and design strategies to apply to conservation biology (k-selected strategy) or we can invest an equivalent effort in seeding the love of nature in many children, of whom at least some will eventually become environmentally concerned citizens (r-selected strategy). These citizens will demand some degree of environmental responsibility from themselves and from the community, ultimately becoming voters concerned about the environmental policies of politicians and other decision makers.

As in nature, we need both strategies. Having sophisticated models to apply to conservation is of little help if we lack the political and economic interest to achieve conservation goals. On the other hand, having communities and politicians with strong environmental policies would not guarantee success without guidance. How shall we distribute our efforts? Again, we can learn from nature: we should invest in creating a few "k-modelers" and many "r-voters." We will always need some (and have jobs for only a few) scholars to recommend proper environmental solutions. Yet, in light of our conservation crisis, we can never have too many environmental activists and responsible voters.

In today's competitive world of academics, where research and publications are the keys to success, teaching children may be perceived as a waste of time. Nevertheless, getting involved in teaching environmental awareness is now a necessity, not an option. As Gerht (1996) claimed, it is a matter of ethics, and it is also an alternative that is within everyone's reach.

How do we devote our time to both educational strategies? One efficient method would be to directly involve both graduate students and children. Graduate students could be required, as part of their candidate duties, to interact with a group of children in which the goal would be to seed a love for nature and knowledge about environmental and conservation issues (this also would be a great learning experience for the graduate student).

We believe that targeting many young children is the best way of promoting a permanent solution to our environmental problems. Seeding a love for nature in today's youth is the best hope we have of ever achieving a world with real respect for the earth, instead of a minority of concerned citizens struggling to make the best of a bad job. We call on conservation biologists, especially students and faculty, to make a greater commitment to our environment. We can make a more valuable contribution to conservation by diverting a little of the time that we currently devote to research to the simpler yet fruitful task of teaching children.

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