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Merging A Deep Intuitive Ecological Understanding with
Conservation Biology: An AEI Approach

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ROBERT BALDWIN was born in Washington D.C. in 1963. He moved to live in the woods of Maine with his family in the early 1970's. His early years were spent caring for farm animals, helping on a sawmill, with carpentry and other farm tasks. He went to a public high school and then to Colby College, where he studied Biology. His most interesting college experience was a year spent at the University of Edinburgh in Scotland. Following college, he went to work at the National Zoological Park in Washington D.C. where he conducted a four-year research project on the behavior of carnivores in captivity, and designed systems to help the animals express more of their natural behavior. He then worked as a field station director on Andros Island in the Bahamas, a biologist in the Great Smoky Mountains National Park, a consultant and State Park Manager in Vermont before coming to teach at the Audubon Expedition Institute. His personal and professional philosophies are influenced by his connection to land and traditions of the coast of Maine, and a desire to see a world form in which humans respect each other and learn to live in balance with the community of life. He hopes to soon purchase old farm land with his wife Betty and work to restore its biological health while supplying their family with food, water and heat.

Conservation biology and the deep ecology movement, one a science, one a philosophical and grass roots movement, can be seen as entwined together through their history. For instance, the author of "The Land Ethic," Aldo Leopold was also the author of *Game Management*, the seminal work on management of wildlife populations by using scientific methods. If one has developed a strong intuitive sense for nature, and an ethics inclusive of all of nature, conservation biology can be a powerful tool to inform debates and education over the future of the planet. Conservation biology is science with the potential for an inherent deep ecological ethic. The Wildlands Project, Greater North Cascades Ecosystem Alliance, and the Southwest Center for Biodiversity¹ are American examples of the informed use of biology, law, and ethics in the service of biodiversity protection. Their activism and education are grounded in understanding and articulation of biological principles as much as they are driven by morality. In some ways, they are models for the informed, active citizen and the environmental educator who wishes to make changes in the world.

Environmental educators are our major hope for a paradigm shift in Western human consciousness, short of ecocatastrophe. An effective environmental educator has an intuitive understanding of nature, and is also articulate about the scientific and philosophical basis for the conservation of life. Traditional higher education is generally effective in developing detailed understanding of the latter. It is more difficult to "teach" intuition. The Deep Ecology Movement and Conservation Biology do not need to be viewed as separate entities that devalue

one another. Here at AEI, we consciously blend the value and insights inherent in each of these realms.

Blending Deep Ecology and Conservation Biology

Deep ecology education is a process of developing an intuitive sense for the behavior and needs of Earth's living systems. Much as in my marriage, I work to strengthen the relationship by listening, validating, and observing, striving to know the problems before they arise. This process is echoed in group living. The more I live, listen and work with others, the more I come to intuitively know their individuality, their particular needs. I can learn to appreciate biological diversity in the same way.

Leafing through a recent issue of *Conservation Biology*, I find an article on the molecular genetics of pre-1940 red wolves. By attempting to understand their genetics before captive breeding programs introduced gray wolf genes, biologists are hoping to get a picture of how much of a species red wolves truly are. These conservation biologists are experts on genetics and speciation. They use high technology to inform policy decisions on federal and state protection of what is now classified an endangered species. A supporter of the deep ecology movement could rightly criticize humans for focusing their attention on discerning the problem of red wolves on deeper and deeper levels, as other species are dropping off of the planet, because the fundamental thinking about ourselves in relation to the rest of nature has not changed. The deep ecological approach on red wolves asks fundamental questions, such as how did human beings evolve to the point where the loss of species such as red wolves is commonplace, and what cultural paradigm shifts should occur so that we conserve other life through our everyday actions? In an environmental education graduate program that emphasizes the development of deep ecological values and teaching methods, we try to balance the critical look at technology with respect and understanding for science that is used to understand and maintain biological diversity. We ask our third-semester master's students: How can you, as an environmental educator, use scientific information appropriately and effectively?

Karl Marx said: "Philosophers have only interpreted the world in various ways; the point is to change it." A debate over the role and responsibility of activism for scientists is currently raging within the discipline. (For a very informative exchange of views on science and activism see the special section in June 1996 *Conservation Biology*) From this debate students can learn about the tension that arises between scientific objectivity and the moral responsibility to act. They can examine their own relationship to scientific information as educators and the balance they will achieve between teaching values and facts. They can ask what it means to be a professional teacher. David Orr's critical look at the effects of professionalism on academia's ability to contribute to social change

leads him to state: "The professionally induced fear of making a mistake or being thought to lack rigor has rendered much of the professorate toothless and confined to quibbles of great insignificance." (1994, p. 100) People's historian Howard Zinn questions the ethics of being a neutral teacher: "...in a world where children are still not safe from starvation and bombs, should not the historian thrust himself [sic] and his writing into history, on behalf of goals in which he deeply believes?" (1990, p. 1)

The Audubon Expedition Institute learning experience fosters connection with the land. Students often develop emotional bonds with places they visit. They often become critical of technology. For example, at a visit to the Glen Canyon Dam two years ago I watched as students wept. It is often difficult for them to reconcile the positive uses of science with the technological control they witness that seems to threaten living systems everywhere. Challenged to examine current dominant paradigms by books such as *In the Absence of the Sacred* by Jerry Mander, *Thinking Like a Mountain* edited by John Seed, Joanna Macy, Pat Fleming and Arne Naess, and *Earth in Mind* by David Orr, students develop an appropriately critical stance in relation to technology. Encouraged to work through despair over planetary despoliation, including using Joanna Macy's exercises from *Despair and Personal Power in the Nuclear Age*, they often get in touch with deep feelings and become motivated to do some kind of political action. Hearing the first hand life stories of advocates such as Peg Millet (the "Arizona Five") Lynn Jacobs (author of *Waste of the West*), and Howard Zinn (author of *People's History of the United States*) often helps students feel a bond with other activists and seems to increase motivation to overcome their own obstacles. At the same time, students are being encouraged to develop a personal relationship with the land, using traditional natural history methods as well as exploring the spiritual. Music has also been an important foundation: One student last spring wrote words and fiddle music for a song to the Nantahala River in Tennessee, as well as a research paper, for a natural history writing requirement. In this context, Conservation Biology is a tool to become a more literate, articulate advocate for conservation.

The intent of conservation biology education at AEI is to increase conservation biology literacy, not become conservation biologists. We do not mean literacy in just an academic sense, although this is certainly part of it; we mean an ecological response that involves the body. To teach the body requires the immersion of the whole person in the systems being studied, in our case this semester, the Gulf of Maine bioregion. Only when the cycles of storms in the Gulf become as ingrained as breakfast, lunch and dinner, when the finite boundaries of protected forest land areas become painfully clear through direct experience with clearcuts, will such words as "habitat fragmentation" and "species-area relationships" come meaningfully to the surface.

Why is intuition important? Isn't it more objective to focus on learning all of the relevant facts? For some ecologists, intuition may play as an important role

in recognizing ecological problems as the intellect. John Davis, editor of *Wild Earth*, in the foreword of a recent book on eastern old growth forests, tells us: "Natural Forests display such a broad spectrum of characteristics that we cannot constrain them within neat definitions. To some extent, we might do well to let our intuitions, backed by studies, tell us what is old growth." Will Blozan, an AEI alumnus, has become internationally known for his strongly developed intuition for locating and identifying stands of old growth in the southern Appalachians and his uncanny ability to find record trees. This semester, graduate students doing studies of two ponds on Grand Manan Island reported that it was the incidental observations they made, the feelings they got about the places, that told them which pond was in a more healthy condition. One world-class field ecologist I worked with described how, after a period of time being immersed in a system, his intuition gives him an immediate understanding of other, very dissimilar systems.

This semester, I co-facilitated a course in conservation biology for the Master's degree students in their third and last semester in the field. The stated goal was to "provide students with understanding of the biological processes behind extinction, the anthropogenic causes and the proposed solutions, that they can effectively use as environmental educators." In AEI's student-centered experiential model we use eight major means of achieving this goal. These are:

1) A typical experiential model of a **Three-part Experience**, including a pre-experience presentation, the experience itself, and a post-experience integration. Pre- and post- experience teachings are usually done by students, with the guidance of faculty. Preparations serve to inform the students so they can ask better questions, engage more in the experience, and generally raise the level of involvement. Integration enables students to digest the information and emotions stimulated during the experience and construct new knowledge. Some experiences focused on Conservation Biology have been: Mitch Lansky, author of *Beyond the Beauty Strip: Saving What's Left of Our Forests*; Manomet Bird Observatory; Bowater/Great Northern Paper Company; and Gary Lawless, poetry editor for *Wild Earth*.

2) **Reading**: students tailor their reading to their particular interests, with the guidance of faculty. In addition to reading bioregionally-focused books and articles on natural history and ecology, students are directed to the following books: *The Song of the Dodo: Island Biogeography in an Age of Extinctions*, by David Quammen; . *Primer of Conservation Biology*, by Richard Primack; and *Ghost Bears: Exploring the Biodiversity Crisis*, by R. Edward Grumbine. These works provide general and specific information on the theory and practical application of the science of Conservation Biology.

3) **Group Discussion**: a component of pre- and post- experience teachings, and other courses that happen during the semester. Discussions are facilitated by faculty and students and focus on personal ethics and understanding of the issues with the expectation that students pull in outside references to back their

positions.

4) **Dialogue with Faculty:** faculty can draw out the students' views and understanding of conservation biology through guided, informal exchange.

5) **Collaborative Group Project:** students working in small groups to re-search, plan and present an educational project "to inspire behavior changes in the audience." Students also have the option of planning and implementing a biological monitoring project in one the ecosystems we are visiting.

6) To focus inquiry, we asked the following four **Core Questions**. Core questions are intended to guide students' exploration of the subject matter. For example, they make great starting points for journal entries and discussions.

How have you engaged with the ecological communities of the Northern Forest and Gulf of Maine bioregions?

What is an island from the perspective of another species?

How can you, as an environmental educator, use scientific information appropriately and effectively?

What practices do you employ to heal ecosystems and build your relationship with them?

7) **Learning Community:**By watching and developing a learning community students can develop an intuitive understanding of interconnectedness. By caring for and listening to each other students develop a sensitivity to subtleties of the non-human world.

8) **Field Immersion:** There is something magical about living outside that puts us in touch with the pulse of the land. There is a constant stream of "information" coming to us through our senses in the form of the passage of the stars over our bare faces as we sleep, the fall of acorns, the smell of decomposition, the sound of highways and rivers. This information may appeal to a deeper intuitive sense, perhaps a genetic affiliation (Kellert and Wilson, 1993), and put in concert with intellectual exploration of the environment, contextualizes learning.

Conservation Biology is a tool to be used in the context of deep ecology education. Effective environmental educators act and teach from an ethical stance, are skilled in guiding others through values education, and can articulate the philosophical and scientific basis for their actions. A well-developed intuitive understanding of natural systems is nurtured through long and involved direct experience. Intuitive understanding enhances articulation of scientific concepts. It can operate on its own, or in combination with science. It is perhaps the most valuable asset an educator can possess.

We are struggling out of a time when the mind was God. We let rationality tell

us how to live. As we learn to listen more to our hearts, let's not forget our minds.

Acknowledgments

As always, I am writing down what passes through me as I listen and learn with students and faculty of Audubon Expedition Institute groups.

Notes

1. A good Canadian example of this would be the Wildlands League.

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