

ENDANGERED SPECIES

Technical Bulletin Reprint

Wildland Management Center
School of Natural Resources
The University of Michigan



From the School of Natural Resources

Conservation Biology: A Science Whose Time Has Come

by Dr. Paul Joslin

At the Second Conference on Conservation Biology (CBII) hosted by the Wildland Management Center of The University of Michigan's School of Natural Resources this May, scientists and resource managers came together to talk about the status of the world's natural ecosystems, and to discuss what was being done to reduce man's negative impact upon them. Speaker after speaker had new data to further support the view brought forward at the First Conference on Conservation Biology in 1978 that the world's biological diversity is declining, especially in the tropical rain forests.

Recognizing that many of the world's biomes are undergoing a fragmentation process, attention was given to such concepts as the minimum viable population (MVP) needed to sustain a given life form in its environment, the impact of inbreeding depression on small populations, the influence of edge effect as it relates to the size of reserves, and rates of recovery after varying degrees of land-use have impacted the landscape.

Managers focused on the need to improve the level of communication between scientists and themselves. Faced with hard choices, resource managers said they most needed from conservation biologists alternative practical solutions in succinct, easy to understand terms. For those conservation biologists working in third world countries, a special plea was made that they publish in those countries. While it was recognized that biologists within the academic community had to publish in peer review journals for their own survival and recognition, it was also noted that if they did not also put

out their information in the countries where the work was actually done, the conservation benefits to be gained would be limited.

Among the conservation biologists there was a perception that their discipline is the ugly sister among the sciences within the academic community and that, as a consequence, there is a severe shortage of funding to investigate even the basic problems. To illustrate the imbalance: vast sums are being spent in the search for a cure for cancer and heart disease — problems that have no time line. In contrast, very little is being spent on investigating a cure for the loss in biological diversity even though it has increased to a level of epidemic proportions. So under funded is the field of conservation biology that only a handful of competent scientists are presently investigating the diversity of species existing in those areas where the loss in species is greatest.

In an effort to raise the status of conservation biology among the sciences, as well as to improve the flow of communication between resource managers and conservation biologists, the attendees to the conference endorsed a proposal aimed at launching a conservation biology society and initiating a conservation biology journal.

On another front, Dr. Norman Myers, a consultant for the World Bank, pointed out that the World Bank is on the verge of putting forward a six point plan that would involve the expenditure of five billion dollars a year over the next ten to fifteen years directed towards conservation in the tropical rain forest regions of the world. Part of the funding would be spent on the acquisition and protection of addi-

tional natural areas with the goal being to safeguard ten to twenty percent of the remaining forests. Part of the funding would be used in the establishment of forest plantations to meet the needs for timber and fuel exploitation, and so reduce the pressure on the remaining natural areas. Monies would also be spent on reforestation of water catchment basins. Further expenditures would be made to encourage changes in agricultural lifestyles from extensive, exploitative systems, to those that are more intensive. Lastly, funds would be spent on research, training and education, without which the entire plan would fail.

The proposal as envisaged would entail one third of the costs being contributed by the tropical countries themselves, in recognition of the larger costs involved if steps are not taken soon. Another third would be contributed by the developed nations, in

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Dr. Michael Soule, pioneer in the field of conservation biology.

Scientists and Managers Look for Common Ground at CB II

by Paul Larmer

Imagine a train hurtling down the tracks at 100 kilometers per hour. Within the cars of the train are all the species of organisms — plant and animal — that exist on earth. Just ahead, the tracks abruptly end and a gaping canyon drops a mile down. Even with full braking power, there is no way to stop the train from taking the plunge.

Alongside the train, a few human beings in vehicles throw spare tires, lumber and other objects under the wheels of the speeding train in a desperate attempt to slow it down. With some additional help and some good luck, it is possible that not all of the cars of the train will go over the abyss; there is a chance that some of the natural diversity in the world will come to rest on the brink, avoiding that death of all deaths — extinction.

This is an analogy for the fate of the world's some 5-10 million species conceived by Dr. Michael Soule, one of the leading figures in the nascent science of conservation biology. Dr. Soule and his colleagues, both scientists and natural resource managers, convened this past May in an attempt to toss some more scrap under the churning wheels of the train. The occasion was the 2nd Conference on Conservation Biology (CB II) hosted by the Wildland Management Center of the University of Michigan's School of Natural Resources.

Unlike the first conference on conservation biology held in 1978, CB II included natural resource managers along with the scientists in recognition of the social and political dimensions

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— Hal Salwasser,
U.S. Forest Service

of conservation. One of the refreshing characteristics of conservation biology is its open attempt to merge the theoretical and the practical. Knowledge for knowledge sake has been given a back seat to the impending “biological holocaust” which many feel has already begun in the tropics. Conservation biologists are attempting to design and carry out research projects that will contribute immediately to the political decision-making process that will ultimately decide on conservation measures.

The links between scientists and resource managers have always been somewhat tenuous, and the attempt to open a dialogue at the CB II conference revealed some of the weaker strands in the relationship. Hal Salwasser, a regional wildlife manager for the U.S. Forest Service, spoke strongly about the manager's need for immediate information from scientists

and the scientist's natural proclivity for precise, time-consuming investigations. As he said during the first manager's panel discussion: “Science is rightly concerned with precision; but the world is managed with bulldozers and dynamite — not terribly precise instruments. And if we choose to sit out claiming we don't know enough yet, that we need more data to run our complicated models, then the bulldozers and the dynamite will just have to operate without us.”

This theme was repeated several times during the 3-day conference. Robert Jenkins, a national officer for The Nature Conservancy, said that unless theoretical research could be translated into some practical yardsticks, scientists would “leave us practical conservationists out there as you have always done, making hip-shot estimates with a minimum amount of information and with really no more theoretical basis than what Charles Darwin left us with.”

A related topic that surfaced frequently was the issue of language and communication. Arne Naess, an eco-philosopher from Oslo, Norway who gave the opening talk of the conference, first touched on this issue when he spoke of the need for biologists to not be afraid of using “the language of metaphors used in the old naturalist tradition.” Biologists, he said, are “privileged to be acquainted with worlds largely outside the experience of others.” “You must,” he continued, “convey what you spontaneously experience,” instead of using the stiff jargon of science.

Resource managers from both the United States and the third world nations pointed out that the people who have the most influence over decisions involving conservation — namely the politicians and the public — do not have the patience or the ability to decipher the language of the scientist. As Chris Servheen of the U.S. Fish and Wildlife Service said, “The ability of most people who make decisions to assimilate this information is nil. . . Scientists need to recognize that they talk to each other too much and they do not talk to managers.”

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A forum for information
exchange on
endangered species from

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Common Ground continued

Representative managers from the third world were even more outspoken in their call for more usable research from scientists. Paul Butler from the Division of Forestry on the Caribbean island of St. Lucia described their efforts to sell conservation as akin to the way a salesman would try to sell a coca-cola. "You will not sell a soft drink by saying it contains H₂O, saccharin and 15 chemicals," he said. "You will sell it by saying that it tastes good and it quenches your thirst. This is the sort of research I want," he said.

Despite the sometimes critical remarks from the managers, it was apparent from the presentations given by scientists at the conference that there is research going on which holds some very practical implications for conservation.

One example is the work of John Terborgh, a biologist from Princeton University. Terborgh has uncovered the fact that there are certain plant species in tropical forests — "keystone" species he calls them — which sustain most of the large animal life. In fact, his study revealed that 10 species of plants sustained 80 percent of the animal biomass. The practical management implications of this information are profound: tropical forests can be thinned out and managed under mixed silviculture techniques without threatening many animal species as long as keystone plant species are left intact.

When asked about the apparent bias in his research toward saving large animals, Terborgh said, "Though I hate to put values on different species, the rest of the world does. Monkeys and jaguars are far more charismatic than little beetles that no one has ever heard of."

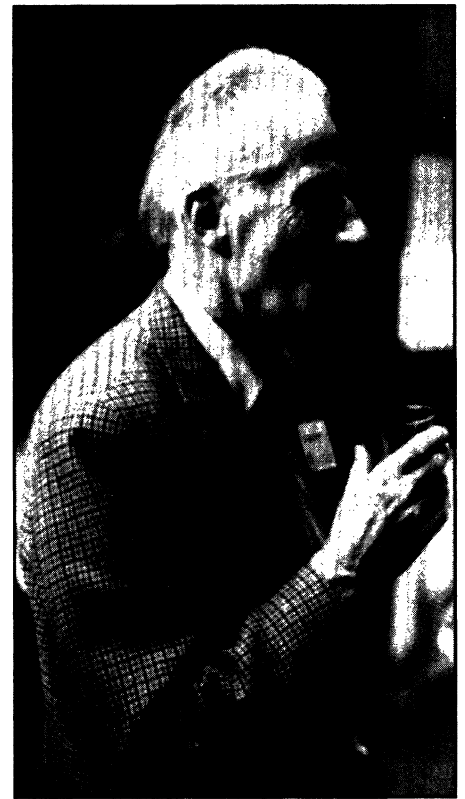
Terborgh also said that most developing nations will only be able to set aside 5 percent of their lands as protected lands at best. "That, in my view, he said, "is not enough; we're going to suffer catastrophic extinction even if we do have reasonably good park programs. I think the answer has to be a managed forest," he added.

Another example of practical conservation work came from Carl Jordan of the University of Georgia. Jordan's presentation was on the resilience of tropical rain forests, and he gave a

brighter picture than one might expect. Disturbances that are "light, small-scale and of short duration" pose no problem to the forests' ability to recover, he said. He added that his study indicated that "tropical forests can be used for sustained yield if the limitations of the forest are considered." Thus, Jordan's work could provide guidelines outlining which types of human disturbances under which conditions are acceptable for conserving natural diversity in a tropical forest.

The CB II conference marked a good step in opening the lines of communication between scientists and resource managers. Because the conservation biology challenge is as much a human one as it is a biological one, scientists and managers realize that they need each other to slow down the runaway train.

A Third Conference on Conservation Biology is scheduled in the near future. It will largely be a managers meeting, with some scientists on hand to present the most relevant new research. Stay tuned for more information in a future issue.



Opening speaker Arne Naess: "You must convey what you spontaneously experience."

Conservation Biology continued

recognition of their long term interests in the tropical regions. The remaining third would be contributed by the timber corporations who obviously have a vested interest in seeing that the plan succeeds.

The conference concluded by honoring Dr. Michael Soule, one of the prime organizers behind both conferences and the author of foundational books on conservation biology, for having done so much to launch the conservation biology movement as a scientific discipline.

Dr. Paul Joslin is the Director of the Visitor Research Program for the Chicago Zoological Society. He is a frequent lecturer on the subject of conservation and has done studies on endangered species, including the Asian lion.

Resources. . .

The Gopher Tortoise Council will hold its 1985 annual meeting at the Solon Dixon Forestry Center (of Auburn University), Dixie, Alabama, on November 15-17. The Council is dedicated to reversing the decline of the gopher tortoise and the inquiline inhabitants of its burrows. The 1985 annual meeting will stress strategies and options of habitat management. For additional information contact Dr. Robert H. Mount, Department of Zoology-Entomology, Auburn University, AL 36849, phone (205) 826-4850.

DEAR SNR ALUMNI

I'd like to introduce you to the *Endangered Species Technical Bulletin Reprint*, the best source of current information on the federal endangered species program.

The *Bulletin* had its genesis in 1976 when the U.S. Fish and Wildlife Service began publishing it to keep agencies, private organizations, industries and concerned individuals abreast of its activities in the newly-formed Office of Endangered Species. Distribution of the *Bulletin* was free at this time, and anyone could get a subscription.

Then, in 1981, budget cuts forced the distribution to be limited to federal employees and official contacts of the U.S. Fish and Wildlife Service. This action cut off an important source of information from the public.

In order to continue servicing those who were eliminated from distribution, the Wildland Management Center of the School of Natural Resources began a cooperative effort with the U.S. Fish and Wildlife Service to "Reprint" the *Bulletin* and make it available once again, this time on a subscription basis to help cover the costs (12 monthly issues for \$12.00).

One of the goals of this project is to develop a large enough pool of subscribers to ensure that these costs can be met every month so that the program can support itself. Right now, outside funding is still relied upon to help cover these costs.

Your subscription to the *Bulletin* would help us in reaching for this goal. I hope you enjoy this issue and decide to join our informed readership.

Sincerely,

Paul Larmer
Reprint Editor

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