

Environmental Review

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Conservation of Endangered Ecosystems

Introduction:

Ecosystems provide us with clean water and air, flood control, pest control, crop pollination, and many other benefits. In fact without plants making oxygen, a rather toxic byproduct of photosynthesis, we would not exist. The Endangered Species Act, proposed thirty years ago by a conservative president, acknowledges our dependence on the natural world. The Noah's Ark approach of saving two of each species would technically comply with the ESA, but it wouldn't be a world we could live in. To keep ecosystem services flowing there need to be many populations of species distributed widely and working together. If there is any hope that the world will support 8 or more billion people in a decent life we will need to conserve species and we will need to conserve whole populations of them.

Paul Ehrlich shared with us his thoughts about saving and repairing endangered ecosystems in addition to conserving endangered species.

ER: Professor Ehrlich what is your training?

PE: I was a butterfly collector and a zoology major at the University of Pennsylvania. I got my Bachelor's in 1953, and went to work with one of the

CONTENTS:

WHY DO WE NEED A FUNCTIONING ECOSYSTEM?

Paul Ehrlich

COUNTING MIGRATORY BIRDS AT NIGHT

William Evans



most distinguished scientists in the world, Charles Michener, at the University of Kansas for my PhD. I had originally met Michener when he was curator of *Lepidoptera* at the American Museum of Natural History and I met him through my butterfly collecting interests. He is the world's greatest authority on bee evolution, and we may actually write a bee paper together one day. I took over his butterfly interests at Kansas, and that was my major training. I had a postdoc and then went directly to Stanford in 1959 and am one of the few academicians who have not moved.

ER: When did it become apparent to you that the environment was in trouble?

PE: It came back to me in two different ways, but related. When I was a kid butterfly collector in New Jersey, I found it impossible to raise butterflies because there was so much DDT spraying going on to keep mosquitoes suppressed that most of the food plants that I brought in to feed the butterfly caterpillars were poisonous, so the caterpillars would die. Then when I was an undergraduate at Penn, I was with an interesting group of people, and we debated the population issue a lot because there had been recent books by Fairfield Osborn and William Vogt, the first one was *Our Plundered Planet*, and Vogt's was *Road to Survival*. Those books stimulated my interest in population and environment issues, and the interest has continued. When I went to graduate school in Kansas in 1953 my assistantship in fact was on the evolution of DDT resistance in fruit flies.

By the way, the work that we will be talking about on the importance of population extinctions has been done not just by me but by my colleagues Gretchen Daily, who is here at Stanford, and Jennifer Hughes who is at Brown University.

ER: Where do we start with the importance of populations?

PE: I think the place to start on this is to make it clear that the human economy and our society depend entirely on a flow of ecosystem services. Now what are ecosystem services? It's a ten-dollar phrase for a simple concept. For example, forests hold soil in place and absorb heavy

