



## Oh, I Forgot about Zoos

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*Oikos*, Vol. 48, No. 3. (Mar., 1987), pp. 241-242.

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*Oikos* is currently published by Nordic Society Oikos.

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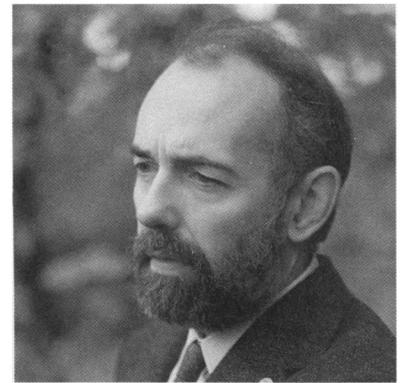
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## Oh, I forgot about zoos

If there was a crop that grew as well on tropical rainforest soils as do many crops and pastures on tropical dry forest soils, we would not have any rainforest left to argue over. This truth introduces two intense warnings for the manager of tropical agroecosystems. Beware the globalization of “good” agricultural animals and plants. Beware the “improvement” of agricultural animals and plants.

Why beware good animals and plants? The definition of a weed is an organism living where you don't want it. An example of a common scenario is as follows. Country A on continent A has a severe shortage of fuelwood for the simple reason that country A has cut down most of its forests, has many more people than its resource base can support at any acceptable standard of living, is a country not because of a sense of communality but through colonial division of the plantation, and possesses no research community that will or can develop alternate or replacement fuel sources. International research scientist A is quite aware that there are numerous species of fuelwood trees growing on other continents or geographic regions, and that they could be grown on the bare soils and harsh climates of country A. Scientist A does not know much about the potential fuelwood trees that might grow in country A because no serious research has been done on the biology of its trees and most of them were long ago eliminated anyway in the quest for fuelwood and farmland. Scientist A is gripped in a traditional cultural ethic of his or her home country, an ethic that says that it is his moral duty to alleviate suffering in fellow humans.

Scientist A collects seeds of readily available fuelwood trees in continent C, and makes them available at little or no cost to any correspondent, and even aggressively offers them to agroecosystem users or planners in country A. Country A's users and planners accept them with no hesitation. After all, international scientists all know what is best for us, we all know we want more, and anyway, how can making life better for humans be wrong?

When queried, scientist A trivializes the query by determining that the particular taxon distributed is not believed to be a pest anywhere. Furthermore, why would

anyone object to fuelwood trees. People need fuelwood. Anyway, the tropics have already been strongly globalized through widespread cross-continental introduction of grasses, herbs, shrubs and trees. Not important that the major developed countries of the world expend great effort and funding to control the flow of foreign plants and animals onto their territorial soil; these efforts must surely be based on a philosophy that cannot possibly apply to a tropical country in strong need of fuelwood. Not important that conservationists the world over are fighting an intense battle to keep even small amounts of the tropics as intact as possible. We all know that the intellectual and developmental value of tropical wildlands to the tropics cannot compare with the value of filling human stomachs. Not important that a tropical continent is occupied by far more than a single “country”, many of which have shown the societal discipline to organize their societies and agroecosystems such that their occupants are not outrageously over the carrying capacity of the site (at least for the present). After all, a population of fuelwood trees marching itself across the border can hardly be more than a picturesque addition to the flora, can it?

My reply to the tropical agroecosystem planner is that you better get worried, very worried, and fast. Your options to design your own agroecosystems are going to decline fast as the popularity of “doing something for the tropics” through cross-continental introductions of organisms by international scientists steps up its pace. And this is very much a time for intra-tropical international cooperation. A plant or animal introduced anywhere on the African continent, for example, can quite comfortably move itself into most of the habitats it can tolerate. How many more kinds of cassava mealybugs do we want in east Africa? How many more mongooses do we want on Caribbean Islands? Don't you think that the Africanized honey bee would do wonders for the tropical Australian honey industry? My message for the organism introducers is stay at home and improve your own extra-tropical country first. You will surely raise its cash output, and then send the (thoroughly washed) cash to the tropics for capital investment in national infrastructure.

Why beware the improvement of agricultural animals and plants? In essence, the argument (no examples to the best of my knowledge) is that if we can raise yields on lands under production, that will take the pressure off of the few remaining tropical wildlands (virtually all of which are on what is termed "marginal farmland" by any extra-tropical agroecosystem planner). That is to say, for example, the lowland tropical cattle as we know them are pretty hopeless, so lets get busy and start circulating little known breeds from southeast Asia and its islands. Why there are even species and races of *Bos* that call rainforest home! And if the cattle cannot hack the marginal tropical farmland (the crops have the good tropical farmland pretty well sewed up), then by all means lets get busy with goats, sheep and the micro-livestock. With a bit of rumen manipulation we might even come up with an animal that can live on diced and chopped rainforest. Now wouldn't that be marvelous. Oops, I almost forgot that gift from neptune, the water buffalo. So gentle, so good to eat, and so very good at having trashed the entire aquatic margin of northwestern Australia that we have no idea what grew there before.

I am fond of anesthesia, refrigerators, electricity, and PCs. I have no quarrel with good food in everybody's kitchen. But stop treating the tropics like one large pasture full of human draft animals. The international science community has a growing body of members who find it quite acceptable to pursue blindly the "improvement" of production of material wealth in the tropics without putting anything like equivalent effort into determining the negative effects of superficially positive technology. Sweden has decided to wean itself of nuclear power. Just how is a tropical country that has converted all of its real estate to the most boring green sward on earth going to wean itself of the total absence of the intellectual stimulation that comes through contact with wildlands and non-human constructs? Go on lots of international vacations, I suppose. Oh, I forgot about zoos.

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