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CULTURE AND SPECIES ENDANGERMENT

Roland C. Clement

Abstract.—Species endangerment has so far been addressed mostly by biologists. It is now important to involve social scientists, inasmuch as the problems are man caused. The history of our attitudes, our uses of the land, and the reasons wherefore are problems for everyone.

The evidence suggests that the causes of endangerment may be grouped under (1) direct and indirect exploitation of resources, and (2) population displacement by modern agriculture, with consequent migration to the city or to the forest frontier, where accelerated forest destruction is the result. The displaced people are part of the marginalized two-thirds of the human race and will destroy what is left of nature in order to survive unless we help them become self-sufficient.

Such a refocusing of Western civilization, which has so far been parasitic on nature and a marginalized humanity, will require a new world view by the dominant one-third of us, perhaps based on Whiteheadian philosophy, wherein we accept a participatory role in a complex of processes that evolve from one another.

The focus of this paper is an attempt to broaden perspectives on contemporary species endangerment. The biology that is currently being elucidated by a spate of discussions of this problem is fascinating and helpful, but not enough in itself.

Let us first summarize very quickly the two principal causes of man-caused endangerment under two categories of pressure: exploitation and competitive exclusion. These are well known, but we tend to generalize them too much. For example, there is abundant and growing objection to direct exploitation, such as whaling, sealing, even hunting, and more recently against economic development which destroys key habitats. But we still neglect the impact of the killer-buyer relationship in the exploitation of wild species, partly because it is diffuse and largely illegal, and therefore difficult to quantify. It is also a more recent phenomenon. The new traffic in animals and their parts we need to confront and regulate is a by-product of the jet age and the mass-consumption society. It is a result of uneducated affluence.

There is cause to believe that the United States alone generates a $10 million annual traffic in live birds; that two to four times the number of individuals delivered perish en route; and that “products” made from wild animals involve sales which are several times $10 million. The Justice Department is now attempting to assess this traffic more accurately, almost for the first time.

There is also a need to study the implications of the sheer weight of human numbers on management policy. Numbers probably now mitigate against the rational management of our wildlife resources. What we recently considered “moderate use” now adds up to excessive demand and exploitation.

It is the same with competitive exclusion. We stress human population growth and tend to point the finger at the poor who still favor large families. But we have neglected the socially disruptive displacement of people by agricultural “modernization.” Thirty years ago, the growth of capital-intensive and technology-intensive mechanization in U.S. agriculture sent 10 million blacks to the cities, and today the Green Revolution or some less spectacular form of agricultural modernization is doing the same thing to world peasantry. The only way to call this modernization progressive is to overlook the social and ecological disruptions for which it continues to be responsible.

The displaced people are flooding the cities and rapidly destroying their viability because the cities are incapable of assimilating such numbers. Or the people become modern-day colonists along the frontiers of
the remaining forest, destroying it at a catastrophic rate.

Having been slow to understand the social dynamics of labor displacement by machines and gasoline, we have misidentified the impact of marginalized human groups. We blame what seem to us insensitive attitudes toward forest destruction by these people, or we point to over-population as a basic cause. We must learn to recognize that today's forest destruction is a by-product of our own economic demands. It was to facilitate mining activities by foreign capital that Brazil's trans-Amazon highway network was built; and it is to satisfy America's hamburger culture that cattlemen have displaced corn farmers from nearly half of Central America.

Another neglected element of competitive exclusion which needs to be seen as a senseless ecological pressure is that of the mechanized mobility of this generation. This is exhilarating, but it allows one species to disrupt the existence of all other species as never before. Its unfavorable effects are another result of uneducated affluence. This effect may, of course, be constrained within a decade or so by the energy shortage.

At a La Jolla seminar on endangered species, Lovejoy (1978) outlined the scientific needs of late twentieth-century conservation. He called for species research to identify minimum habitat requirements, for island biogeography-type studies to identify species maintenance needs as against individual needs, and for ecosystem research. Lovejoy also called for a new conservation anthropology focused on the study of human attitudes and values, but leaving out the needs of the Third World, important as he knew these to be. He asked that this new field of study inquire into the biology of our own species, so that we may learn what has led us to take such an adversary stance toward the environment.

As already suggested, much as I would value more biological knowledge of ourselves and other species, this will not suffice to reduce the rate of extermination which is now underway. We need a conservation anthropology but it must be a much broader inquiry than attitudinal research; it must investigate our world view, which is the way people "characteristically look outward upon the universe." This calls for an investigation of our culture, because culture is the sum of our ideas about ourselves, our environment, and the social institutions we have devised to get things done.

Anthropologists (Hall 1977) tell us that we cannot understand our own culture by self-examination or introspection, but only by comparing the approaches of other cultures. Other cultures furnish us a necessary point of reference. Therefore, rather than the psychologist, it is the historian, studying older cultures, and the anthropologist and the geographer, systematically studying existing cultures, who are our best guides to understanding ourselves and our neighbors. They can help us unravel the social psychoses that cause us to undermine our own existence through internecine struggles and the impoverishment of the biosphere. How ironic that we have heretofore been so heedless of the survival of other cultures. We need one another, if only for dead-reckoning purposes! Will it turn out to be the same with those other nations, the wild species?

Our own culture, a variant of Western civilization, is now old enough to be viewed somewhat objectively by mature historians. Ordinary citizens cannot yet do this because they have internalized culture and are not yet scholarly enough. But they can be taught. Two of the most intriguing historians of our day who may serve as models and teachers are Fernand Braudel (1978), the Frenchman who is the authority on the growth of civilization in the Mediterranean basin, and Immanuel Wallerstein (1974), who is engaged on a three-volume study of the modern world system which is our economic system.

The particular importance of Wallerstein for our theme is that he has disaggregated the modern world system. We are all familiar with the fact that the nations of the world normally include one or a few dominants, but Wallerstein is convincing in demonstrating that this is an interdependent system, where-in a small group of core nations systematically exploit a larger group of peripheral nations. The danger is that the core nations build up such a high life-style by exploiting the peripheral nations that they become dependent on this unbalanced system of exchanges. It is noteworthy that it is this sub-
sidized well-being that allows the core nations to enjoy the internal political freedom they boast about and mistakenly see as the cause of their well-being instead of a byproduct. The peripheral nations, conversely, must impose some form of coerced labor to extract the raw materials for export, while consumption at home is constrained. Economic development for the core nations is maintained by underdevelopment of the peripheral nations. This is a large part of the Third World problem.

History also teaches that dominance in this system is a shifting phenomenon. Spain was the first leader, but for less than a century. The British enjoyed dominance for a very long time, but lost it to the United States during World War II. There are many signs that the dominance of the United States may not be longer lived than Spain’s unless we become more appreciative of the relationships involved and modify the system to remove its worst inequities.

In any event, because the most worrisome threats of extinction are focused in the world’s tropical regions, and these areas are all peripheral nations in the world economic system, it is obvious that we must look to the exploitive life-styles of the core nations if we are to introduce a more rational balance between numbers of people, their material demands, and the carrying capacity of the regions involved. It is the mass-consumption society that has the most “give” in it. A first task in this monumental transition may be to analyze and display those ecologically senseless agencies in our culture that have provided the compulsive drive to exploit the planet as though it were a midden heap. People must be shown that their culture has become counterproductive before they can be expected to make the necessary changes.

In addressing the particular problems of the Neotropics, we will benefit from Brazilian anthropologist Darcy Ribeiro’s (1971) analysis of our Western Hemisphere system. The cultural complexity of the hemisphere is highlighted by Ribeiro’s need to recognize three categories of people. First are the Witness People, the descendents of earlier native civilizations that were crushed by the Spanish invaders. These are the Aztecs of Mexico, the Maya of Guatemala and environs, and the Incas of Peru and Bolivia. These people comprise a large but marginalized component of the modern-day populations of their new countries. A second group is that of the New People, where the European colonists amalgamated lesser tribes, including imported African slaves, and thereby created a new mixed human stock. Such an amalgam is characteristic of Brazil in particular, and of Venezuela, Colombia, Chile, the Antilles, southern Central America, and the southern United States.

Finally, there are two groups of Transplanted People, New World Europeans so-to-speak, who simply pushed native peoples aside on first conquering their areas. These are the Anglo-Americans of Canada and the United States; and the River Plate people of Argentina, Uruguay, and Paraguay. Notice that these two groups occupy the temperate zones of our hemisphere. We are still, in many respects, a bunch of tribes, but we are tied together by an economic system whose exploitiveness has become unbearable for two-thirds of the world population newly enlightened about their true status by American movies, radio, and television.

Let me be more specific by calling attention to recent studies of what is happening in Central America. In what is unfortunately a somewhat obscure publication for many of us, Berkeley geographer James J. Parsons (1976) reported that the expansion of artificial pastures in Central America at the expense of both cropland and natural forest is a regional phenomenon with drastic, overlooked consequences. In most of this region in the 15 years prior to Parson’s report, the area in planted pasture (mostly in African grasses) and the number of beef cattle had nearly doubled. But the per-capita consumption of beef in those same countries had actually declined, because most of this production was for export. This expansion of cattle raising was done at the expense of the Indians and mestizos who formerly raised corn for themselves on these marginal lands. Dispossessed by the cattlemen, these people have either migrated to the cities or have gone to the forest frontier to engage in shifting cultivation by cutting the forest. Within a few years, of course, the colonists find it necessary to abandon their plots and to cut new
forest, mostly because weeds become more expensive to fight than cutting forest. The cattleman then moves in behind them, rents the abandoned acreage for a pittance, and plants it to grass. The peasants have not only been dispossessed, but they have become a free labor supply for cutting the forest.

Although lauded as progressive and modernizing by local and national governments and by international agencies like AID and FAO, it is this system of land use which has become the chief cause of tropical forest destruction in the neotropics. It is, of course, also impoverishing already marginalized human populations. We have all known for years that the pressure of so-called land squatters, with machetes and fire, were a serious threat to any forest preserve in Latin America, but Parsons and a few young anthropologists were the first to show that this destruction is the end product of a widespread economic system anchored in the hamburger culture of the United States. The U.S. link has not yet been spelled out in detail, but it seems obvious. The dire effects of this extensive land use shift of the last 20 years or so on the Indians of Chiapas are now being documented by Robert Wasserstrom (1977, 1978), James D. Nations (1979), and their colleagues who worked, until recently, as the Centro de Investigaciones Ecologicas del Sureste (CIES) in San Cristobal de Las Casas.

It is time to suggest that the environmental awareness that has come to so many in this decade of the seventies is akin to a religious revelation. Having become aware that our economic system is parasitic on both nature and people, we are now challenged to redesign our world view in line with a more consistent vision of the joint realities of our lives: the environmental, which is the substrate of our existence; and the social, which is a measure of our humanity in making intelligent, perhaps even enabling use of our opportunities. This calls for a reassessment of our science and technology, our values, and even our unstated, unexamined theological assumptions, since willy-nilly, we have some vague concept of the destiny of mankind. Obviously it must be a joint venture, and it will take time, but each of us can help by engaging in some fraction of the task and by involving others.

We are likely to discover in that process of review that the principal assumptions of our Western civilization—homoecentricity, rationality, technocracy, and progress—have become an embarrassing myth. We have idolized our own creations instead of simply appreciating them as events in our history as developing organisms. Having demythologized nature and his origins, modern man himself now stands in need of demythologizing!

Ecology has taught us that we are involved in systems within systems, and that we both impact and are impacted by these systems. But scientific reductionism, useful though it may be as methodology, has become a dangerous, unwitting philosophy. It seems likely that a great deal of that sense of relationship to the environment which we lack, but which the ancients had, is due to the specialization and incrementalism encouraged by reductionism. This has, of course, also affected our educational approaches and made for a hasty emphasis on specialization for the sake of preparing practitioners. Education should involve helping people see whole systems before training them to analyze and manipulate the elements of those systems.

However, to invent a new outlook is not to destroy the old, but to give it a new form, a new emphasis, a new reach. Jay Forrester (1978), who prepared the way for the Limits to Growth debate, has now suggested that we have perhaps already been through the technological age. This does not mean that we are through with technology, but that the age which is dawning will not be awed by technology and will use it in the service of all men instead of as an end in itself and for a relative few.

It seems obvious that, if we are to save the million or so species we fear may be lost along with the destruction of the tropical forests of the world, we must open our system of inventive production to that two-thirds of the human race which was marginalized during the mad rush for domination. The marginalized people will otherwise be forced to chew up the forest in a frantic effort to survive.

But the earth cannot support its present overload of humans at a standard of living we
would like. The first step must therefore be to eliminate waste in order to make our resources satisfy more people; then to tailor our demands to more modest proportions; and finally to adjust our numbers to a new sustained yield economy instead of the present liquidation of resources that passes for production. Done in stepwise fashion, we will be pleased to see that efficiency and frugality do not hurt.

We can draw inspiration from the process philosophy of A. N. Whitehead (1933) of a half century ago, and from the new interest in the implications of historical consciousness. Whitehead's cosmology is summarized in the thesis that "the ultimate and fundamental reality of the universe is a multiple and never ending complex of processes developing out of one another." This is both a scientific and a metaphysical statement of fact. To think in process terms is to acknowledge our dependence on the systems that produce us and our responsibility to contribute, insofar as we can, to the advancement of these processes instead of destroying them for temporary self-satisfaction. The way of historical consciousness (Stevenson 1969) is a restatement of the same concept: that when the reality of existence, and we ourselves, are understood as historical, we become aware of a responsibility to and for history. In both cases the appeal is not to morality as injunction, but to participation in a process.

The theologian Paul Tillich once said that the salvation of man and nature are one and the same task. More recently the anthropologist Edward T. Hall said that the population-environment crisis and the crisis of relationship to self must be solved together. It seems to me we have enough testimony to get started on the reconstruction of our culture.

Postscript

A frequent response to the approach taken in this paper is that it is too optimistic, as though I expected things to right themselves as soon as awareness is more widespread. It is also objected that "education" takes too long.

But education is not restricted to that long sequence of school attendance we currently impose on our young. It may also affect those in control of our social systems, and, through them, all those in between. A culture does not change until all the people in it also change. There is no telling how long this will take, but a crisis or unusual leadership may make it happen rather suddenly.

The destructive portend of current practices has caused British astronomer Fred Hoyle (1977) to suggest that the salvation of the human race may depend on an early collapse of our economic system. He sees two likely options for a high-technology society like ours: (1) if an essentially unlimited source of energy were perfected before the human race agrees to limit its population and subsist by less destructive life styles, a collapse leading even to extinction is likely. If, on the other hand (2) an early economic collapse causes us to come to terms with ourselves, and we limit population everywhere, the consequent rebirth of invention, if it then provides ample energy supplies, may allow the human race to rise to new heights that are hardly imaginable at present.

Questions to Dr. Clement

Q. How can we show people that their culture has become counterproductive and needs to be changed?
A. Let me first make the point that cultures don't change until almost everybody changes. It is an educational process, and scientists will need to help by pointing out the implications of what ecology is teaching us; that way we will revamp our educational system. If the people don't understand that they partake of larger systems, they will continue the short-sighted exploitation which has characterized our civilization. We always begin by accepting the cultural systems we are born into. And it was a great, exciting, and in one sense enlivening experience to be caught up in this wave of exploitation. But now the very system of exploitation is in question, so we must help people understand that we are not proposing a Marxist revolution but a revamping of our system before it breaks down. There are abundant signs that the breakdown is already underway.

Q. Will we succeed in revamping our civilization to prevent the extinctions you and Lovejoy are so concerned about?
A. Let me take a different tack. Education usually takes a generation, but it may come quickly if a crisis occurs and our leaders can point out new directions; the people may then turn around almost overnight. One reason I'm optimistic about the future is that our system is so close to its end that we will not achieve the growth projections in which the business world believes. We are already so deindustrialized in so many areas that if we don't wake up to our problems
in a decade or so, we'll be squeezed down to size. It would take another lecture to develop this point, but the petroleum problem is a good clue. We have a naive faith that all we need do is invest more in production at home to get more energy. Of course we can do this, but only at increasing cost. Every million feet of new oil well costs more than it did yesterday, both in dollars sunk and in diminished return. And the more we pump, the quicker we will run out. This is what needs to be made obvious to the people. We currently buy the surpluses of the Middle East because these are the cheapest ones. Even American agriculture will have to be turned around because of the energy crisis.

Q. You talked about marginalized people in Latin America, but are there not marginalized people in the U.S. who will get caught in this crossfire?

A. There are many other marginalized people—the blacks, the hispanics, and the Amerindians at home, and the people of Asia and Africa. Reassimilating these people into the world economic system will not be done overnight, but if we at least accept this as a challenge and work at it, we will soften the impacts.

Q. What kind of progress is Canada making toward becoming a conservationist society?

A. I'm afraid they are not making much. The Canadians are making all the same mistakes in exploiting their energy resources that we have made. This is not surprising because Canadians are a marginalized people too; they are exploited by the United States.

Q. You spoke of the need to educate the public to the fact that our system has serious problems; you also said that we must convince people that they will need to get by on a smaller piece of the resource pie. How can you really expect this to work? Won't some economic penalty be necessary? People usually change when they see a personal payoff of some kind.

A. Well, yes, but you are opening up another area which cannot be addressed with a simple answer. There are no simple answers. In a democratic society we must seek to persuade rather than impose. But if time runs out we face a dilemma. Within a decade or so we will probably truly be in an energy crunch, and we will then learn that voluntary approaches to the conservation of energy are not enough; they put the good guys at the mercy of the cheaters. When that time comes, it is hoped someone will have the persuasive skills to put this over. If we don't accept this, we'll have to fight over it; and if we do that we're in real trouble.

Q. Isn't that happening now? This audience is aware of many of these problems, but we also have large corporations with lots of money advertising in national magazines and on television, saying, "Don't worry. Buy your gas dryers and gas stoves. We'll have gas for as long as we need it."

A. Exactly. We already have a conflict of approaches. A large section of the economic community actually still believes that resource "production" is simply a matter of investment. Look at the ads run by Mobil Corporation, "The Capitalist Revolution." They say, just get the government off our backs and everything will be all right. They seem ignorant of the fact that they are liquidating the resources. Of course, if you don't care about the future, that's another matter.

Q. Isn't it correct that increasing the price of, say, petroleum may not solve problems of exhaustion and inflation?

A. Yes, but price is important. If we can make people pay the full social costs of what they wish to do, they must then decide what they most wish to do instead of greedily trying to do everything, or consuming everything. If we have artificial price structures, the public is misled. Industry agrees with this view. The question is who will get the price increase? It should be a tax that we can use for constructive uses—in the case of energy, to rebuild a mass transit system where the people are.

Let me now add that I'm delighted at the response you provided because a large part of the answer to this big problem is people like you tackling questions energetically and in an open fashion. We must then try to involve more people in our tentative conclusions. If we don't, our troubles won't go away.

**Literature Cited**


