

Population Review

Volume 44, Number 1, 2005

Type: Viewpoint pp. 72-74

Passing Into Eternity: Species Loss and Human Recklessness

Author: J. Roberts, Ph.D.

Affiliation: Editor, *Population Review* and Visiting Scholar/Researcher, Centre for Population Studies, Annamalai University, Tamil Nadu, India

Corresponding author/address: (editor@populationreview.com)

“What a gift is this life, this earth. By whatever means
we must acknowledge the gift, or it might just go away.”

—Billy Yellow (Navaho Indian)

It is extraordinarily odd that we humans spend millions of dollars in an attempt to detect any form of life on other celestial bodies, and yet we so easily and thoughtlessly condemn to the darkness of eternity life forms on planet earth that we have yet to even categorize. Living species, each a remarkable product of millions of years of evolution, are vanishing at an extraordinary rate. According to E.O. Wilson of Harvard University, perhaps the world’s leading expert on biodiversity loss, species are vanishing at a faster rate than at any other time in the past 65 million years. And the rate of extinction is accelerating with each passing year. Why should we humans care? Outside of the fact that we may be next in line, the loss of plant and animal species threatens the world’s food supply and the search for drugs useful to modern medicine.

While not widely appreciated, the importance of maintaining biodiversity (the living biological diversity of the planet in the form of plants and animals) is critical to our modern form of food production, particularly with regard to plants. Why plants? Two reasons stand out. First, the animals that we exploit for food are dependent on plants for their nutrition. And second, in the modern world, the burden of sustaining human life is increasingly falling on just a handful of plant species. Since the beginning of agriculture some 10,000 plus years ago, there has been a trend for more and more people to be nourished by fewer and fewer plant species. For example, as discussed by E.O. Wilson in *The Diversity of Life*, even though in the course of human history people have utilized about 7000 plant species for food, today we humans are currently dependent on a handful of plant species, principally wheat, rice, corn, potato and barley. The failure of any one of them would mean a huge upturn in the number of people suffering from extreme hunger. Worse, it would lead to the starvation of millions of hungry and impoverished people, especially in already food-scarce areas like Sub-Saharan Africa.

The “biodiversity problem” results from the loss of genetic variability within the gene pool of a species because of domestication. This makes the domesticated species vulnerable to environmental change (e.g., change with regard to predators, diseases, temperature, rainfall, etc.). In general, terms, domestication changes the DNA of an organism, often making the organism better suited to human-altered (unnatural) environments. In doing so, however, the domesticated

*This viewpoint is an updated and modified version of a chapter originally published in *The Ideology of Life: The Foundation of Political Revolution and 21st Century Sustainability*, by Dr. J. Roberts, Population Review Books, 1999.

© 2003 - 2005 Population Review Publications

organism frequently becomes less adapted to its natural environment and more vulnerable to environmental change. For instance, domesticated species of dogs that we have genetically altered for passivity have difficulty surviving in the wild under conditions where aggression is being selected.

The essential problem is that, with regard to biological systems, simplification (uniformity) is the road to extinction, while complexity (diversity) is the road to long-term survival. This is why so-called “wild” genetic stocks are so important. Periodically, in order to ensure long-term survival by increasing genetic complexity or variability, we must cross-pollinate or hybridize our domesticated species with genes from species that have not been domesticated—species that are existing in the natural or wild state.

Even though wild species ensure the long-term survival of our domesticated plant and animal species, we are rapidly and recklessly destroying them. A typical example involves wild species of rice in Indonesia. Since the mid-1970s, 1,500 indigenous (wild) rice varieties in Indonesia have become extinct. As a result, the world’s fifth-most populous country now relies on a few domesticated species to feed its rapidly growing population. The people in Indonesia are, in effect, gambling that environmental change—a constant in any biological system—will not destroy their small number of domesticated rice species. Relatedly, they are gambling that they will not need the extinct wild strains of rice to introduce the genetic variability needed to cope with future changes in the environment.

The usefulness of maintaining biodiversity is not confined to food production. Wild strains of plants have been found to be extremely useful to modern medicine. It has been estimated that, in the U.S. alone, 25 percent of all medicinal prescriptions are based in some way on plants or are synthetic chemicals derived from them. Examples of modern drugs derived from plants include penicillin, a powerful antibacterial agent derived from a type of fungus; taxol, an anti-ovarian and breast cancer drug derived from the bark of the Pacific Yew tree; and vinblastine and vincristine, two alkaloids that are effective against Hodgkin’s disease and acute lymphocytic leukemia that stem from a species of rosy periwinkle found in the endangered forests of Madagascar.

One can only wonder, quite literally, what miracles of medicine have already been destroyed due to our environmentally unsound economic activities. Perhaps a cure for AIDS is burning in the embers of a once majestic tropical forest or is buried for eternity beneath a mountain of urban concrete. And that is perhaps the greatest tragedy. For once destroyed, the potentially useful genetic secrets hidden within every species become eternal secrets.

The surface-level reasons underpinning the loss of biodiversity relate to the loss of natural habitats due to environmentally unsound human economic activities (e.g., urban-suburban sprawl). The primary surface level reason for the loss of species biodiversity, however, centers on the growing problem of tropical deforestation. Why is tropical deforestation so problematic in terms of species loss? The reason is simply that more species are located per unit area in tropical forests than in any other region of the planet. Nevertheless, in spite of the fact that tropical forests contain an estimated 50-90 percent of all the species on planet earth, they are being destroyed faster than ever. In fact, even though we have already lost 50 percent of the world’s tropical forests, the remaining forests are being destroyed at a rate in excess of 100,000 square kilometers per year.

The impact of tropical deforestation on the loss of biodiversity is staggering. Conservative estimates suggest that, on the worldwide basis, the loss that results from deforestation of the tropical forests could be as much as 4000-6000 species per year. The problem of deforestation and associated species loss is not, however, confined to the tropical regions of the developing world. In fact, species loss due to deforestation is a significant problem in most areas of the developed world. The temperate forests in the United States are a case in point. These forests have been logged for centuries, resulting in massive natural habitat destruction and species loss.

Most Americans are unaware that 90 percent of America's original natural forests are gone. A few still remain, mostly in the Pacific Northwest and Alaska.

Expanding human populations engaged in environmentally unsound economic activities are rapidly reducing the biodiversity of the planet. While surely negative, the long-term consequence of this biological genocide is unpredictable because the earth's living biota, that is, the living fauna (animals) and flora (plants), remains largely unidentified and unstudied. In fact, according to E.O. Wilson, even though the world may contain between 10 to 100 million species, only about 1.4 million have thus far been identified. In Wilson's view, destroying such a wide variety of life before identifying and studying it is like "throwing away a treasure before it has been counted."

We humans seem to be missing the essential point: The planet's biodiversity is the evolutionary fountain from which springs forth a significant portion of the material wealth that sustains us. Nevertheless, more and more of the biodiversity of the planet is currently under the threat of extinction because of our seeming determination to exterminate as many life forms as possible and as rapidly as possible. In effect, species are being exploited and destroyed at an unprecedented rate without regard to their long-term value. And if we continue to exploit the biological diversity of the planet as we are now doing, our descendants will not be able to depend on the rich variety of plants and animals that we and our ancestors have depended on for our basic survival, making them extremely vulnerable to environmental change.

History will no doubt record our present actions as a form of biological insanity based on a profound ignorance of biological systems and a disregard for life. Allowing such a wide variety of irretrievable life forms to be destroyed diminishes the planet's biodiversity and the opportunities of future generations. It also diminishes us as a self-proclaimed "intelligent" species.