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Sparing Nature: The Conflict between Human Population Growth and Earth's Biodiversity

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In *Sparing Nature*, Jeffrey K. McKee, an anthropologist at Ohio State University in the United States, makes a compelling argument in support of his proposition that there is a longstanding relationship between human population growth and the loss of plant and animal biodiversity worldwide. Reading through the pages, one can detect the ideas of Thomas Malthus, Charles Darwin, Kingsly Davis, Paul Ehrlich, Barry Commoner, Garrett Hardin and E.O. Wilson, among other notables. Clearly McKee's thinking has been importantly shaped by these scholars. All of these scholars discussed, in one form or another, problems associated with population growth. And one, E.O. Wilson, has repeatedly addressed the biodiversity problem. McKee's work differs in that it is entirely devoted to the subject of population growth and the loss of biodiversity. Using wit combined with scientific rigor, McKee takes the reader on a six million year journey, beginning with our prehuman ancestors and ending at the present day. What he shows the reader on this journey is often disturbing. But it is a "good read." It is clearly the work of an erudite, concerned and thoughtful scientist.

McKee presents three propositions that are the foundation of his book. Proposition one states that "*there is a very close relationship between biodiversity loss and human population growth.*" Proposition two states that "*the most important conservation measure we can take is to slow or halt the growth of the human population.*" Proposition three states that "*conserving biodiversity is vital to the health of our planet, and conseqently is vital to us.*" These propositions are based on a set of beliefs that shape the author's thinking. McKee firmly believes that a major biodiversity crisis is at hand; that humans are largely responsible for the current biodiversity crisis; that this crisis is not sustainable and is life threatening, not only to the flora and fauna of the planet, but to the human species as well; that each species plays a part in maintaining the world's ecosystems and each is important in its own right; that all life-forms compete for space and other limited resources and that human beings are out-competing other organisms for limited space and resources; and that, if rapid corrective action is not taken to radically reduce the number of human beings on the planet, extinction rates of species will accelerate in the future.

McKee presents his argument within the span of nine chapters (a preface, notes, and index complete his 210 page book). Chapter I begins with an introduction to basic ecological concepts. The main propositions of the book are presented. Chapter II provides an overview of how evolution works. The fossil record is used to draw a link between population growth and the loss of biodiversity. Problems with measuring species biodiversity and species loss

are discussed. The claim is made that population growth, and associated expansion of humans into all ecosystems, is leading to the destruction of ecosystem biodiversity, species biodiversity and genetic biodiversity. Finally, McKee introduces Darwin's so-called "Wedge" model to illustrate how one species can push into the abyss of extinction other species.

In Chapter III McKee details the evolution of pre-humans in Africa. Using the fossil record, McKee skillfully and meticulously shows that between 6 million to 1.8 million years ago our prehuman ancestors had little impact on biodiversity. It was not until the arrival of *Homo erectus* about 1.8 million years ago that the loss of biodiversity became problematic. As our ancient ancestors migrated out of Africa to distant lands, the rate of biodiversity loss accelerated even further. As McKee carefully documents in Chapter IV, the pattern of population growth and biodiversity loss took a major turn for the worse with the advent of agriculture some 10,000 years ago in what is now the Middle East.

Chapter V introduces the reader to basic demographic concepts and principles. Using quantitative data the author tests the proposition that human population growth is inextricably tied to loss of species biodiversity. McKee emphasizes, quite correctly, that even a small population growth rate can lead to large population increases when populations are large to begin with. And he emphasizes the importance of human density on species loss.

Chapter VI addresses whether or not we can avert a biological crisis simply by changing our mindset and behavior (e.g., becoming clean, green conservationists). McKee's answer is that, while conservation is a good thing, it will not stop the destruction of species. Future population growth of the magnitude that is set to occur will lead to more habitat loss, more habitat fragmentation and a greater utilization of natural resources that are needed by other species to survive. The salient impact of these destructive trends--should they be allowed to continue unabated--will be more loss of species.

Chapter VII discusses the importance of water to all forms of life. Using Malthusian logic, McKee warns that future population growth will lead to more agricultural production leading to more water use, more pollution, more habitat loss, more rivers running dry and ultimately more species loss. McKee asserts that the only real solution is stopping population growth.

Chapter VIII illustrates why conserving biodiversity at all levels--ecosystem, species, genetic--is important to maintaining the web of life, including our lives. Finally, in Chapter IX solutions to the biodiversity problem are put forth. McKee concludes that, in order to solve the problem of biodiversity loss, population reduction and widespread conservation efforts are necessary.

The enormous body of scientific evidence that McKee uses to support his tripartite thesis is convincing. This is, in the opinion of this reviewer, the strongest part of his work. His argument is balanced, invariably presenting different sides of contentious issues. For example, while drawing a link between population growth and the loss of species, he does not ignore the relationship between natural changes in the earth's climate and the extinction of species. If there is a weakness in the work, it is perhaps the fact that so little space is devoted to solutions. Some readers, including this one, would have liked McKee to have devoted more space to solutions—particularly political solutions. But in fairness to the author, that was largely outside the frame of his work.

Hippocrates once said, "Everything in excess is opposed to nature." This reviewer has no doubt that McKee would agree with this ancient and wise observation. With the publication of *Sparing Nature*, Jeffrey McKee has advanced our understanding of the underlying nature of the biodiversity problem. Hopefully he has also stimulated people to take action to correct the problem before we pay the ultimate price. As he stated so clearly, "We have taken advantage of our freedom of the commons of nature, and now we must act before it brings ruin to all. The alternatives are so clear: a better life for fewer people, or greater strife for more people. The solutions are so simple: conservation of the living world, and taking responsibility for our reproductive habits." *Sparing Nature* is the work of a concerned scientist who has acted responsibly to both present and future generations. Specialists and non-specialists will benefit

from a careful reading of it. It should be mandatory reading for anyone who is concerned about the quality of life on this planet.