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Author(s): Gary K. Meffe, Anne H. Ehrlich and David Ehrenfeld
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Human Population Control: The Missing Agenda

Since the first issue of *Conservation Biology* was published in May 1987, less than six years ago, the global human population has increased by about 500 million people. Some 1.5×10^{11} tons of topsoil have eroded from forests, farms, and pastures, thousands of species have disappeared, and the genetic diversity of many remaining species has declined dramatically. Fewer natural areas now exist, large expanses of tropical and temperate forests have disappeared, billions of tons of greenhouse gases have been emitted, aquifers have been lowered, more toxins have entered all ecosystems, cities have become more crowded and dangerous, and infrastructures have deteriorated in most nations. During that time, *Conservation Biology* published 177 contributed papers, 22 essays, 27 notes, and numerous comments, Diversity columns, editorials, and other articles. Yet not one of these contributions directly addressed human population growth, a root cause of our collective ecological and social disasters. This omission is not because of editorial policy; no papers on human population growth have been received.

Have conservation biologists made real contributions toward maintenance of biodiversity and evolutionary processes? We believe they have; the situation could only be worse without the scientific knowledge and leadership that conservation biology provides. But any gains we make are quickly offset by continued human population expansion and its associated promise of future destruction. We put out local brush fires while an inferno sweeps toward us. Can conservation biologists redirect some of our efforts to contain the inferno, to contribute toward a future stability of the planet's biological integrity? We think there is no alternative.

Conservationists agree that most environmental problems are attributable to the effects of an exploding human population, which now increases by 95 million each year, or about 260,000 per day, plus impacts of technological developments, and Western-style consumption of resources. Short of nuclear holocaust, exponential proliferation of our species in the context of our technological culture is the most severe problem faced in human history, and the one most likely to result in breakdown of both normal ecosystem function and social structure. Conservation biologists know that, yet most other citizens of the planet

seem not to know about or to deny the problem, and human population control is a taboo subject in many circles. This profound crisis is being trivialized or ignored by the bulk of society. It is the missing agenda.

We as conservation biologists are at an historical crossroad: we possess the professional responsibility to teach humankind about the perils of the course we are on and to help develop solutions. We must promote the missing agenda.

The human species ignores or denies this seemingly most obvious of calamities for a number of reasons. First, historically, large families have been important, especially where labor was needed for family survival, and where mortality rates usually were high. Second, a number of institutions place real or implied prohibitions on slowing and reversing population growth; for example, some religious groups prohibit active birth control by their followers. Third, the abortion debate in the United States and elsewhere has synonymized population control and abortion, which are separate, albeit linked, matters. Fourth, the economic systems that run most societies depend upon and promote continuous growth of human populations and physical capital, inevitably destroying ecological capital in the process. Fifth, political systems are a product of these economic systems, and politicians are loath to broach the topic of population control. Thus, business continues as usual, abetted by public ignorance and apathy, while the problem grows.

The population problem is stunningly clear and ought to be beyond denial. The equation describing change in population size over time is simple: birth rate plus immigration, minus death rate plus emigration. If death rates decline, which they have virtually throughout the world, birth rates and migration dominate the equation and populations increase.

What are the results of this continued population increase? In addition to an astounding loss of biodiversity, basic ecosystem services, such as water and air purification, capture of solar energy via photosynthesis, hydrologic cycling, climate control, food production, and soil building, are approaching or past critical points of collapse. Circumstances will inevitably enforce a population control that is far crueler than the voluntary methods now available to us. That involuntary control will cause much human suffering and will arrive too late for many species and ecological processes.

Thus, conservation biologists have an obligation to provide leadership in addressing the human population problem and developing solutions. We must overcome ignorance, religious fervor, economic and political momentum, and bullying. The challenges are great but the stakes could not be higher. If the agenda is not advanced, the biodiversity we work so hard to maintain will continue to be degraded at the hands of profiteers, short-term thinkers, the uninformed, and those blameless unfortunates who are simply struggling to stay alive in an overcrowded world.

We encourage two avenues of pursuit for conservation biologists. First, we should seek more interactions with our colleagues in demography, sociology, epidemiology, and other relevant fields. Let this serve as a call for papers that address human population growth and control as part of the larger conservation program. Potential research problems include modeling human population growth, developing ecologically sustainable economic systems, investigating human fertility rates and their social and physiological controlling factors, studying epidemic disease and its ecological correlates, applying evolutionary life history models to human societies, including controls of age at maturity, reproductive rates and senescence, and studying historical or contemporary low-growth societies

and their population growth patterns, environmental philosophies, and methods of limiting population growth. Such topics would in concert give us a better picture of human population growth, its effects, and its potential voluntary and involuntary controls.

Second, and vastly most important than continued study of the problem, is strong and unmistakable advocacy of human population control by conservation scientists. The greatest need is for general education of the populace in all countries. Most people simply do not understand even the rudiments of the problem or its implications, and certainly not its magnitude. When one of us (GKM) recently spoke on ecology to a group of retired citizens, the topic of human population growth came up. When a graph of human population size over the last 10,000 years was drawn on the board, audible gasps came from the audience, and questions of profound concern poured forth. These people had never considered human population growth in a historical perspective, and were genuinely frightened by it.

Education on population growth and control is desperately needed throughout the world. Conservation scientists can contribute by talking to schools and civic or church groups, by writing articles and letters for local newspapers, by advising and supporting politicians who advocate population control, and by helping to dispel myths about the subject. Conservation biologists who work in developing countries can also help to teach about the role of unchecked population growth in generating threats to biodiversity and to encourage local activity. In general, we should be leaders in developing public awareness about population problems.

Conservation biologists can also help promote policies to curb rapid population growth. Besides encouraging expansion and support of family planning programs in poor nations through foreign assistance, conservation scientists can be sensitive to the critical importance, in reducing birthrates, of educating and empowering women. Even in very poor societies, experience has shown that the principal factors leading to fewer births are low infant mortality, longer life expectancies, and education of women. With even a few years of education and a little decision-making power, women can improve the health and nutrition of their families, thereby reducing infant mortalities, increasing life expectancies, and creating demand for birth control.

The biosphere and humanity itself cannot withstand the onslaught of the human population explosion much longer. Action is needed from everyone, at every turn, and is perhaps the most important use that can be made of any of our crowded schedules. It is our responsibility and obligation as informed conservation scientists to lead the way in human population control. Life itself is at stake.

Gary K. Meffe

University of Georgia's Savannah River Ecology Lab
Drawer E
Aiken, SC 29802, U.S.A.

Anne H. Ehrlich

Department of Biological Sciences
Stanford University
Stanford, CA 94305, U.S.A.

David Ehrenfeld