

# The Ultimate Tragedy of Commons

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Gehrt (*Conservation Biology* 10:900–903) recently identified human population growth as “the ultimate challenge facing conservationists.” He then suggested that although “the human population problem is complex” (p. 902), education and the adoption of a land ethic offered a solution. I disagree. First, the human population problem, if that is what one chooses to call it, is not complex, but exceedingly simple. Second, there is not now, nor will there ever be, a human population “problem.” Instead, the problem is evolution by natural selection that has created the ultimate tragedy of commons. Third, education in and of itself, is not a solution to either the human population “problem” nor any other “tragedy of commons” (Hardin 1968). And fourth, the adoption of a land ethic or any other type of ethic, in and of itself, will not solve the environmental problems identified by Gehrt and others. While Gehrt’s (1996) article prompted my response, this should not be interpreted as personal criticism, for he was merely expressing ideas that are likely held by many readers of *Conservation Biology*. Instead, I hope to more precisely define the problem because unless a problem is accurately identified, it can never be solved, except by serendipity.

Most ecologists are familiar with Hardin’s (1968) seminal paper, *The Tragedy of the Commons*, as it applies to grazing commons and to other resource commons (e.g., McCay & Acheson 1987), but few apparently realize that the subject of Hardin’s paper was human population growth. Although Hardin clearly used the term tragedy of commons to refer to human population growth, that is not how that phrase is commonly used today. Thus, I use the ultimate tragedy of commons to describe what Hardin originally meant, and what I intend to discuss, to distinguish it from other resource commons problems.

It is important to remember that all tragedy of commons are the product of evolution by natural selection, which favors individual selection over group selection, although Hardin (1968) did not specifically address this issue. In addition, there are two paradoxes of any commons that have apparently escaped most ecologists.

First, the activities we are discussing, be they adding one more cow to the grazing commons or one more human to the Earth, are not aberrant behaviors (i.e., reproduction is neither evil nor corrupt). Second, education, in and of itself, will never solve any tragedy of commons. Even if all participants have what social scientists call perfect knowledge, the problem will not be solved (Simmons et al. 1996). Instead, the opposite is true: once people fully understand all their options, as well as all the consequences of their actions, they will rationally add cows to the commons and have more children as fast as they can (Simmons et al. 1996). Some may view this as a consequence of modern economics, but that would be incorrect for economics, after all, is only a subdiscipline of human evolutionary ecology. In fact, many mathematical models formulated by economists are similar to those independently developed by evolutionists to explain animal behavior. Several are identical, including how humans discount the future (Charnov 1976; Smith & Winterhalder 1992).

Hardin (1968) noted that he could envision only two solutions to tragedy of commons problems: privatization, that is turn the commons into private property, or government regulation, which he referred to as “mutual coercion, mutually agreed upon by the majority of the people affected,” and subsequent study has not identified any other class of remedies (e.g., McCay & Acheson 1987; Simmons et al. 1996). Hardin (1968) did note that education was important, but only in getting people to agree to or to accept coercion—he specifically did not see any hope that education, per se, would cause individuals to act in the collective good, or if it did that it would be effective.

Hardin (1968) also dismissed appeals to conscience or ethics, though, he did not specifically address the latter. “It is a mistake to think that we can control the breeding of mankind in the long run by an appeal to conscience . . . . People vary. Confronted with appeals to limit breeding, some people will undoubtedly respond to the plea more than others. Those who have more children will produce a larger fraction of the next generation than those with more susceptible consciences . . . . To make such an appeal is to set up a selective system that works toward the elimination of con-

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science from the race." In other words, evolution by natural selection creates, not solves, tragedies of commons, and especially the ultimate tragedy of commons. Furthermore, "solutions" to any commons problems must effectively deal with what social scientists call free riders, or what evolutionary ecologists call cheaters, or the solution will invariably fail (Smith & Winterhalder 1992; Simmons et al. 1996).

Finally, I submit that not only is the adoption of a "land ethic" a tragedy of commons problem, but, not surprisingly, there is no correlation between a society's ethics and how they actually manage their natural resources, in part, because ethical systems alone are not strong enough to deter cheaters, or, if you prefer, free riders. Moreover, this fact has been known for a number of years, but largely ignored. Tuan (1968, 1970), for instance, compared western and eastern views on the environment with actual conditions and found that although they expressed more concern for the environment, eastern ethics had done little to slow habitat destruction. Similarly, Kay and Brown (1985) compared founding Mormon religious beliefs about land and natural resources with actual impacts and reported a reverse correlation. Church founders generally admonished their followers to husband and protect natural resources, but, in practice, the land had been horribly abused.

Is there then a solution to the ultimate tragedy of commons? Hardin (1968) suggested that no cultural group had ever developed a practical long-term solution, and recent archaeological investigations support that contention (e.g., Cohen 1977, 1989; Cohen & Armelagos 1984; Diamond 1986, 1988; Flannery 1994; Steadman 1995). Is a solution possible in freely-elected democratic societies or even in ones that are not? I do not know, but now that I have identified the problem, or more correctly reidentified the problem first brought to the world's attention by Hardin (1968), perhaps brighter minds can formulate and articulate a solution. I do know, however, that if a problem is not correctly defined it will never be solved. The problem, as I see it, is simple, only the solution appears complex and intractable. I also suggest that we, the collective we, get on with

the task at hand and that we abandon the claim that education or ethics alone will ever solve this problem. Unless, of course, someone figures out how to repeal the laws of evolution (Diamond 1992).

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