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Commentary on Gordon Baskerville's [Perspective](#)

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Gordon Baskerville's initial "conclusion" that the actions of humankind generate major ecological problems because people are improperly or inefficiently informed, sounds reasonable at first glance. However, this position eliminates (without even discussing it) a whole set of alternative, or rather, complementary, causal factors. In my experience, there are two basic clusters of causes that explain environmental degradation across the world, in rich and poor countries alike.

First, vested interests, existing power structures, and the lack of political will prevent societies from facing many of the problems and implementing policies and management strategies that are, in some cases, obviously necessary. Examples abound, from the stimulation of deforestation of the Amazonian forests (Ozorio de Almeida and Campari 1995) through economic subsidies provided by the Brazilian government to absentee landlords in the 1980s (now discontinued), to the official resistance from some industrial countries to acknowledging the need to reduce carbon dioxide emissions and increase energy efficiency. Note that in this latter issue, at least, scientists (including climatologists, oceanographers, physicists, and ecologists) go beyond mere description and do address systems dynamics and causal structures.

The second cluster of causal factors is represented by limitations in our understanding, including the widespread sectoral approach to problem solving and decision making, as well as inadequate, or insufficient, information. This is where most of the arguments developed in Baskerville's Editorial, and my remaining comments, are concentrated.

I agree with the main argument that most ecological studies published in scientific journals are of limited (or no) use to decision makers dealing with real-life resource management problems. Again, the problem seems to me to be somewhat more complex. Consider:

Item: in a number of development cases in Latin America (Sancholuz et al. 1995), environmental (and socioeconomic) failures arose not because of any "hidden" ecological dynamics or perverse actions of the social actors involved, but simply because of sheer neglect to use basic knowledge that was available, such as the suitability of land for agriculture. Sloppiness and the prevailing planning paradigms (under which Nature is seen as a passive receptor of human actions) were the main explanatory factors of the failures. This phenomenon is not restricted to developing countries alone.

Item: the science of resource management does (or should) embrace much more than ecology. Resource management must consider the human as well as the ecological components and processes. Although many of Baskerville's criticisms of the current state of ecological science are legitimate, the same can be extended to scientific publications in many other areas, including economics, which should also inform decision making in resource management. It is characteristic of the prevailing reductionist scientific paradigm (*sensu* Kuhn) that the analytical prevails upon the synthetic, the sectoral upon the relational, and often (but not always) the descriptive upon the functional/explanatory. Most of the current scientific literature is not directly usable for decision making (and a lot is not usable for anything). Ecology, in this sense, is not an exception (although it should be, if it wants to honor its claim of being the science studying the interrelations between living beings and their environment). Moreover, resource management should, in many cases, be implemented in a participatory style, taking into account the different goals of the social actors involved, and with an agreed level of the socially acceptable ecological risk. Resource management is, by excellence, an area for "Post-Normal" science (Functowicz and Ravetz 1993), dealing with

problems characterized by both high uncertainty and high stakes.

Item: in the absence of scientific or empirical understanding or knowledge, ideology (in the sense of the general world view of the decision makers and preferred management style) tends to fill the gap, and decisions are made on the bases of prejudices and wishful expectations (witness the handling of the mad-cow disease in the United Kingdom).

Another point made by Baskerville is that the meaning of ecology as a science "seems tragically lost." This valid reflection points out the need to clearly distinguish between the science of *ecology* and *ecologism* as an ideological position. While ecologism is either a philosophy or a legitimate form of social activism based on a set of values toward Nature, it should not be confused with science (although the same person could be both). Everyone who so chooses may be an ecologist in the sense of ecologism, but cannot become an ecologist, in the scientific sense, without years of training. It is unfortunate, indeed, that both meanings are often confused, and they use the same name (in the English language).

In summary, I share Baskerville's concern with the fragmentary and reductionist character of most current scientific literature in ecology, as a problem by itself. However, the development of the science (or art?) of natural resources management should be pursued through an integration of insights, concepts, and experiences from many disciplines around its own goals and procedures, and should be defined at the scales relevant for the real management problems. What is required, rather than waiting for ecological research to change, is to develop and reinforce natural resources management research itself. This research, although informed by ecology, economics, sociology, anthropology, decision theories, social psychology, and others, should develop its own methods and body of knowledge.

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RESPONSES TO THIS ARTICLE

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