A Biologist’s Perspective on the Role of Sustainable Harvest in Conservation

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“Sustainable harvest” is one of the most commonly misunderstood and misused concepts in today’s conservation arena. It generally refers to activities that involve the extraction of a natural resource in such a manner that it is not depleted and can renew itself so that similar levels of exploitation can occur indefinitely. I address several of the more important misconceptions surrounding the idea that sustainable harvest is an important strategy for conservation and offer an explanation as to why the concept is currently so popular.

Unfortunately, the concept of sustainable harvest has too often been equated with effective conservation. To the contrary, sustainable harvest is invariably an activity whose objective is the material welfare of a select group of humans. Sustainable harvest does not necessarily have anything to do with conservation of species except in a coincidental and passive way. Rarely is consideration given to the impact of so-called sustainable harvests on other, nonmarketable species that are part of the ecosystem being exploited.

Four years ago Robinson (1993) provided an excellent critique of the concept of sustainable development and showed how it is generally incompatible with the goals of conservation. In spite of this and other forceful arguments and case studies showing how sustainable development projects can be counterproductive to conservation (e.g., Wells & Brandon 1992; Brandon 1997; Kramer et al. 1997; Noss 1997; Oates 1995, 1997), the sustainable development movement as a purported conservation strategy is gaining in popularity and is being funded at higher levels than ever before.

First, are any harvests of natural resources sustainable? Long-term and critical evaluations of attempts at sustainable harvest are painfully scarce and generally do not support the concept. That most, if not all, attempts at sustainable harvest have failed, whether they concern marine fisheries (Larkin 1977; Ludwig et al. 1993) or tropical timber (Struhsaker 1997), does not deter advocates of integrated conservation and development projects (ICDPs) and of the “conservation-through-use” (“use it or lose it”) perspective from continuing to invoke the concept in the name of successful conservation.

The second issue concerns what is perhaps the greatest criticism of the sustainable harvest concept, that it represents a narrow perspective. Sustainable harvest is generally thought of in reference to a relatively small proportion of all the species living within the ecological community being exploited (Robinson 1993). For example, discussions of sustainable harvest of timber in the tropics rarely consider anything but the tree species being harvested (e.g., Dickinson et al. 1996; but for exceptions see Rice et al. 1997; Struhsaker 1997).

In fact, timber-production forests are usually not compatible with sustainable conservation of the other non-harvested species, plant or animal, that depend on old-growth forest. Harvest systems can be developed that yield tropical timber over at least two or three cuts, but these systems have never been shown to conserve the full complement of old-growth species (Struhsaker 1997). These intensively managed forests more closely resemble tree plantations than natural forests. They are often impoverished in terms of plant and animal species (Struhsaker 1997).
saker 1997). The flora and fauna that follow heavy logging are usually dominated by colonizing (weed) species and not those adapted to old-growth forest (Struhsaker 1997). Peter Ashton is quoted as saying: “Let’s not pretend that sustained-yield forestry and biodiversity preservation are in any way compatible” (Mcrae 1997).

Because the concept of sustainable harvest, as it is generally used, is not readily demonstrable and, therefore, of limited value in developing conservation management plans, a third important issue must be addressed. When harvest systems of natural resources are developed, a reference point or perspective must be established and all of its consequences carefully considered. If one’s objective is to produce only timber, then studies and management plans need be concerned only with those species relevant to the regeneration, growth, and reproduction of the timber species being exploited. If one’s objective is the sustainable conservation of old-growth species, on the other hand, then it is this community of species that must be evaluated and studied, not just the timber species being logged, because any form of extraction has an impact.

The fourth point, and an important caveat with regard to the implementation of sustainable harvests in the conventional sense, is that as market demands increase, whether due to increasing human populations or increasing levels of consumption per capita, the temptation is to increase harvest levels accordingly (Struhsaker 1997). What was considered a sustainable (i.e., sufficient) harvest 5–10 years ago will likely be inadequate for contemporary and future market demands. In response to escalating economic, social, and political pressures, sustainability is redefined and harvest levels increased accordingly (Larkin 1977; Ludwig et al. 1993). This is particularly so for tropical countries where human populations are increasing at 3–4% per year. But it also occurs in wealthy, temperate-climate countries that have relatively low rates of population growth, such as the United States and Canada.

Given the preceding points, we must ask a final question. Why is the concept of sustainable harvest as a conservation strategy so widely advocated? Too often the success of integrated conservation and development projects or other sustainable harvest projects is equated with the project’s fund-raising capabilities because management policy and practice are usually influenced in proportion to the availability of funds. Correspondingly, these project designs tend to be shaped and driven by the donors and, because the wealthiest donors come from the development industry (e.g., World Bank, U.S. Agency for International Development, Overseas Development Agency [U.K.], European Community, Norwegian Agency for Development, Swedish International Development Agency, Japan International Cooperation Agency, Overseas Economic Cooperation Fund [Japan]), they assume a development perspective. In other words, the paradigm of conservation through development, including the sustainable harvest concept, originated with individuals and organizations primarily concerned with human welfare and economic growth (an anthropocentric perspective) and not with biological conservation (a holistic perspective). Based on 35 years of experience with tropical conservation, I believe one of the main reasons the concept of sustainable harvest has gained prominence in today’s conservation arena is not because it has a well-established history of success but because development agencies have far more money to offer than do conservation organizations that advocate a more traditional and holistic approach. In other words, funding, rather than conservation, has become the predominant objective of the implementing organizations.

An additional force that encourages and fosters the “development” approach to conservation is the rapidly growing human population in the tropics. Because rapidly growing or high-density human populations usually represent the most serious threat to old-growth forests in the tropics (Bruenig 1989; Struhsaker 1997), as well as other ecological communities, they must be dealt with in some way. Rather than address the ultimate and underlying issue of population control and planning, the development approach encourages plans based on simplistic and/or inappropriate concepts of economic growth and sustainable harvest (Robinson 1993). Combined with the population problem is an increasing concern for indigenous peoples (Kramer & van Schaik 1997), which further encourages the development approach to conservation.

Sustainable harvest is offered by its proponents as a concept that resolves conflicts between conservationists and exploiters through compromise. The trend and the very real risk are that, unless dealt with in a far more objective and holistic—less anthropocentric—manner, the current patterns of sustainable harvest will continue to drive old-growth species and ecosystems to extinction. In terms of effective conservation of old-growth species, there is no substitute for totally protected areas. Realizing that not all remaining old-growth habitats will be given total protection, buffer zones and other forms of extractive reserves can play important roles in conservation. They are, after all, better options than complete conversion to monocultures. These extractive areas will, however, play a significant role in conservation only if harvest levels are established with the goal of conserving all members of the old-growth community and not just the commodity being harvested.

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