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Abstract

Current thinking on protected area management in developing countries seeks to build upon the recent international experiences with community management and Integrated Conservation and Resource Development (ICRD). Private and community management frequently cannot provide the nonmarket externalities associated with free-ranging populations of large predators and other mammals in a natural ecosystem habitat.

This paper proposes an international civil service, including these components: (a) objective rating criteria, (b) additional points for developing country citizenship and/or place of birth, (c) salaries comparable to similar professional positions in North American and European countries, (d) higher fees for foreign visitors, (e) local and regional scholarships for secondary and tertiary education, (f) financial support to host governments, (g) international promotion of ecotourism in developing countries.

A. Introduction

Recent work on ICRD (Integrated Conservation and Resource Development) and on community management by Oates, Hulme and Murphree, and Barrett *et al.*¹ have led to considerable rethinking of the next step in international policy towards important protected areas in developing countries. This paper brings a new proposal for consideration, intended to add to the discussion.

B. Economic Background

First, consider the logical problems associated with private management of protected areas. ("Private" here refers to local entrepreneurs, community management organizations, and international commercial companies).

Figure 1 is a heuristic representation of the relationship between area (in hectares, square miles, etc.) and stable, healthy populations of mammal species. As the size of a protected area increases, the number of species increases at a decreasing rate. This relationship is widely supported by conservation biologists such as Wilson and Newmark.² The Yellowstone National Park, for example, is the largest national park in

¹ John F. Oates, *Myth and Reality in the Rain Forest: How Conservation Strategies are Failing in West Africa* (Berkeley and London, University of California Press: 1999). David Hulme and Marshall Murphree, eds., *African Wildlife and Livelihoods: the Promise and Performance of Community Conservation* (Oxford, Great Britain, Currey: 2001). Also see C. S. Barrett and P. Arcese, 1995, "Are Integrated Conservation-Development Projects (ICDPs) Sustainable? On the Conservation of Large Mammals in Sub-Saharan Africa," *World Development* 23(7), 1073-84, and especially C. B. Barrett, K. Brandon, C. Gibson, and H. Gjertsen, June 2001, "Conserving Tropical Biodiversity amid Weak Institutions," *BioScience*, 51(6), 497-502.

² Edward O. Wilson and Frances M. Peter, eds., *Biodiversity* (Washington D.C., National Academy Press: 1988); and William D. Newmark, *Mammalian Richness, Colonization, and Extinction in Western North American National Parks*, Ph.D. Dissertation, University of Michigan, 1986.

the United States, and the only area with 100% of its pre-European collection of mammals.³

The decreasing marginal rate of species diversity and the nondecreasing marginal cost of protection imply the existence of a finite optimal area for conservation in each park. This conceptual relationship is indicated in Figure 2, which shows how total social value (which is correlated to the number of species) approaches a maximum value as the area under protection increases.

Figure 2 simply suggests (again, representationally) that maximum net benefits to society are in this example at a size of 2.5 million hectares.⁴ Of course marginal social value (MSV) intersects marginal cost (MC) at this point: A^*_{SOC} in Figure 3.

Social value includes many non-market values: existence value, option value, bequest value, and so on.⁵ These values are difficult for a private owner to convert to revenue. Consequently, a private manager maximizes profit at a much smaller area A^*_{PRIV} .

Thus we see that non-market values are positive externalities for protected areas. It follows then that large ecosystems cannot easily be managed by entrepreneurs and communities, because they cannot afford to provide the necessary large areas.

Consider this fact now in an African context, where an elephant clan and its associated males will have a home range of 200 square miles.⁶ The home ranges will be larger in drier areas, and in drier years. The ranges for cheetah, leopards, and lion prides

³ Newmark.

⁴ A hectare is approximately equivalent to 2.47 acres.

⁵ See the extensive discussion in V.H. Heywood and R.T. Watson, *Global Biodiversity Assessment*, or the summary in D. Chapman, *Environmental Economics: Theory, Application, and Policy* (Reading, MA, Addison Wesley: 2000) Ch. 15, "Biodiversity and Endangered Species. Total social value includes both revenue and non-market values. Similarly, MSV includes both MR and marginal non-market values.

are comparable in size, but perhaps smaller where there are dense concentrations of prey populations.

Does this matter? Consider the impact of wolf reintroduction on songbird populations in the Yellowstone National Park. Previously, elk had safely grazed along rivers, reducing riverine vegetation. With wolves present now, this is hazardous for elk. Riverine grazing is less frequent, and willow and similar river-edge vegetation has increased. Consequently songbirds are now more common in these locations. Songbird numbers increased because of wolf reintroduction. This Yellowstone illustration indicates a global relationship: only very large protected areas can include natural ecosystems with predators, elephants, and rhinos present with their normal social structure. The presence or absence of large mammals and predators affects the whole ecosystem, just as wolf reintroduction brought back greater numbers of songbirds.

There are, of course, many issues in African park policy: ecosystem and habitat management, trophy hunting, private concessions, meat harvesting, off-road tourism, air tourism, poaching, souvenir sales, ivory sales, fire management, and elephant population control (translocation, culling, birth control, fencing), domestic cattle grazing, and so on. This paper does not address such issues, but rather focuses on the challenge to international organizations to develop programs for the management of large protected areas in developing countries.

⁶ Chapman, p. 292, reviewing the work of Ian Whyte.

Figure 1: Biodiversity Protection and Area

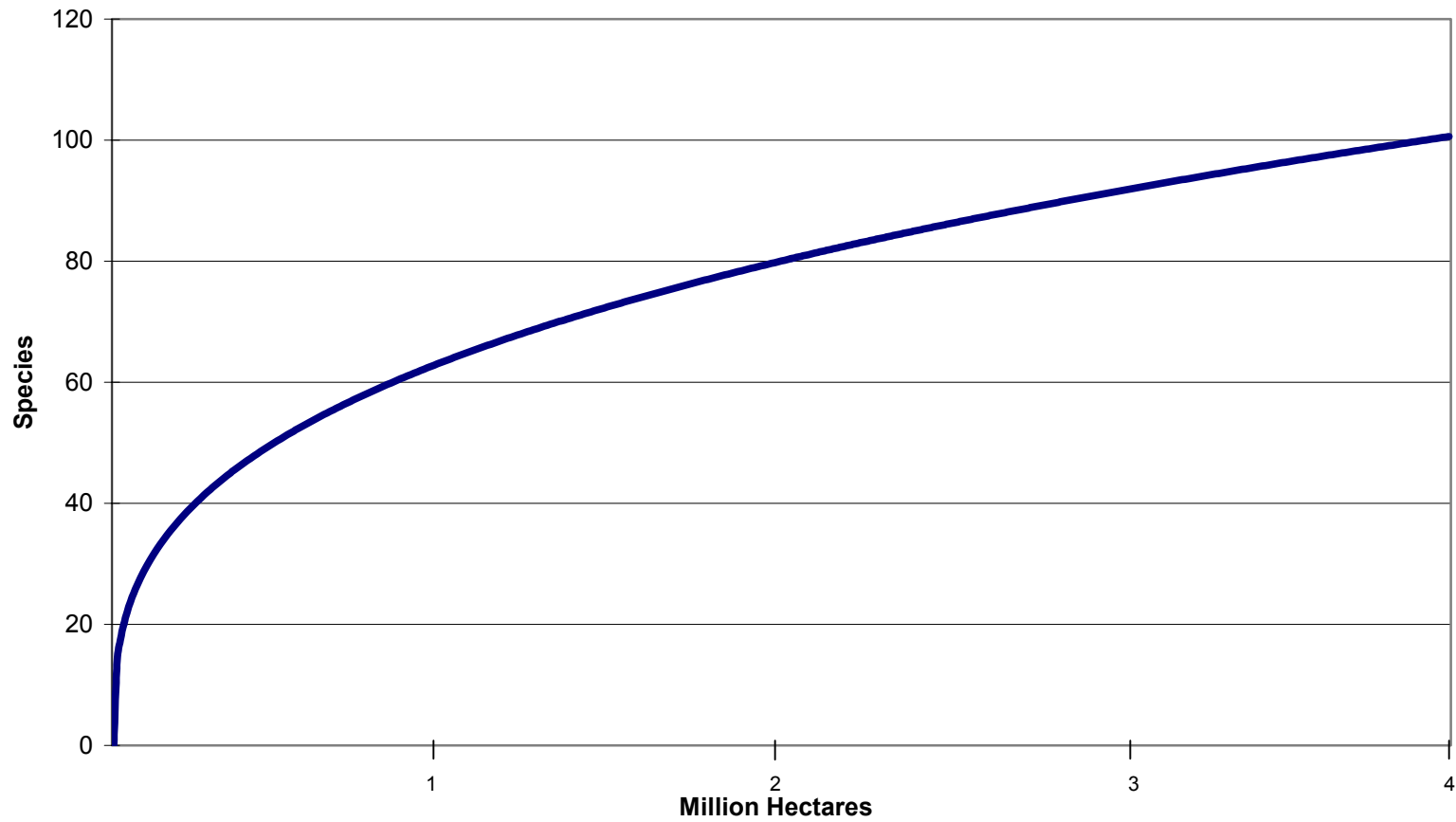


Figure 2: Maximum Net Social Value

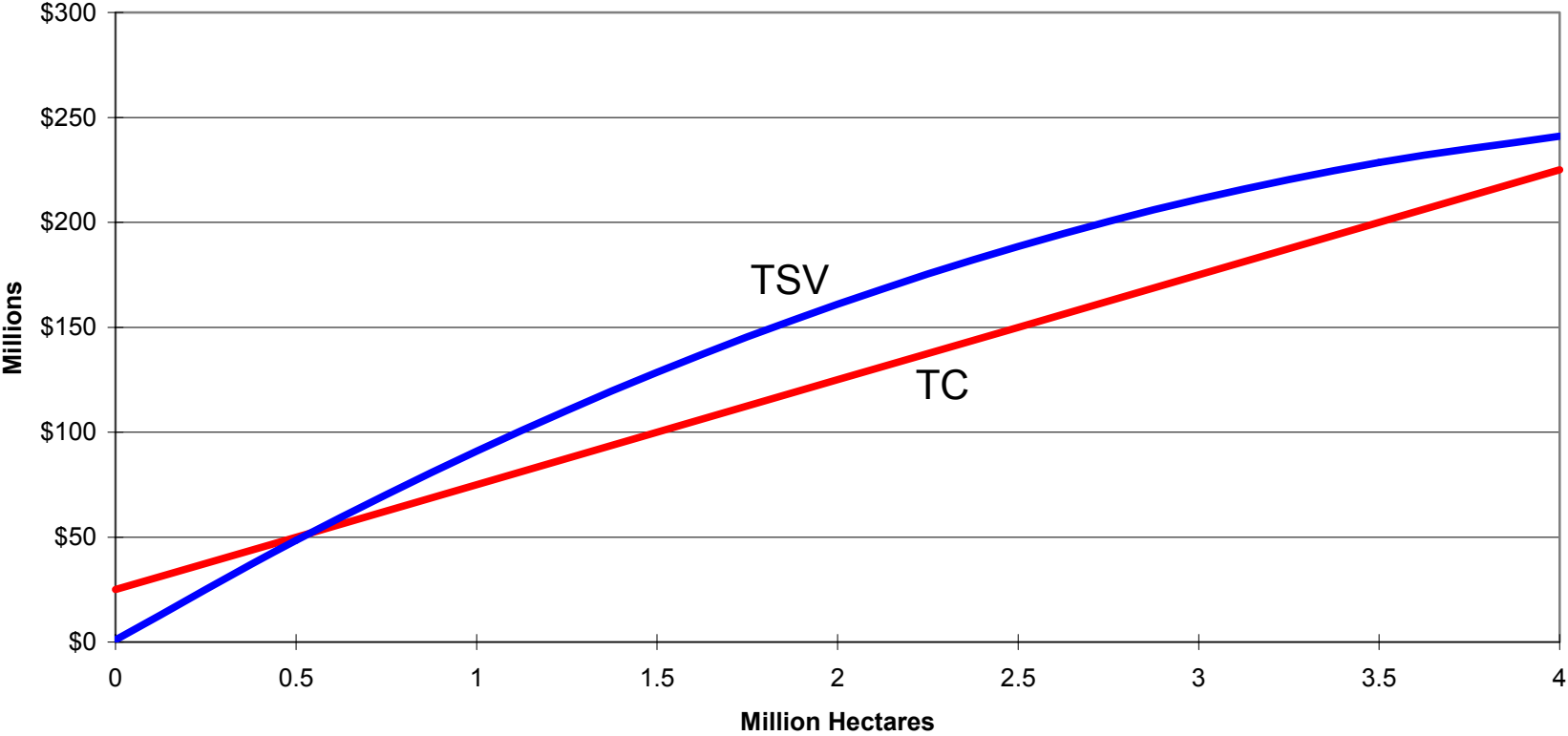
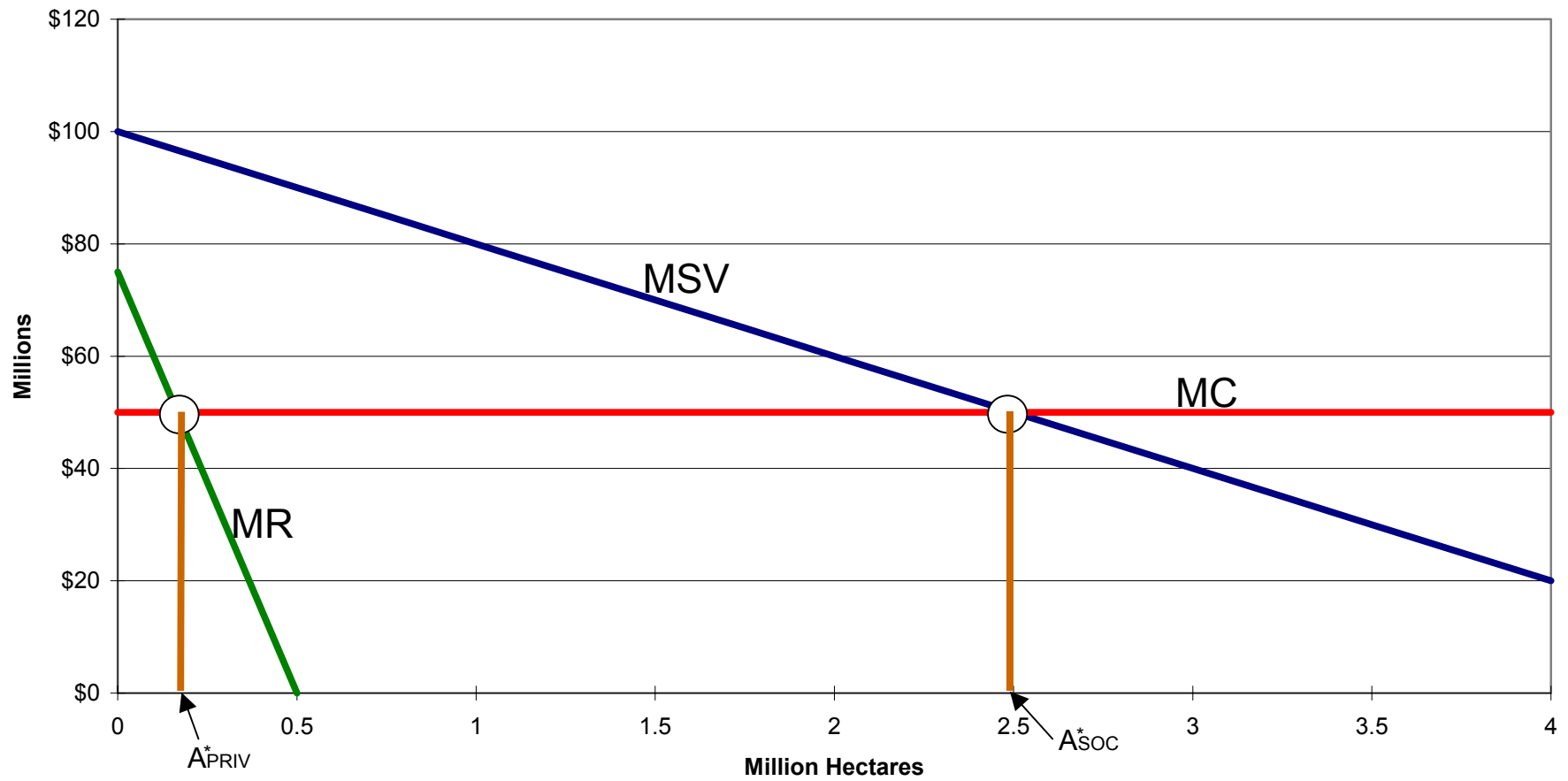


Figure 3: Private and Public Protected Areas



C. A Proposal

Imagine an international program for conservation and development which incorporates these five components:

- An International Civil Service
- Increased Revenues from Higher Fees for Foreign Visitors
- Educational Opportunities for Local Areas
- Financial Support for Host Governments
- Promotional Support for International Parks

The first part of the proposed program would be an international civil service. The basic concept of a civil service rests upon hiring and promotion through the use of objective rating criteria. If an international civil service were to be applied to the management of parks and protected areas⁷, these criteria might include:

- a} general knowledge test;
- b} park skills test, including such subjects as ecology, economics, accounting, publications, history, management, and enforcement;

⁷ Protected areas may be managed by public or private entities. Public entities include forest agencies, land management agencies, and different levels of local, state, and national governments. Henceforth the term “park” is used in the paper, but there are of course different terminologies appropriate for different locations.

- c} a requirement for a developing country language in addition to one or more listed languages;
- d} additional points for graduate degrees;
- e} additional points for developing country citizenship and/or place of birth.

The tests would be administered in one of several listed languages, and salaries would be at levels appropriate to similar professional positions in European and North American countries.

The second part of the proposal: Many important developing country parks already have significant foreign visitation. In general, foreign ecotourists generally have much higher incomes than the citizens of the host country. Foreign visitors would find much higher fees to be a very small percentage of their overall travel cost. Unfortunately entrance fee differentiation has not been fully developed at many national parks⁸. This would significantly enhance revenue, without impacting foreign visitation.

Part three: In many developing countries, access to secondary and tertiary education is limited by financial household constraints. An international park program could offer significant local scholarships for high school and college education. The main justification would be to provide a real local public benefit to local communities from park operation, without the typical problems of proper management of local development funds. A secondary benefit to parks would be the probability that a significant proportion of scholarship recipients would choose conservation and wildlife careers, pursuing professional positions in the civil service.

Fourth: Host governments understandably are not always wholly enthusiastic about the high level of NGO interest in the management of their national parks. They may feel that basic

⁸ In one African park with 100,000 foreign overseas visitors annually, the entrance fee has been \$5-\$10 for an unlimited stay. Typically, total travel costs are \$2,000 to \$5,000 for the trip.

infrastructure needs are more pressing, or that the high incomes of European and North American employees and consultants of NGOs and the donor agencies render them unqualified to evaluate the priorities of developing country leaders and their governments. Direct, transparent financial support to host governments are a legitimate use of international funds and would greatly increase host government support of an international civil service working in national parks.

Finally, an international civil service program could contribute to the promotion of ecotourism to developing country protected areas. This would raise the demand curve for park visits, and, considering the higher foreign visitor fees suggested, result in significantly higher revenues at any visitation level. Of course, visits would increase (where this is feasible and desirable) at any fee level. Two obvious means of promotion are the use of video and book materials. The program could adapt the principles of World Heritage Sites. Videos on natural and historical subjects in Africa, Latin America, and Asia are already popular on television channels, and these channels are a likely user of such new material. Books on protected areas have a long established history, including the *Endangered Wildlife: Business, Ecotourism, and the Environment* (focused on Southern Africa), the series *Great Game Parks of Africa*, and the private *Conservation Corporation Africa*⁹.

D. Conclusion

International aid projects to promote biodiversity and endangered species protection through private and community management of protected areas in emerging economies have

⁹ Published, respectively, by (a) The Endangered Wildlife Trust, Goldfields Environmental Centre, Johannesburg Zoological Gardens; (b) Struik Publishers, Capetown; and (c) Conservation Corporation, Johannesburg and Miami.

frequently encountered severe problems. The most notable problems: sustainability, funds management, and evidence of successful protection of biodiversity and endangered species and ecosystems. The sustainability problem is serious: most community management programs will cease when donor aid concludes. The funds management problem arises because local management often has different expenditure priorities. And finally, monitoring and evaluation of projects and their conservation impact has generally not been part of ICDP aid¹⁰, and evidence for successful protection of endangered ecosystems and species is often absent.

Here, for lack of a more euphonious term, the paper suggests consideration of an International Park Service, an IPS. It would manage important protected areas in developing countries where those sites have significant nonmarket environmental values on a global basis. Five components of a program are suggested: (1) an international civil service, (2) new fee structures with higher charges for European and North American visitors, (3) educational scholarships, high school and college, for local areas, (4) financial support for governments with international park status, and (5) promotional support for ecotourism for international parks.

Many obvious problems with the suggestion demand attention. Would an IPS be associated with existing organizations such as UNESCO and WWF? What would be the position of the U.S. and European governments? Potential host governments? Could a significant number of parks be degraded by increases in international visitation? Would scholarships be financed by individual park revenues, or by the IPS? How would an IPS affect other assistance programs?

This proposal may or may not be a solution; but it is intended to contribute to the current discussion of solutions.

¹⁰ See especially Kadzo Kangwana's "Can Community Conservation Strategies Meet the Conservation Agenda?" Chapter 17 in Hulme and Murphree, *op. cit.*.

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