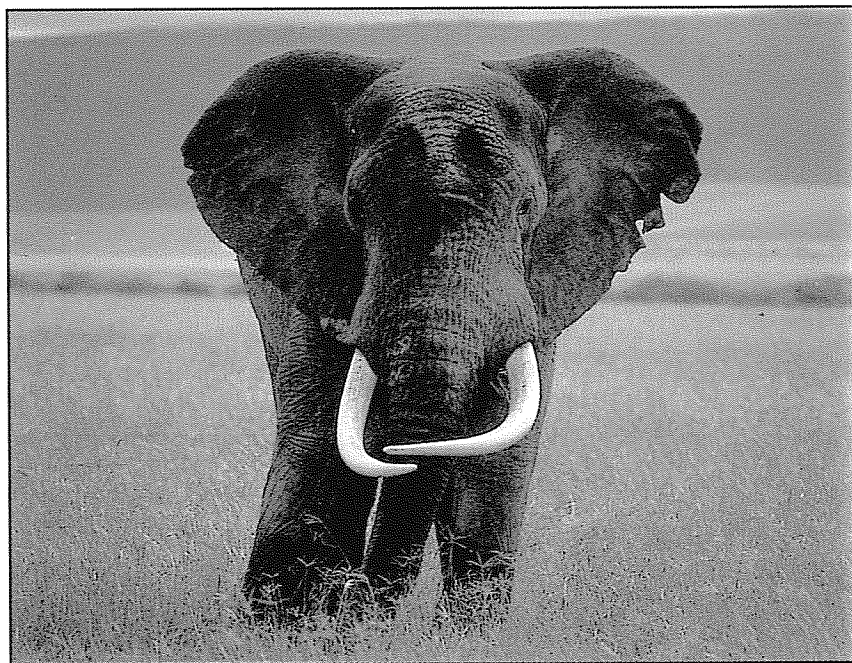




IUCN Focus Series

Can Wildlife Pay for Itself?



IUCN
The World Conservation Union

The following article is an edited version of a talk delivered by Martin Holdgate to a symposium at the Royal Society of Arts in London on 12 September 1992. The symposium as a whole was about "investing in nature" and Dr. Holdgate was asked to address the question "can wildlife pay for itself"—or, by implication, "does it make sense to invest in wildlife?". The talk inevitably touched on important issues of policy including the ethics of using wildlife and the extent to which it is possible to include natural values in economic equations.

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**Director General
IUCN – The World Conservation Union**

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Can Wildlife Pay for Itself?

by Martin Holdgate, Director General, IUCN

It is sensible, indeed necessary, to link investment in natural resources with sustainable development. Investors do not like to waste money and those who invest in unsustainable development will either lose money or get out quick, leaving their losses behind. There are many examples of wasted money, including governmental aid money, due to its being spent on financing bad development. Very often this is because systems that would actually be more sustainable, productive and economically valuable left in a semi-natural state like a forest have been converted to a different and ultimately less productive mode, like a ranch.

This paper examines the question "can wildlife pay for itself?"—or, more precisely, "is wildlife a good investment?". The term "wildlife" is taken to encompass both natural habitats and the wild species they support. "Pay" denotes the direct provision of a cash return, the indirect provision of financial benefit, and the provision of social benefits more economically than engineered substitutes can do.

On some land, wildlife can provide all these returns as well as contribute to that intangible group of elements that we call "quality of life"—one reason why cash profit is not the only reason why people invest in this area. On much land, wildlife is the most economical form of land use—if the economic sums are done right. Undeniably, in many countries wild nature provides essentials outside the cash economy and if such products were properly valued the immense economic benefit of wildlife would become evident.

There are many countries where forests, savannahs, rivers, and coastlands are important sources of food, in the shape of meat, honey, fish, mushrooms, fruit, and nuts. They are also important for fibre, fuel, medicines and building

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materials. Valued correctly, they are an obvious major element in the life-support system. To give three examples:

- 90% of the total primary energy used in Nepal, Tanzania, and Malawi comes from firewood and dung, and these natural sources provide 80% of total primary energy use in many developing countries;
- in Botswana, a range of wild animal species together yield 40% of the animal protein intake. One species, the spring hare, yields three million kilograms of meat per year;
- in Nigeria, wild animals provide 20% of rural animal protein.

At the other end of the spectrum, direct cash benefits come from many kinds of exploitation of wildlife within formal economies. Fisheries are simply systems for cropping the wildlife of the ocean, inshore seas and fresh waters. Even mariculture, for salmon, shrimps, or molluscs, involves the cultivation of wild species, and generally of individuals taken from wild stocks, contained in modified areas of natural habitat.

As another example, 40% of the pharmaceuticals traded across the counter in North America are said to be of wild origin. The value of the substance derived from the rosy periwinkle in treating leukaemia, or of aconitum, in more traditional heart remedies, or of penicillin and all the other fungal-derived antibiotics, which were taken from the wild progressively once penicillin had shown its properties as a contaminant of one of Fleming's culture plates, is very obvious. The economic value of timber, latex and other materials taken from wild habitats is equally inescapable. Some years ago an estimate showed that 4.5% of North American GNP was based on the economic harvest of wild species, and that wild harvested resources contributed US\$87 billion a year between 1976 and 1980.

There are also many indirect cash values. Tourism is the biggest industry—or certainly the biggest foreign exchange earner—in many developing countries. It has been estimated that each lion in the Amboseli National Park in Kenya is worth US\$27,000 a year and that a herd of elephants is worth US\$160,000. The park yields US\$40 per hectare per year

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under tourism, which is about 50 times what might be expected to come to the national treasurer if it were converted to local agriculture.

Wildlife is also immensely valuable as a source of genetic material. Crop breeders go back to the wild time and again to derive new genes that will make their strains more resistant to climate change and pests, or meet new market demands. Nature continues to diversify, and will provide such contributions without charge to humanity, so long as we maintain the ecological systems within which that diversification proceeds.

Nature also does many things for us vastly more cheaply than engineers can do. Forests on upland catchments not only stabilise the soil but regulate the run-off of water, and yield pure supplies. The catchment around the capital of Honduras, Tegucigalpa, supplies 40% of its water needs, regulated by percolation through the forest, at approximately one-fortieth of the cost of alternative supplies through engineered impoundments in the denuded hills. Natural sea defences save most coastal nations vast sums. It has been calculated that the retention of wetland in the region around Boston Harbour has saved US\$17 million a year in flood protection works. A hectare of inter-tidal wetland in the eastern United States has been estimated to have a cash value of US\$72,000 a year as a coastal defence and fish nursery ground. In low-lying island countries like the Maldives, offshore coral reefs that break the fury of the storms may make all the difference between habitability and disaster. Elsewhere in the tropics one sees the other side of the coin, where the destruction of mangroves and erosion of coral reefs has made coasts like those of Bangladesh very much more vulnerable to tropical storms.

All these benefits can be tied more or less directly to particular species or systems. Beyond—or rather on top of—them, natural ecosystems provide a free service without which we could not live. Green plants renew the oxygen we breathe, and ecosystems cycle the essential elements of carbon, nitrogen, phosphorus and sulphur. The earth would not be habitable without such processes. The fact is that the non-human, uncosted, economic system of our planet is still bigger than that on which we pride ourselves. The economy of the developed world nestles within a niche in the natural world. All societies depend on it, and without these services there would be no civilisation.

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If I were privileged to be Director General of Wildlife Services Incorporated, and charged out what the monopoly under my control provided, I would have the biggest and most lucrative business in the world. I would be charging a royalty to the farmers who use my species, modified by selective breeding and continually refreshed by recourse to the wild species in my keeping. I would be submitting bills for your oxygen consumption, your sea defences, and the management of your rivers.

The answer to the question "can wildlife pay for itself?" is thus obviously affirmative. The real question is, however, quite different. It is: "can wildlife pay for itself within the context of our economies?". This is a much more difficult question because those economic systems are distorted in many ways. In particular, we use methods of valuation which favour the conversion of wildlife towards systems that may be less economic and less rewarding.

One reason for this incorrect valuation is the hostility to nature which is still residual in many people and communities, perhaps deriving from the struggles that our early ancestors had against their surroundings. For example, land tenure for settlers in Australia depended on the clearance of the wild vegetation that was pejoratively labelled "bush" (off which the Aboriginal inhabitants had lived sustainably for millennia). Quite recently, in Brazil, the State was subsidising the construction of roads into the forests, and granting tax concessions for forest clearance and conversion of woodland to ranchlands of far lower productivity. Even in the United Kingdom, the denuded uplands, deforested by Bronze Age or Neolithic people, are now more valued as sheep pasture than as restored forest. There is a touch of human arrogance that puts a value on manmade investment, rather than the natural systems it replaces. Only recently have economists demonstrated the economic fallacy of such an approach, and urged that we must value "natural capital" and cost its depreciation and depletion by human impact. When this is done, we begin to see that wildlife does pay for itself in terms of the opportunity cost of sea defences on most of the soft coasts of the world held in place by salt marshes, mangroves and coral reefs, or in the free dispersion of pollution, which we only value properly when we overtax the system and have to make immense investments in pollution abatement and environmental restoration. Similarly, when we do the valuations aright we can see quite easily that wildlife pays for itself in national parks, in maintaining gene banks, and supplying genes for

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crops, and in supplying pharmaceuticals, or the substances that we have learned to copy in the drugs industry.

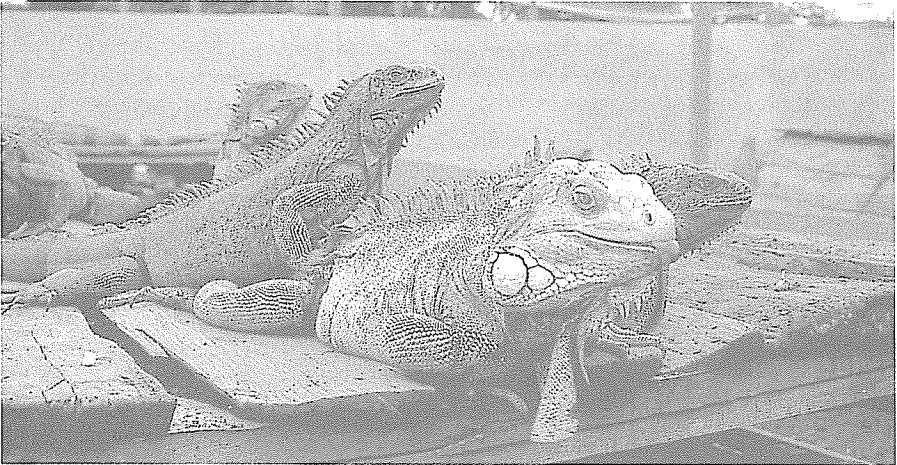
A second, more complicated and subtle issue arises from the difficult question of "who owns wildlife?". The human assumption that wildlife resources were endlessly replenished, and hence could be treated as "open access resources" from which anyone could take what they could catch and gather might be held to imply some sort of divine ownership. Or does the sovereign state own wildlife? Or do the local communities who often live in balance with nature, so long as their populations do not grow too large, but are equally often dispossessed by urban groups with greater money and power?

The fact is that sustainable wildlife use is often best carried out by local communities. However many of their activities lie outside the cash economy, and do not feature in GNP, and hence they tend to be disregarded by the central administrations of sovereign states. Forest dwellers, for example, may harvest logs sustainably one by one and take a mixed crop of other products including meat, fruit, fibre and latex. According to calculations by Norman Myers the value of such a harvest in any one year is likely to be comparable with the once off return that will come from the logging of the forest, which takes all the timber in one operation, and destroys it as a source of other products. But because the logging brings revenue to a central national treasury, governments are easily tempted to displace forest people in favour of timber concessions. The social costs of the disruption commonly fall on the local communities. Very few countries pay such communities to conserve resources, however vital these may be. The villagers in the Andes certainly do not get paid for looking after the world's stock of wild potatoes.

This problem even arises in relation to tourism which, par excellence, depends on maintaining wildlife on the ground. The Masai Mara reserve in Kenya, for example, is owned by the Narok district council. Yet only eight percent of the revenues from that industry go to the council, and only around one percent finds its way to the local Masai. In Ngorongoro, one of the world's greatest wildlife spectacles, a recent investigation found that although it was the largest business and the largest employer in its district, only four of the 250 employees of the Conservation Area Authority were locally recruited, and a negligible proportion of the revenues from tourism reached the Masai villages.

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This is serious, because if wildlife has no value to local people, they have no incentive to conserve it. If local people can neither graze their livestock in, nor take meat from, the National Parks in or near which they live, and the parks bring them no economic benefit, can you blame those people for turning to poaching? For this reason, many enlightened modern wildlife habitat management schemes, like the CAMPFIRE project in Zimbabwe, are based on giving local people a stake in the sustainable management of the resource, with economic returns, and this is the best way of stopping poaching and illegal encroachment.



Green iguanas, captive breeding project, Costa Rica

A third problem is emotion. There is an increasing conflict between those who support the sustainable use of wildlife and those who feel that the commercial exploitation of nature is wrong. Many people hold this latter emotion strongly and very sincerely. However, banning the commercial use of wildlife eliminates its economic value. On the other hand, the marketing of wildlife products, and even trophy-hunting, can bring revenue into conservation and to local communities. Commercial crocodile ranching has been a factor in the increase of crocodiles in the wild—because their value has become apparent. And if it is necessary to cull elephants or other large mammals because they are increasing in numbers and putting intolerable pressure on local communities, why should not licensed hunters who are

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prepared to pay for taking trophies be permitted to do so, bringing in yet further revenue from an exercise that would otherwise have to be done anyway by government employees? Some people believe strongly that it is morally wrong for others to get pleasure from killing, but it can, in turn, be argued that that is between an individual and his or her conscience.

IUCN's position on the Sustainable Use of Wild Species was clearly defined in a recommendation passed at the General Assembly in Perth. The "ethical, wise and sustainable use of some wildlife" is accepted as "an alternative or supplementary means of productive land use, and can be consistent with and encourage conservation, where such use is in accordance with adequate safeguards". Those safeguards include scientific monitoring to ensure that the exploited populations or ecosystems are not adversely affected, compliance with national and international law, protection from avoidable cruelty and suffering, and conformity with guidelines IUCN is developing. IUCN also urges the equitable allocation of resources, and distribution of benefits among those involved.

Conflicts of values can sometimes manifest themselves in most peculiar forms. Because of the preference for domesticated over wild species, there are many investment programmes to raise domesticated stock like cattle in areas where meat production could be larger, more ecologically sustainable, and more diverse if a range of wild species were utilised. In Botswana, for example, the European Community is funding a cattle-raising scheme which brings important revenue to the country. However because of EEC veterinary regulations, the cattle have to be segregated from the wildlife, there is aerial spraying of pesticides to control tsetse fly, and mixed cropping with cattle and game is rendered impossible. Given the fact that Europe does not exactly suffer from a shortage of beef, this scheme may not be the best investment of tax payers' money from European Community countries. It might be wise to encourage game production, and cultivate a taste for impala or springbok biltong, and other forms of choice meat.

Substantial revenues are derived from the cropping of wildlife in European countries. Grouse moors, partridge and pheasant shoots and deer forests are substantial money earners. There are real opportunities for investment in making wildlife spectacles for tourists and catering for their needs for access, information, and accommodation. Traditional zoos may be

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in decline but new spectacles including indoor tropical forests, and wildlife viewing areas in urban zones are on the increase. Wild lands set aside with their native species for sport and recreation have become an economic asset in many countries, generating a revenue used for the upkeep of the area or park. Another dimension, of course, is the wildlife film industry which has been extremely successful, and has done much to bring conservation and its needs to the attention of the public.

It is clear that wildlife *can* pay for itself in simple cash terms in many areas. It is often the best and most economic form of land use. But whether that is recognised depends on the structure of the economy. It depends on the way in which wildlife is valued, on the balance that is struck between local interests that lie outside the formal economy and central interests that are out to maximise national revenues in the short term, and on issues of ownership. Unless we get those things right, the economic sums often yield the wrong answers.

GNP statistics certainly get these sums wrong. For example, they put a premium on building sea defences at high cost rather than conserving natural systems which do not feature in the GNP statistics at all. Both pollution control and polluting industries are positively recorded in GNP, and there must be some element of distortion and double-counting about that. In most cases, the cost of clean-up greatly exceeds the cost of environmental protection, but cure contributes to GNP while prevention does not.

National resource accounting needs a thorough review. By doing a careful analysis we are likely to find that investing in wildlife is good business, and investing in keeping some natural systems rather than building engineered substitutes is superlatively good business.

This whole issue needs to be seen in context—the context of environmentally sound and sustainable development and the equitable apportionment of its benefits. As the recent IUCN/UNEP/WWF publication *Caring for the Earth: A Strategy for Sustainable Living* emphasises, each community needs to judge for itself how it can best conserve its environment and use it optimally. The issues addressed in this note must be considered within that process, which will demand dialogue. Dialogue between all sectors of community, and especially environmentalists who understand the value of

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the services nature provides, and the limits of nature's tolerance, economists, who face the challenge of incorporating these values into their models and equations, governments as custodians of the economy and regulators of policy and action, and local people who are the custodians and users of the land and its living resources. IUCN will endeavour to promote that dialogue, and guide it to solutions, that cater for the interests of both people and wildlife.

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Dr Martin W. Holdgate
Director General
IUCN – The World Conservation Union

Dr Martin Wyatt Holdgate, Director General of IUCN – The World Conservation Union since April 1988, has actively participated in both United Kingdom and international environmental affairs for more than 30 years.

Dr Holdgate is a First Class Honours Graduate of Cambridge University with a doctorate in insect physiology. In 1955 he began a decade of scientific research in the southernmost regions of the world with an expedition to the South Atlantic islands of Tristan da Cunha and Gough Islands. He has been interested in oceanic island biology ever since.

Before becoming Director General at IUCN, Dr Holdgate was Chief Environment Scientist and Deputy Secretary, Environment Protection with the Department of the Environment, UK. He led UK delegations to the Preparatory Committee for the Stockholm Conference on the Human Environment and to the meetings that negotiated the Oslo and Paris conventions on marine pollution.

Dr Holdgate was directly involved in the establishment of the United Nations Environment Programme (UNEP) in 1974. With Mohamed Kassas and Gilbert White he edited the major volume *The World Environment, 1972–82* produced for UNEP in 1982. He was President of the Governing Council in 1983–84 and was awarded a Silver Medal by UNEP in 1983. In 1988, Dr Holdgate was made a member of the UNEP "Global 500" and currently serves as President of the Global 500 Forum.

IUCN – The World Conservation Union

Founded in 1948, IUCN – The World Conservation Union brings together States, government agencies and a diverse range of non-governmental organisations in a unique world partnership: some 650 members in all, spread across 120 countries. The Union seeks to work with its members to achieve development that is sustainable and that provides a lasting improvement in the quality of life for people all over the world.

The IUCN Focus Series

The IUCN Focus Series aims to provide a range of thought-provoking essays on topical conservation and sustainable development issues. Content may be drawn from a variety of sources, generally within IUCN, often relating to subjects where policy is under development, reappraisal or refinement. The series is not intended to be an official statement of IUCN policy but to provide insights and material for further debate and discussion.

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