

# CHAPTER 16

## The Economics of Biological Diversity Conservation

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Economics is about choice. In a world where resources are finite relative to the demands that human beings make on them, choice is unavoidable. We cannot have everything. Choosing is the same as “trading off,” balancing the net gains from one course of action against an alternative action. The action of conserving biological diversity is not immune from this problem of making choices, although, as we shall see, some conservation literature appears to deny the choice, while some of it argues that the choice is there but that the tradeoff in favor of diversity destruction is unacceptable—biological diversity is somehow “special.” If choice is inevitable, if we cannot retain all the diversity that there is, how should such choices be made? What should be conserved and where? Few problems in economics are more complex than making choices in the context of biodiversity and no economist would argue that the problem is resolved. Nonetheless, economics offers some insights into biodiversity conservation policy and these are worth exploring.

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### THE THEME

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The theme of this chapter can be summarised briefly. A problem is especially worth solving if it is an important problem. It therefore matters that we establish the importance of biological diversity and biological resources generally.

The first observation is that, whatever other reasons there may be for supposing biodiversity to be important, biodiversity has economic importance. ‘Economic’ here has a particular meaning; it does not refer to finance or commerce. It refers to human wellbeing, or, to use the economist’s jargon, to “welfare” or “utility.” Any contribution to human wellbeing is an economic good or benefit. Any loss of human well-being is a cost. It is important to keep these meanings in mind as our chapter proceeds.

The second observation is that policy to save biodiversity will be ineffective unless it addresses the causes of biodiversity loss. One of the most fundamental characteristics of environmental economics is that it teaches the essential interrelatedness of environment and economic activity. The workings of the economy affect the environment. Environmental change affects the economy. The fundamental causes of biodiversity loss are often

therefore to be traced to the workings of the economic system or, as we shall show, to the 'misworking' or 'failure' of the economic system, its failure to account properly for all the effects on human well-being of biodiversity loss.

Third, appropriate policy measures should focus on the removal or mitigation of the causal factors generating biodiversity loss. Since those causes often lie in the economic system, so it is the correction of economic 'failure' that provides us with the most effective way of countering biodiversity loss. There is a natural sequence in these observations—importance, cause, policy—and this is the sequence we use in structuring the chapter.

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## THE ECONOMIC IMPORTANCE OF BIODIVERSITY

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The economic importance of biodiversity relates to its direct and indirect effect on human well-being or welfare. Welfare or its equivalent measure utility, can be inferred from the money people are observed to pay in actual markets, or their stated willingness to pay—in hypothetical markets. It is this willingness to pay that provides the handle for the economic analysis of biodiversity loss.

Valuation of many biological resources is typically through established markets. Thus, even the price of the celebrated Madagascan periwinkle (*Catharanthus roseus*, Apocynaceae) as part of a prospecting arrangement for pharmaceutical trials provides one, albeit unconventional, gauge of human preferences for that plant, using money as a common measuring rod. Logically, if the periwinkle ceases to exist because of extinction, the same willingness to pay reflected in the price measures some part of the resulting loss of well-being.

Conventional markets are not always necessary to determine economic value. Indeed, the fact that many biological resources are unpriced has forced environmental economics to refine innovative methods to investigate individual preferences for states of the environment. Such methods include survey-based approaches to determine the value of resources that many people may never directly experience. Not surprisingly, the use of these approaches is the subject of considerable controversy.

For some people the whole enterprise of economic valuation of non-market goods is controversial. Equating the consequences of loss of biodiversity with a money-equivalent loss of well-being, for example, may strike some as a peculiarly anthropocentric view of the world. Economics makes no apologies for such an approach, as economic values are necessarily those held by people, and individual maximization of well-being is consistent with several ethically-based motives frequently supposed by critics to be neglected in monetary evaluation. However, it is important to appreciate the claims made for, and the reason to support, economic valuation over other approaches. Money simply translates unobserved well-being or utility into an observable quantity that is the most convenient metric for comparison of gains and losses across space and time. If money is objectionable then some other universal unit of well-being may serve the same function just as well, providing it makes such comparisons possible. Thus if it were possible to infer a value for bald eagles in Wisconsin today (and it is), the measure of value should be the same metric used to value, say, raccoons, in Florida tomorrow, (thereby facilitating the comparison of costs and benefits over respective conservation programs).

It is difficult to over-emphasize the importance for efficient resource allocation of the ability to make such tradeoffs. Unfortunately the often-cited charge of "pricing everything and valuing nothing," which arises from a confusion over the interpretation of