

NON-MONETARY BENEFITS WITHOUT APOLOGY: THE ECONOMIC THEORY AND PRACTICE OF ECOSYSTEM SERVICE BENEFIT INDICATORS

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Values for changes in ecosystem services (ES) are required or desired in many policy and management contexts. Often, appropriate monetary values are not available or are infeasible to estimate. Fortunately, in many contexts—e.g., cost-effectiveness analysis of programmatic mandates, discourse-based decisions, advocacy or educational efforts—monetized values are not necessary. In these instances, information on public preferences, demand, and values can be important, particularly when determining how to allocate scarce collective resources among competing priorities and uses.

This paper presents a framework and practical advice, based on economic theory and concepts, for developing and compiling non-monetary indicators of ES benefits (or costs). I first present a bio-economic model of ES supply, demand, and value; then describe approaches that decision makers can use to apply this model to develop robust benefit indicators to evaluate the ES benefits (or costs) of policies and management decisions. The approach is illustrated with real-world examples.

A benefit indicator is defined as a variable that represents an aspect of demand, preferences or value for a particular ES. Robust indicators should be developed and selected based on a theoretically sound link between the indicator and the aspect of the system that it represents. Indicators grounded in accepted theory will be more defensible than more ad-hoc metrics. Thus, the framework uses economic models of demand and value to systematically develop and select indicators based on their ability to predict changes in demand and value across policy options. For example, a set of economic demand and value indicators would include measures of the extent of the market and the number of beneficiaries; indicators of scarcity and availability of substitutes; and indicators of the elasticity of demand.

Decision makers can benefit in several ways by using theoretically-sound and practically relevant ES benefit indicators. Indicators can be more easily compiled than monetary measures, and are amenable to telling a theoretically consistent and understandable story about benefits of policies or actions that affect ES. Indicators can remain disaggregated, thus allowing individual aspects of tradeoffs that may be masked in a single money metric to remain transparent. Indicators can be useful in systems models where many important aspects of the system must be included but acceptable money measures are not readily available for all of the important benefits and costs. If evaluations include only those monetary measures that are readily available, the resulting incomplete assessment of the system can lead to poorly informed decisions. Thus, benefit indicators may allow ES benefits to be included in more decisions and can support more complete assessments of those decisions.

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