the United States. The discussion on delineation is so brief it does little more than direct readers to the 1987 manual.

In summary, the third edition of Wetlands is a large improvement over its predecessors. I believe it should be on the shelf of anyone interested in the subject. It is filled with references, has an excellent glossary, is well illustrated, and is comprehensive. Soil scientists will find it to be a valuable resource, despite its shortcomings in the areas of hydrology, discussion of the HGM classification, and wetland delineation. Readers should be able to fill any gaps in understanding by consulting the numerous references given for any subject.

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Ecological Indicators for the Nation


Indicators are designed to inform us quickly and easily about the present conditions, and over time the changes and trends, of something of interest. A large number of ecological indicators have been developed and used but often they are intended to inform decision makers about the status and trends of a few species or a particular ecosystem. These indicators typically do not provide a basis for evaluating the condition of ecosystems and how they are changing at the national scale. National-scale indicators are important because many environmental policies are formulated at the national scale. National-scale ecological indicators are difficult to develop and apply for a country as large and diverse as the USA.

This book is the report of the Committee to Evaluate Indicators for Monitoring Aquatic and Terrestrial Environments, which was established at the behest of the USEPA. The book consists of an executive summary, five chapters, a list of references, and three appendixes. The executive summary provides an effective and succinct overview of the report contents, and presents the recommended national-scale indicators and describes their selection, including discussions about scale and applicability, criteria for evaluating indicators, the conceptual models underlying each indicator, policy perspectives, timing and cost of implementation, care and handling of data, and research needed to enhance the present indicators as well as develop new indicators.

The five chapters provide further details and support of the recommended indicators. The introductory chapter discusses why ecological indicators are needed, including a brief history of using indicators and how to acquire them. The committee also discusses the design and selection of indicators and how data used to construct them are obtained. Useful data sources include data collected in the environment, both from the present and the past, and projections, and predictions from models that can be scientifically and from computer simulations. Useful pre-existing information sources include remote sensors, satellites and aircraft and ground-based measurements.

The Committee points out that indicators are most useful to policy makers if they are understandable, quantifiable, and broadly applicable.

The third chapter provides a framework for indicator selection. The criteria for evaluating indicators are genetic hazard, conceptual basis, reliability, temporal and spatial scales of applicability, statistical properties, data requirements, including skills needed to collect the data, robustness, national compatibility, costs, benefits, and cost-effectiveness.

Information handling is discussed including data collection, control, archiving, and assignment of responsibilities.

The fourth chapter provides details about the recommended indicators, including the major categories of information that each indicator addresses. The committee selected those that are judged to encompass the nation's most important ecological issues, the extent and status of ecosystems and land use types, ecological capital, and ecosystem health, and how it is changing with time for various ecosystem indicators such as soil organic matter and land degradation. Bioindicators are especially important because they are relevant to multiple ecological categories.

The final chapter discusses application of the framework used for selection of national-scale indicators to the development of local and regional-scale indicators. Although the primary charge of the Committee was to develop recommended indicators, indicators are needed that inform us about local and national status and trends at a range of spatial and temporal scales. Forests, as an example of an ecosystem type for which national indicators are needed, and species diversity, are discussed of an indicator that can be usefully applied at a range of scales, are discussed in detail.

The approximately 350 cited references appear to be relevant and of high quality and should provide readers access to much greater detail about the ecological indicators and the information used to select recommended indicators. The first two appendixes provide additional interesting discussions about some statistical and methodological aspects of indicators and the final appendix contains information about the Committee members and provides detailed biography of members.

This book should be of interest to students and researchers in fields such as ecology, ecosystem management, and public policy. Further, the book can be read online for free at the National Academy Press website (http://books.nap.edu/books/ 0309068452/html/index.html), making it easily accessible to anyone.

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