

Abstract

Keywords

1. Introduction
2. Assessing the status of ecosystem services
3. Towards a quality assessment framework using ecosystem services

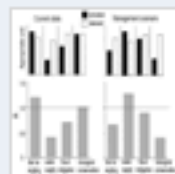


- 3.1. Context dependence and flexibility
- 3.2. Trade-offs among services
- 3.3. Sustainability of provision



- 3.4. Thresholds and naturalness

4. Challenges



5. Conclusions

Acknowledgements

References

## A framework for assessing ecological quality based on ecosystem services

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### Abstract

Existing environmental legislation and ecological quality definitions such as ecosystem integrity tend to rely on measures that, either implicitly or explicitly, utilize naturalness as a key criterion. There are marked practical difficulties with employing the concept of naturalness in human dominated landscapes, and the management of such ecosystems is inevitably going to need to take account of human needs and expectations. We propose that ecological quality could be assessed by its ecosystem service profile (ESP): the overlap between societal expectations for, and the sustainable provision of, suites of ecosystem services. The status for each individual ecosystem service is defined by the ratio of its sustained provision to the expected level of provision for the service. The ESP measure is a multi-criterion, context-specific assessment of the match between expectation for and sustainable supply of ecosystem services. It provides a flexible measure of quality which takes into account that the "ideal" ecosystem state is largely dependent on the specific management context. The implementation of ESPs challenges us to develop indicators for the sustained provision of individual ecosystem services, much better understanding of the trade-offs among services, and practical tools for gauging societal demands. All of which are challenging problems. The proposed framework can help to strategically address research needs and monitoring requirements and foster a more integrative approach to ecosystem assessment and management in the future. The need for this follows from the fact that the undisturbed reference state represents only one aspect of an ecosystem and that ecological quality in human dominated landscapes will, ultimately, be determined by the value society places on the sustainable provision of multiple ecosystem services.

### Keywords

Adaptive management; Biological integrity; Ecological status; Ecosystem health; Societal demand; Trade-offs