Benefits (and costs) of nature conservation policies in state-owned forests

Michael Getzner
TU Wien, Institute of Spatial Planning, Department of Public Finance and Infrastructure Policy
Karlsplatz 13, 1040 Vienna, Austria
michael.getzner@tuwien.ac.at

***Acknowledgements**: This extended abstract rests on a comprehensive study of M. Getzner, H. Kirchmeir, V. Berger and A. Schneider (2019). Not to be quoted without permission of the author.*

Paper submitted to the 1st Society for Benefit-Cost Analysis: European Conference 2019 November 26-27, 2019, Toulouse School of Economics, France

The full paper should be considered for the special issue of the Journal of Benefit-Cost Analysis on the occasion of the 1st European SBCA conference.

Extended abstract

1. Introduction and problem setting

The Republic of Austria's state-owned forest company (Austrian Federal Forests, ÖBf) manages about 15% of Austrian forests, which amount to about 10% of Austrian land. In total, about 844,000 hectares of state-owned land cover not only forests but also lakes, rivers, glaciers, and high-alpine meadows and landscapes. Major parts of the land are included in nature conservation areas; about 8% are strictly protected (core zones of national park, wilderness areas). In total, conservation policies are implemented on about 50% of the land.

The respective Austrian law requires that the ÖBf pursue commercial forestry and support the Central Government's budget by profits generated from forestry, hunting, and land management. However, the current management regime may be labeled 'multifunctional forestry' that aims at balancing both business and ecological objectives.

However, ongoing public debates suggest that ÖBf as the state-owned company should not only earn profits but could also do more in terms of stricter voluntary nature conservation as an ecological trendsetter.

The economic consequences of shifting the focus from a rather forestry-oriented company to stricter nature conservation policies are at the center of this paper. Over the last five years, a research team has ascertained the economic value of a wide range of ecosystem services.

This paper presents and summarizes the results of this research process with the aim to provide a comprehensive overview of the potential benefits (and, to a much smaller extent, costs) of more strict nature conservation policies in Austria's state-owned forests.

2. Methodology: environmental valuation and scenario building

As environmental valuation assesses the economic value of environmental change, the focus of this paper is on the changes of ecosystem services flows originating from different management regimes.

However, ascertaining even the value of ecosystem services in the status quo is not straightforward. Simply providing a total value of benefits of ecosystem services is not a useful approach to assess management options. Therefore, a large proportion of scientific work was placed on describing potential management scenarios. For instance, the current management regime was valued against a counterfactual scenario that assumes that commercial lumbering were to be increased to the legal maximum given by the Forestry Act. In addition, existing nature conservation areas such as national parks, Natura 2000, cannot be reduced as national and international legal frameworks restrict potential commercial uses of these areas.

The status quo is therefore compared to a counterfactual, hypothetical scenario in which lumbering is extended by about 20% while conservation is restricted to about 40% of the land (i.e., from 50% in the status quo). Another scenario models the extension of nature conservation to about 66% of the land, and the reduction of lumbering by about 30%.

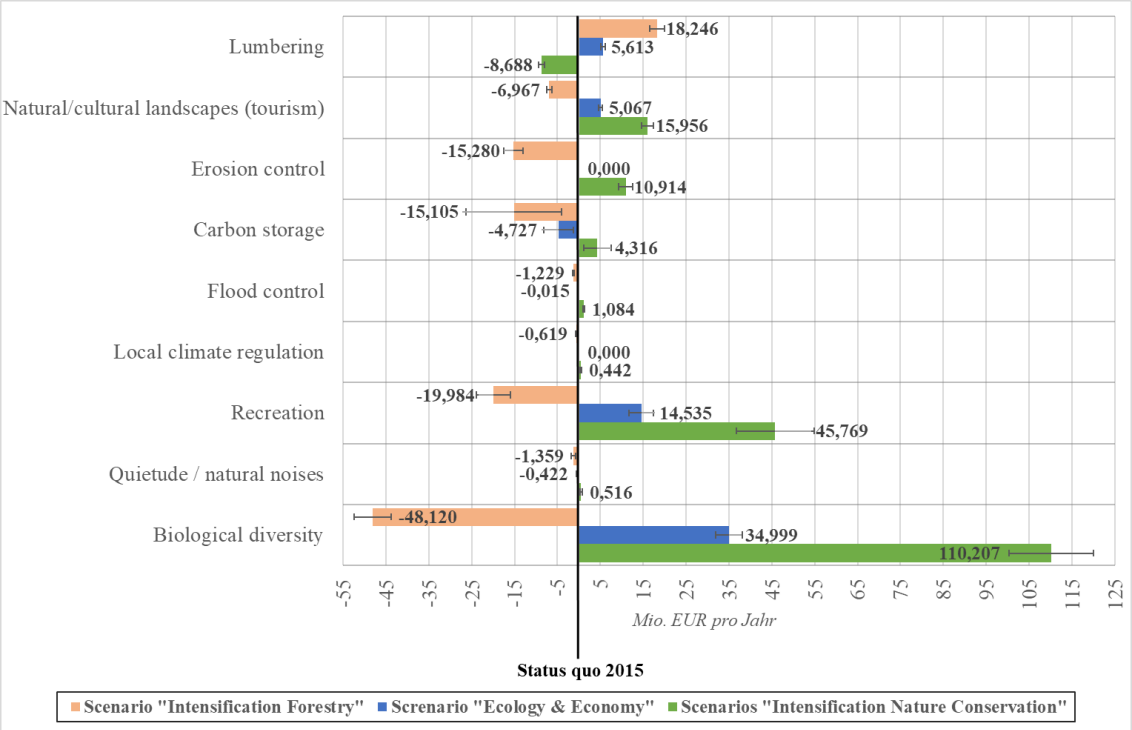
Connected with these respective scenarios are changes of ecosystem services (ES). The most substantial ecosystem services are cultural ES (such as conservation of biodiversity, recreation benefits, landscape conservation for tourism), regulating ES (such as carbon storage, erosion and flood control), and provisioning ES (such as the securing of drinking water).

3. Results

For the ecosystem services mentioned above, several valuation methods were used. While the valuation of cultural ecosystem services is based on direct valuation such as contingent valuation (both on-site surveys and representative household services conducted Austria-wide), indirect methods are used for the regulating and provisioning ES. For instance, cost-based valuation approaches were used for erosion control (e.g., technical substitute measures to protect residential areas and infrastructure), hedonic pricing was used to assess flood control benefits owing to reduced risks of flooding residential property. Market prices (operating profits minus harvesting cost) were used for valuing timber.

Figure 1 presents an overview of the benefits of the two scenarios (status quo compared to the scenario of increased lumbering; scenario of increased nature conservation efforts compared to the status quo).

Figure 1: Value of ecosystem services depending on three scenarios of forest management (EUR thsd. per year)



Source: Getzner et al., 2019.

As can be seen from Figure 1, the benefits of more strict nature conservation policies substantially outweigh potential costs of reduced lumbering. However, the different benefits cannot be summed up as, on the one hand, they originate from different valuation techniques. On the other hand, the results cannot be compared to one another, as the measurement of welfare is different: Willingness-to-pay for stricter conservation, or recreation benefits, clearly mirror economic welfare effects. The cost-based valuation of ecosystem services only values potential technical substitutes, assuming that the economic benefits are at least as large as costs. In fact, these benefits may be much larger than simply valuing cost savings.

4. Summary and conclusions

The comprehensive study provides further evidence that more nature conservation policies are strongly advised in order to increase efficiency of forest management. The benefits (improvement of ecosystem services) significantly outweigh costs (loss of lumbering).

The paper will deal with a condensed presentation of both the management scenarios, and the valuation of ecosystem services (methods and empirical results).