

Theme 1: Forests for People

149 - Synergies and Conflicts in the Provision of Ecosystem Services by Small-scale Forest Owners

KG I - 1224 (Uni Freiburg)

IUFRO17-875 **Paraguay's Atlantic Forest Cover Dynamics and Ecosystem Services Perception; a household survey case study**

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Abstract: The Upper Parana Atlantic Forest (BAPPA) Paraguay is one of the most endangered tropical forests in the world. The uninterrupted advance of large mechanized agricultural farming has left less than 10 % of its original cover intact. Despite the fact that rates of deforestation have decreased over the last years the concern still remains. In order to halt the disappearance of the forest, the Paraguayan government put in place several strategies and monitoring programs. One of the most encouraging initiatives is the "Valuation and Retribution of Ecosystem Service Law 3001/2006" (PES). While the concept of ecosystem services has been widely implemented by policy makers, it is not perceived strongly by the direct users of the forest. Therefore, this study provides a comprehensive understanding how landowners in the BAAPA perceive and use the ecosystem services derived from the forest and what is their influence on forest conservation. The results were obtained from an extensive socio-economic household survey conducted at the BAAPA region in January 2016. Landowners are classified into three groups: small-, medium- and large-scale farmers. General outcomes demonstrate that respondent's perceptions and uses of the forest appear to be related to farm size. A strong dependency on forest-related products was observed for small and medium landowners whereas large farmers considered forests main value to be recreational and cultural. Common to all is the understanding of the high ecological value of the forest and the impact of its disappearance. PES appears to be well-accepted by forest owners, however a higher promotion must be given, in particular among large-scale farmers group. Overall, interviewees supported the current environmental laws but remarked the rampant corruption among environmental authorities. Understanding the social value given to ecosystem services is a valuable contribution towards the development of measures aimed at conserving natural resources.

BAAPA, PES, perception, household-survey

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IUFRO17-1610 **What Accounting System and Accountancy Network Can Tell Us about Financial Consequences of the Provision of Ecosystem Services**

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Abstract: In Central Europe the role of forest based ecosystem services (ESS) has increased over the past decades. Step by step, it became evident that the understanding of the backwash theory - arguing that the provision of ESS is part of a "normal", timber focused forestry - is no longer applicable.

In 2003 a system of so called product ranges was introduced by the German Council of Forestry, in order to depict the proceeds and the income related to different ESS. This accounting system is introduced and discussed in terms of its accuracy and applicability for different entrepreneurial settings. The development of various proceeds and outlays in different ownership types is presented.

On first sight it seems to be evident that so far the provision of ecosystem services does not play a substantial role for most parts of the forest enterprises. The share of outlays and proceeds of product ranges like "conservation and restoration" or "education and environmental education" are comparatively low and have only developed slowly over the past decade. Based on these results it will be shown that there are two types of problems related to this system. The concept of multipurpose forestry impedes the subdivision of outlays and proceeds into different product ranges. Moreover it becomes obvious that it is frequently not the direct costs that are most relevant for the long term profitability of forest enterprises. The major role of opportunity costs related to restrictions caused by ESS is additionally introduced and compared with the present role of direct cost related to ESS.

Based on these findings initial thoughts on concepts for the integration of opportunity costs into accounting systems are introduced and discussed. A major part of this approach is a typologization of different framework-conditions and the introduction of some kind of overhead-calculation for these different types.
