AMBIO: A Journal of the Human Environment

Ecosystem Services Assessment of Two Watersheds of Lancang River in Yunnan, China with a Decision Tree Approach

Chongyun Wang, Peter van der Meer, Mingchun Peng, Wim Douven, Rudi Hessel, and Chenlin Dang

Chongyun Wang is at the Institute of Ecology and Geobotany, Yunnan University. His address: Yunnan University, Institute of Ecology and Geobotany, Cuihubailu 2, Kunming, Yunnan, 650091, China. cywang@ynu.edu.cn

Peter van der Meer is at Alterra-Wageningen UR (Wageningen University and Research Centre). His address: Alterra-Wageningen UR, Centre for Ecosystem Studies, PO Box 47, 6700 AA Wageningen, The Netherlands. peter.vandermeer@ynu.edu.cn

Mingchun Peng is at the Institute of Ecology and Geobotany, Yunnan University. His address: Yunnan University, Institute of Ecology and Geobotany, Cuihubailu 2, Kunming, Yunnan, 650091, China. mchpeng@ynu.edu.cn

Wim Douven is at UNESCO (United Nations Educational, Scientific, and Cultural Organization)-IHE Institute for Water Education. His address: UNESCO-IHE, Integrated River Basin Management Westvest 7, 2601 AX Delft, The Netherlands. w.douven@unesco-ihe.org

Rudi Hessel is at Alterra-Wageningen UR (Wageningen University and Research Centre). His address: Alterra-Wageningen UR, Soil Science Centre, Alterra, PO Box 47, 6700 AA Wageningen, The Netherlands. rudi.hessel@wur.nl

Chenlin Dang is at the Institute of Ecology and Geobotany, Yunnan University. His/her address: Yunnan University, Institute of Ecology and Geobotany, Cuihubailu 2, Kunming, Yunnan, 650091, China. chldang@ynu.edu.cn

Abstract

In the Langcang (Upper-Mekong) watershed, degraded watershed ecosystems in upland areas threaten cultivation practices, water resources, and dam development downstream. Assessment of ecosystem services and the factors that threaten them is an important first step to support watershed management. This, however, requires detailed information that is often missing in mountainous regions. To overcome this, in this paper, we adopt a
decision tree approach to assess protection, biodiversity, and production services in two mountainous watersheds (Fengqing and Xiaojie) of the Lancang River Basin. Decision tree rules were built on the basis of field surveys, available references, ecosystem maps derived from remote sensing, expert knowledge, basic topographic information, and community interviews. Decision tree results showed that forest cover and agro-forestry practices contribute greatly to improved ecosystem functioning in the Fengqing Catchment compared to the Xiaojie Catchment. The results were consistent with field observations. The decision tree method proved to be a suitable and flexible tool for the rapid assessment of watershed ecosystem services, for highlighting those areas that need more in-depth research, and for guiding watershed and ecosystem management.

Received: March 28, 2007; Accepted: April 20, 2008

References and Notes


Weyerhaeuser, H., A. Wilkes, and F. Kahrli. 2005. Local impacts and responses to regional forest conservation and rehabilitation programs


Korkalainen, T. and A. Lauren. 2006. Using phytogeomorphology, cartography and GIS to explain forest site productivity expressed as tree height in southern and central Finland. Geomorphology 74:271–284. CrossRef


**Cited by**


