On the Problem to transfer existence value benefits estimated form stated preferences of OECD citizens to valuate local biodiversity measures

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Introduction

Recent estimates of the net present value of ecosystem conservation at a per hectare basis imply that the conservation of primary ecosystems is up to 100 times as beneficial in economic terms than their conversion to agricultural or intensive silvicultural use (Balmford et al., 2002). A substantial share of these benefits stem from the monetary expression of existence values as stated by OECD citizens. These 'willingness-to-pay' (WTP) figures are then applied to conservation priority areas (mostly) in developing countries (Figure 1, Myers et al., 2000).

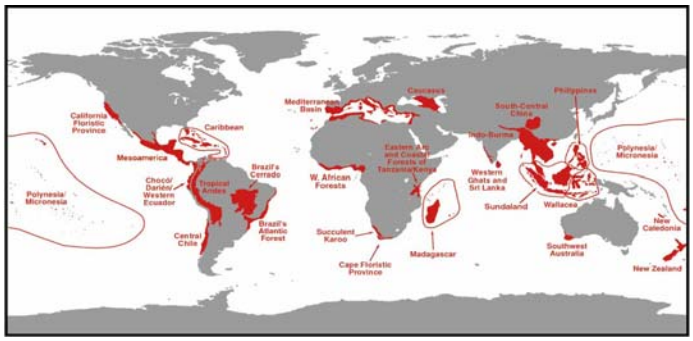

Figure 1. Global biodiversity hotspots (source: Myers et al., 2000)

Profits from land use in Ecuador

The Southern Ecuadorian Andes, for example the area of the recently established UNESCO Biosphere Reserve *Podocapus-El Condor*, have been shown to be a particularly 'hot' hotspot of biological diversity for a number of taxa. The remaining Andean forests (Figure 4) are threatened by industrial scale mining (south-eastern part of Podocarpus National Park) but also by smallholder encroachment, for example, in the northern part of the biosphere reserve. Here, forest land is converted to pasture to raise cattle (Figure 2). At a net profit of about **67 €/yr/ha** (Figure 3), cattle farming is the most profitable land use accessible to smallholders (Wunder, 2000). Less destructive land use options including selective logging (~6.5 €/yr/ha) or alder plantations (~58 €/yr/ha) are economically not attractive to local stakeholders without external financial support (Olschewski & Benitez, 2005). Can these land-use and cover-change activities be curled by using stated WTP for biodiversity conservation?

Figure 2. Cattle pasture in Imbana, Southern Ecuador (picture by Byron Maza)

Global WTP for conservation

For example, Menzel (2003) estimates an average WTP of ~110 €/yr for German citizens for avoiding the projected loss of ½ of 50.000 endangered species in developing countries in coming 10 years. Assuming that this figure actually is a proxi for the maximum WTP for additional international biodiversity conservation efforts by each of ~290 million OECD households, roughly 31.6 billon €/yr could be generated. The total area of remaining primary vegetation in the 25 global biodiversity hotspots (Figure 1) amounts to 2.123 million km² (Myers et al., 2000) resulting in a WTP for conservation activities for about **150 €/yr/ha** (Figure 3). If we had chosen a different WTP valuation study, different values would have been generated – but none of the reviewed studies provides a flexible frame to transfer benefits adequately.

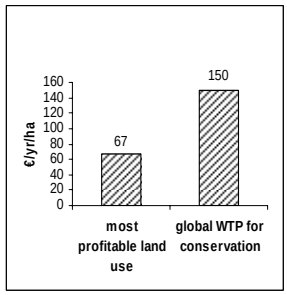

Figure 3. Profit from land use in Ecuador versus global WTP for conservation

Figure 4. Montane forest in the western part of Podocarpus National Park (picture by Boris Hillmann)

Outlook

Further research will focus on the actual WTP for the Podocarpus National Park area with multi-scaled experiment choice techniques to gather empiric data from local stakeholders associated to the park, citizens of two urban locations nearby the park, who benefit indirectly of the provided services of biodiversity, and non-users of Germany, representing representative members of the OECD-states. Data and results from this survey will lead to an understanding whether conservation policy can be conducted to provide effective biodiversity on an appropriate spatial level.

Literature

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