

A Balance Between Protected Lands and Population Growth

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G. Wittemyer *et al.* (Reports, "Accelerated human population growth at protected area edges," 4 July 2008, p. 123) provide strong evidence that human population growth on the borders of protected areas is greater (nearly double) than average rural growth in African and Latin American countries. What is inferred, but not tested, is that the gazettement of protected areas is the initial trigger for population growth and accompanying deforestation. The authors conclude that the disparity in growth rates is driven by people actively immigrating to edges of established protected areas in response to improved social and economic opportunities. This deduction is important because it suggests that the establishment of protected areas may in fact "exacerbate the same anthropogenic threats to biodiversity it aims to alleviate."

But what if protected areas themselves were preferentially established at locations already highly threatened by human population growth and deforestation? Certainly there are good reasons why this might be so. Areas of outstanding conservation importance coincide with dense human settlement and expanding populations in Africa and Latin America (1, 2). Protected areas are one of society's responses to threatening processes (3) but there are not sufficient resources to immediately protect all areas that are earmarked for conservation. A popular strategy to deal with this dilemma has been to prioritize conservation action toward areas that exhibit both high biodiversity value and high levels of threat (4).

This "minimize short term loss" strategy has been a strong feature of "save-species" campaigns at least since the 1950s (5) and has evolved into sophisticated conservation planning tools applied to global and continental assessments (6–11). This means that ideas about prioritizing protected areas based on threat have clearly been contemporary with the establishment of protected areas considered by Wittemyer *et al.* (median gazette year = 1975, n = 306).

The crucial question then is what comes first—protected areas or human population growth? To answer this we need to know what population and deforestation rates were doing before, as well as after protected areas were established. Unfortunately, Wittemyer *et al.* only considered growth rates since protected areas were established. Although the authors raise some important issues for future conservation planning, in the end we are left to wonder whether the interpretation of "cause and effect" would not be different if proper consideration was given to the chronology of events.

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