

## Our recent 'progress' an illusion

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by Cameron Smith

A tropical forest left standing is worth three and a half times more than it would be if cut for lumber or pulp.

That's an inference drawn from a survey completed last summer by thirteen scientists -- eleven American, one Brazilian, and one Dutch -- who met to estimate the value of what global ecosystems supply.

They reviewed the world's leading scientific studies -- 117 publications -- and concluded that, on average, global ecosystems provide benefits every year worth at least twice as much as the world's annual GNP. That's twice as much as the total economic activity on earth.

The ecosystem benefits averaged \$33-trillion a year compared to GNP of \$18-trillion. The annual benefits from tropical forests averaged \$2,007 a hectare, including \$315 a hectare that people earn from cutting trees.

But why bother with these figures that are so huge as to be incomprehensible? The answer, the scientists say, is that, "We have to begin to give (these ecological benefits) adequate weight in the decision-making process, otherwise human welfare may drastically suffer."

Figures in billions and trillions of dollars may be incomprehensible, but when they produce rule-of-thumb ratios such as the three-and-a-half-times comparison for tropical forests, they can offer easily understood relationships for policy makers .

To calculate the benefits of standing tropical forests, the scientists looked at what they provide and what they prevent. Most of the calculations dealt with what they prevent. The scientists called this cost avoidance. For instance, forests prevent soil erosion, so they searched out the studies showing what it costs when dams silt up and their lifespans are shortened. Or when silting in streams ruins fishing and the tourist business. Or what it means to farming when fertile soil disappears.

Forests moderate rainfall, hold water in the soil and store it themselves, protect against storm damage and flooding, remove lead and other toxins from the air, and protect against pest infestations. Studies from around the world have toted up the cost of losing these protections. One of the major functions of tropical forests is to regulate climate by taking carbon dioxide out of the air and deterring the greenhouse effect. It is a simple calculation to determine how much CO<sub>2</sub> a tree can absorb. So, if you know the rate at which forests are disappearing, it's easy to calculate the resulting increase in greenhouse CO<sub>2</sub>. And increase in greenhouse gases can be translated into future costs in shoreline damage as seas rise, agricultural damage as rainfall patterns change, hydroelectric shortfalls as river flows decrease, changed timber harvests as growing conditions change, and so on.

In the survey, tropical forests were one of only 16 ecological categories. Five were ocean categories; eleven were land based. For each category, the scientists looked at 17 benefits -- what they called ecosystem functions.

In addition to regulation of erosion, climate, and water, the benefits dealt with such things as nutrient recycling, genetic resources, production of renewable resources, and recreation.

The study found that nutrient recycling -- returning nitrogen and phosphorus, and other materials, to the soil -- was the largest single benefit performed by the ecosystem in terms of dollars, accounting for \$17-trillion of the \$33-trillion in annual benefits.

It also stressed that the value of ecosystem benefits is "almost certainly much larger" than the minimum \$33-trillion figure.

What the survey offers is a new way of looking at the idea of progress. It declares that the good times of the last 25 years have not been so good. The advances of those years not nearly so beneficial as we would like to believe.

According to Robert Costanza, an economist and professor of ecology at the Center for Environmental and Estuarine Studies at the University of Maryland, and a major figure in the survey, the decline in ecosystem benefits since 1970 has offset the tremendous growth in GNP.

The result has been a levelling of our general economic welfare-- quite a different picture from what we are used to.

As the survey found, because we have ignored the value of ecosystem functions, we have been undertaking projects whose social costs outweigh their benefits. For true progress to occur, that has to change.