

No convincing evidence for decline in tropical forests

January 7 2008

Claims that tropical forests are declining cannot be backed up by hard evidence, according to new research from the University of Leeds.

This major challenge to conventional thinking is the surprising finding of a study published today in the *Proceedings of the US National Academy of Sciences* by Dr Alan Grainger, Senior Lecturer in Geography and one of the world's leading experts on tropical deforestation.

"Every few years we get a new estimate of the annual rate of tropical deforestation," said Dr Grainger. "They always seem to show that these marvellous forests have only a short time left. Unfortunately, everybody assumes that deforestation is happening and fails to look at the bigger picture – what is happening to forest area as a whole."

In the first attempt for many years to chart the long-term trend in tropical forest area, he spent more than three years going through all available United Nations data with a fine toothcomb – and found some serious problems.

"The errors and inconsistencies I have discovered in the area data raise too many questions to provide convincing support for the accepted picture of tropical forest decline over the last 40 years," he said.

"Scientists all over the world who have used these data to make predictions of species extinctions and the role of forests in global climate change will find it helpful to revisit their findings in the light of my study."

Dr Grainger does not claim that tropical deforestation is not occurring, as there is plenty of local evidence for that. But owing to the lack of frequent scientific monitoring, something for which he has campaigned for 25 years, we cannot use available data to track the long-term global trend in tropical forest area with great accuracy.

“The picture is far more complicated than previously thought,” he said. “If there is no long-term net decline it suggests that deforestation is being accompanied by a lot of natural reforestation that we have not spotted.”

Dr Grainger first examined data published every 10 years by the United Nations Food and Agriculture Organization (FAO) since 1980. These cover all forest in the humid and dry tropics and appear to indicate decline. FAO's Global Forest Resources Assessment 2000, for example, showed that all tropical forest area fell from 1,926 million hectares to 1,799 million hectares between 1990 and 2000. Ten years earlier, however, FAO's previous report said that tropical forest area fell from 1,910 million ha to 1,756 million ha for the same 90 countries between 1980 and 1990.

“Owing to corrections to the earlier study, the 1990s trend was just like a 're-run' of that in the 1980s,” said Dr Grainger. “The errors involved in making estimates for forest area could easily be of the same order as the forest area reported cleared in the previous 10 years. Even if you take enormous care, as FAO does, I argue that large errors are inevitable if you produce global estimates by aggregating national statistics from many countries. This has important implications for the many scientists who rely on FAO data.”

Since errors in national statistics are higher for forests in the dry tropics than for forests in the humid tropics, in places near the Equator such as Amazonia, Borneo and the Congo Basin, he repeated the process just for

tropical moist forest, with a different set of data, in the hope it would give a clearer picture. This time he found no evidence for decline since the early 1970s. Indeed, while his own estimate in 1983 of tropical moist forest area in 1980 was 1,081 million hectares, the latest satellite data led to an estimate of 1,181 million hectares for the same 63 countries in 2000.

He is cautious about the apparent slight rise. “We would expect to see some increase in estimates as we use more accurate satellite sensors. This is even apparent in FAO’s data. It is sad that only in the last 10 years have we begun to make full use of the satellite technology at our disposal.”

Despite the large errors attached to present estimates, the lack of apparent decline in tropical moist forest area suggests that deforestation is being offset by natural reforestation at a higher rate than previously thought. Dr Grainger uses data from FAO’s latest report, published in 2006, to show that in a few countries, such as Gambia and Vietnam, forest area has actually expanded since 1990, as the reforestation rate has exceeded the deforestation rate. He believes that a rise in natural reforestation is a logical precursor to this switch from net deforestation to net reforestation. It has already been the subject of studies in Brazil, Ecuador and India, but available data are too poor for us to be sure of its exact scale worldwide.

To give us more reliable data Dr Grainger says we need a World Forest Observatory to monitor changes in forests in the tropics and elsewhere. “What is happening to the tropical forests is so important, both to the peoples of tropical countries and to future trends in biodiversity and global climate, that we can no longer put off investing in an independent scientific monitoring programme that can combine satellite and ground data to give a reliable picture,” he said.

“A World Forest Observatory would bring together existing research teams in Europe, the USA and elsewhere and ensure they are properly funded to continue mapping tropical forest at least every five years. It could also undertake a massive project to analyse all available satellite and other data from the past and reconstruct the trend in tropical forest area since 1970. Only then will we really know what has happened to tropical forests over the last 40 years.”

Source: University of Leeds

Citation: No convincing evidence for decline in tropical forests (2008, January 7) retrieved 19 April 2024 from

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