RESEARCH REVIEW

IMPACT OF FSC CERTIFICATION ON DEFORESTATION AND WILDFIRES

Impact of FSC Certification on Deforestation and the Incidence of Wildfires in the Maya Biosphere Reserve

Dave Hughell and Rebecca Butterfield, Rainforest Alliance, 2008

Tropical forest Tikal, Guatemala. © Stéfane Mauris / WWF-Canon

SNAPSHOT

KEY FINDINGS:

- THE AVERAGE ANNUAL RATE OF DEFORESTATION IS ALMOST 20 TIMES LOWER IN FSC-CERTIFIED CONCESSIONS THAN NON-CERTIFIED ONES
- FORESTS THAT ARE MANAGED UNDER FSC'S REQUIREMENTS RETAIN GREATER FOREST COVER THAN UNPROTECTED AREAS, WHICH DECREASES THE RISK OF DEFORESTATION AND WILDFIRES
- IN 2007, ONLY 0.1% OF FSC CERTIFIED CONCESSIONS BURNED FROM WILDFIRES, VERSUS 6.5% OF NON-CERTIFIED MULTIPLE-USE ZONES

BACKGROUND

In 1990, the government of Guatemala created the Maya Biosphere Reserve (MBR), an area spanning over two million hectares in northern Petén. The MBR was established to preserve the largest area of tropical forest remaining in Central America, which is home to a wide variety of wildlife, including jaguars, pumas and spider monkeys. The primary motive was to combine conservation and sustainable use of natural and cultural resources and, in doing so, maximize the ecological, economical and social benefits for Guatemala.

The MBR was divided into three land use zones with varying degrees of management:

- Core protected area (CPA) - designated for strict protection and composed of five national parks, four biotopes and one cultural monument
- Multiple use zone (MUZ) - designated for managed and sustainable low impact agriculture and the extraction of timber and non-timber forest products
- Buffer zone (BZ) - A 15 km wide zone at the southern limits of the MBR where agriculture and land ownership are permitted

To address environmentalist concerns surrounding extractive activities in the reserve, administrators required that forest concessions become FSC certified within three years of the initial concession grant. More than a decade after the establishment of the MBR, there is evidence that FSC certification has reduced the risk of poor forest management and increased the credibility of forest concessions[i].

THE PROBLEM

Despite the creation of the MBR reserve, widespread deforestation and wildfires continue to occur. Deforestation is usually the result of the destruction and eventual removal of forest cover for raising cattle and cultivating agricultural crops. Wildfires are often also triggered by the clearing of forests for agricultural land, but are more directly caused by neglectful use of fire for land clearing. The frequency and extent of damage is highly related to the weather, and because El Nino climactic events tend to be drier, it results in controlled burning getting out of control and doing extensive damage. These fires cause dramatic changes in the composition of the forest and increase

[i] Carrera, F., Stoian, D., Campos, J.J., Morales, J. and Pinelo, G. 2006. Forest certification in Guatemala. In B. Cashore, F. Gale, E. Meidinger and D. Newsom, eds. Confronting sustainability: forest certification in developing and transitioning countries. (Conneticut: Yale University Press, 2006) 363-406.

mortality of mature trees[ii]. Both wildfires and deforestation also reduce forest cover, which significantly reduces economic potential from the collection of non-timber forest products.

This research focused primarily on assessing how deforestation and wildfire occurrences compared between FSC-certified versus non-certified zones. The researchers measured the differences that had already occurred to date, but also what the MBR would look like in the years 2025 and 2050 if these trends continued. To collect this data, researchers used data from the Wildlife Conservation society, the *Centro de Monitoreo y Evaluacion* (CEMEC)-CONAP and from the Rainforest Alliance SmartWood database.

RESULTS

CEMEC has been processing LANDSAT satellite imagery and using GIS to assess changes in forest cover going back as far as 1986. Spatial data layers were used to calculate the average percent annual deforestation rate by dividing the loss in forest cover by the total forest cover in 1986 and by the number of years in the period studied. To assess impacts from wildfires, LANDSAT imagery was used to map the season's fire scars in 1998, 2003, 2005, and 2007. These geographic data layers were then used to calculate the areas burned for each of the land use zones within the MBR, including those that were FSC certified.

The top results from the study included the following:

Deforestation:

- From 2002 to 2007, the average annual deforestation rate for the entire MBR was 0.88 per cent; over 20 times higher than the deforestation rate for FSC-certified concessions (at 0.04 per cent)
- The average annual deforestation rate for core protected areas is almost 20 times higher than the rate for FSC concessions

Wildfires:

- FSC-certified concessions consistently have smaller incidences of wildfires than other zones
- Wildfires in FSC-certified forests plunged from 6.5 per cent of the area in 1998 to 0.1 per cent in 2007

CONCLUSION

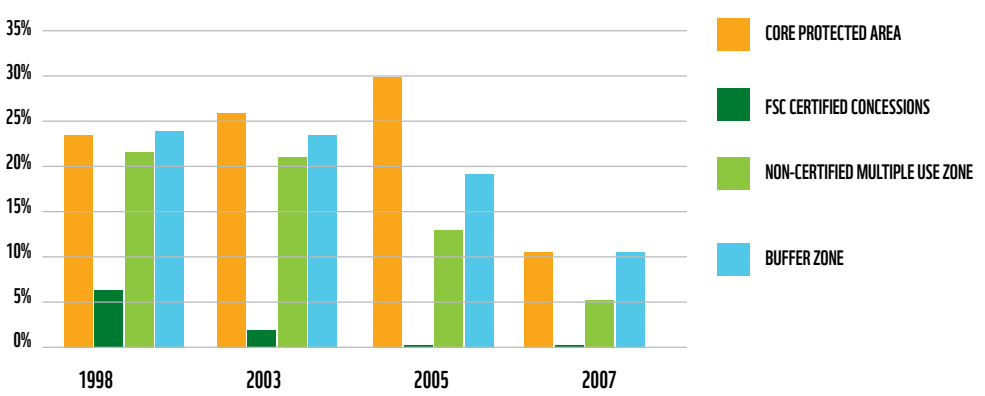
This study illustrates how forests that are properly managed in accordance with FSC requirements can reduce the occurrence of deforestation and wildfires. Certified areas not only experience 20 times less deforestation than non-certified areas, but also 65 times less occurrences of wildfires. These results are significant because it shows that certification has not only played a pivotal role in protecting Penten forests from 1986 to 2007, but also that it will be increasingly important in the future for maintaining forest cover in the MBR. This improvement of forest coverage highlights the final importance of FSC certification: it creates an environment that better ensures the survival of the rich ecology and diverse range of wildlife species native to the MBR.

Table 2. Annual deforestation rate averaged over the entire study period compared to the rate before and after 2002.

Land class	1986 to 2007	1986 to 2001	2002 to 2007
Core protected areas	0.41%	0.26%	0.79%
FSC certifed concessions in multiple use zone	**0.02%**	**0.01%**	**0.04%**
Remeinder of multiple use zone	0.47%	0.31%	0.86%
Buffer zone	1.99%	1.91%	2.20%
Entire MBR	0.62%	0.52%	0.88%

Cakchiquel women going to market Solola, Guatemala. © Stéfane Mauris / WWF-Canon

Wildfires



i Gustavo Pinelo. 2001. Efecto de un incendio forestal rastrero sobre la vegetación de un bosque natural latifoliado en San Francisco, Petén, Guatemala. Master's thesis. University of San Carlos, Guatemala. 122 pages.