



4.3 Impacts of certified logging on great apes

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How much scientific evidence do we need?

Is certification a good conservation tool in tropical forests? Are great apes better off in certified concessions than in conventionally managed concessions? Do we have sufficient information to provide a reliable answer to these questions? This article summarizes what we know about the impacts of certified logging on biodiversity, specifically on great apes. It also explores the questions of how much information we need, the reasons we need it, and how best to use it.

IUCN–The World Conservation Union lists all species of great apes as endangered or critically endangered. In the Congo Basin — habitat of chimpanzee, bonobo and gorilla — only 10 to 15% of the forests are legally protected as national parks or nature reserves. The figure for Southeast Asia, habitat of the orangutan, is about 20%.

In both regions a much higher percentage of forest is found in logging concessions. Although protected areas (PAs) play a key role in protecting great apes, the importance of logging concessions is attracting increasing attention (Tutin et al. 2005; Nelleman et al. 2007; Morgan and Sanz 2007; Meijaard and Sheil 2007). In both cases, the question of whether certification is a good conservation tool is highly relevant to great apes.



MOVING FORWARD
WITH CERTIFIED
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OVER WAITING FOR MORE SCIENTIFIC
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Effects of logging on orangutans

There has been much debate about the effects of logging on orangutans. Rijksen (1978) wrote: "The orangutan is a component of an intact ecosystem... Every form of commercial exploitation within this ecosystem is incompatible with the proposed goal of preserving the system." Later studies (Rao and van Schaik 1997; Felton et al. 2003; Morrogh-Bernard 2003) seemed to confirm this conclusion. A number of recent studies, however, conclude that orangutans do survive, sometimes in high numbers, in areas that have been selectively logged (Knop, Ward and Wich 2004). Ancrenaz et al. (2004, 2005) offered a possible explanation for these conflicting results. They found that a number of previous surveys

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had been inadequately designed. The densities of great ape populations were most often determined by counting along transects; if the transects were not representative, the results cannot be used without qualification. Errors can also arise when the results are extrapolated from a relatively small sample, which magnifies any inaccuracies in the design.

Box 1. Certified logging and FSC

The Forest Stewardship Council (FSC) is the only forest certification scheme for which scientific impact studies relevant to great apes are available. Hence, the term “certified logging” in this article implies FSC certification. FSC has ten principles, five of which are relevant to biodiversity, particularly Principle 1 and 9. Principle 1 states that forest management should comply with legislation. Great apes are legally protected throughout their range; if concessionaires succeed in halting poaching and illegal logging in their forests, that alone would be a tremendous gain. Principle 9 concerns high conservation value forests (HCVFs), areas of prime importance to great apes. Under FSC, HCVFs receive stricter protection or are entirely set aside from logging.

An extensive study carried out in eastern Kalimantan (Marshall et al. 2006) correlated the population densities of orangutans with several factors, including logging intensity, distance to villages with hunting, fig tree density and height above sea level. Only hunting was shown to have an adverse effect on orangutans.

Like Ancrenaz et al. (2004, 2005), Husson et al. (2009) took a critical look at previous studies. They concluded that earlier studies were limited to comparisons between a small number of sites, and often did not take into account variation in survey methods between the sites. Husson et al. found little difference in orangutan numbers in areas that were not logged and those that were selectively logged. In conventionally logged areas, however, fewer orangutans were found. When adverse effects of selective logging were found, these turned out to be indirect (e.g., increased hunting via logging roads). Husson et al. (2009) did show that the Borneo orangutan can better withstand the direct effects of logging than its Sumatran counterpart, probably because the Borneo orangutan is less specialized in its feeding habits.

Payne and Prudente (2008) state that orangutans can survive well in responsibly logged areas. This is evidenced by the high orangutan density in the FSC certified Dermakot (Sabah) concession (55,000 ha). They conclude that responsible logging should be undertaken in all forests on Borneo and Sumatra where orangutans are found and where they cannot be transformed to PAs.



Effects of logging on African apes

Morgan and Sanz (2007) attempted to gain insight in the effects of logging on African great apes by looking at a large number of scientific studies published in the last 20 years. They found that conventional logging often had adverse effects. The effects of selective logging are more difficult to determine. Gorillas sometimes respond negatively, but often seem to respond positively and even increase in numbers due to the extensive regeneration of herbaceous plants and other pioneer vegetation. Chimpanzees appear to be more sensitive, with some exceptions (Putz et al. 2001).

A possible explanation may be found in the difference in the species' behaviour. Groups of gorillas live in overlapping areas. If a group (temporarily) flees from loggers, it does not run into conflicts with the other groups. Chimpanzees, by contrast, do not tolerate interlopers. If a group of chimpanzees flees from loggers and ends up in another group's territory, it can lead to serious, sometimes lethal disputes. Many studies have found that the felling of major food sources (fruit trees in particular) and disruption have adverse impacts on both species. As with orangutans, the conflicting results found in different studies appear to stem partly from poor research design.

Since the Morgan and Sanz report was published in 2007, several new studies on great apes in FSC concessions have appeared. These are summarized in van Kreveld and Roerhorst (2009) and confirm that chimpanzees are more sensitive than gorillas to certified logging.

Certified logging and protected areas

Clark et al. (2009) studied logging concessions (some FSC certified, some on the way to FSC certification) and PAs with restricted hunting in the Republic of Congo (Brazzaville). Some species were encountered in greater densities in concessions that had been logged than in forests that had not been logged (forest buffalo and elephant in particular).

Furthermore, the diversity of large mammals increased with distance from roads and villages, and with time since logging had taken place. The most striking conclusion was that the total large mammal diversity is greater in concessions located closer to PAs than those farther away. Clark et al. therefore conclude that responsibly managed concessions can extend — but not replace — the conservation estate for many of central Africa's most threatened species.



Clearly, PAs need to be well managed in order to be effective. Mannan et al. (2008), in a limited survey, found that some large mammals occurred in greater numbers in

the Dermakot FSC concession (Sabah, Malaysia) than in the surrounding PAs. The FSC concession, with its guarded access roads, may have offered better protection from hunting than did the PAs.

Great apes benefit from certified logging

There is no lack of scientifically supported information about the general effects of forest certification on great apes. Logging often has negative effects on great apes, but these effects are less significant in certified forests than in conventional concessions. Certified forests are a good supplement to well-managed PAs, but are no substitute. Clark et al. (2009) implicitly state that we know more than enough about the situation by saying that in view of the rate at which logging concessions are being granted, the conservation of the rainforest may depend far more on the rapid introduction of sustainable logging than on creating new PAs.

This conclusion is in line with ecological common sense and experience and is confirmed by a growing body of scientific evidence as presented above. Further scientific studies looking at the ecological impacts of certified logging are still needed, however; additional information can help to refine best practice guidelines on logging and be incorporated in FSC's indicators. But in the short term, conservation may well benefit more from studies on how to promote forest certification.

The economics of forest certification

The rapid introduction of sustainable logging through forest certification — a voluntary process — depends on the effectiveness of the incentives. Varying results are found regarding price premiums for FSC-certified timber. Some authors found price premiums (Kollert and Lagan 2006; PricewaterhouseCoopers 2007; Hughell and Butterfield 2008; FSC 2009), whereas others did not (Ota 2007; de Lima et al. 2008).

A price premium — which is in fact another term for a higher price — may be good for timber producers, but higher prices limit the sales of certified timber. All of the above studies mention improved market access (i.e., new customers) for FSC-certified timber as a strong incentive for certification. Improved brand image is also seen as an incentive. But there are obstacles to forest certification; these include — but are not limited to — high costs and rigid technical demands. It is no surprise, therefore, that certified forest area in most tropical countries has been slow to increase. A number of scientists who have found positive ecological impacts from FSC certification urge wider support for continued and accelerated growth of the certified forest area (van Kreveld and Roerhorst 2009).

How to increase the growth of certified logging

Much is needed to increase the growth of certified logging in the tropics. Ecological studies remain valuable, but economic studies may be more urgently needed, as are insights into how to stimulate certification through regulation, tax systems or other means. These should be the main actors and their priorities:

1. Governments in importing countries — scientific studies show that FSC certified logging clearly outperforms conventional logging in conserving biodiversity. Public procurement policies should therefore distinguish between FSC certified logging and conventional logging.

2. Governments in producer countries — these could reward certified concessions in various ways, such as fewer administrative demands, lower taxes, longer concession periods, or assistance in the battle against poaching.
3. NGOs, private, and public donors — they could explore ways to work with concessionaires in important biodiversity hotspots. For a relatively low cost, a high assurance can be obtained that certain species are effectively protected from poaching and a number of other threats. NGO and donor funds could be used to pay for extra set-asides within concessions, better inventories or expansion of the economic base of a concession (through CO₂ sequestration, wildlife viewing, etc.).

To make this happen, new ideas are indispensable. More cross-sector collaboration (ecology, law, governance, tax, etc.) may be an important way to move forward. And moving forward with certified logging should take priority over waiting for more scientific evidence. As existing studies clearly show, a more rapid transformation from conventional logging to certified logging would have positive impacts on great apes and many other species.

For further information

See www.ulucus.eu.

References

- Ancrenaz, M., B. Goossens, O. Gimenez, A. Sawang and I. Lackman-Ancrenaz. 2004. "Determination of ape distribution and population size using ground and aerial surveys: a case study with orang-utans in lower Kinabatangan, Sabah, Malaysia." *Animal Conservation* 7: 375–385.
- Ancrenaz, M., O. Gimenez, L. Ambu, K. Ancrenaz, P. Andau, B. Goossens, J. Payne, A. Sawas, A. Tuuga and I. Lackman-Ancrenaz. 2005. "Aerial surveys give new estimates for orangutans in Sabah, Malaysia". *PLoS Biology* 3(1): e3 [doi: 10.1371/journal.pbio.0030003].
- Clark, C.J., J.R. Poulsen, R. Malonga and P.W. Elkan, Jr. 2009. "Logging concessions can extend the conservation estate for central African tropical forests." *Conservation Biology* 23: 1281–1293.
- de Lima, A.C.B., A.L. Novaes Keppe, M. Corrêa Alves, R.F. Maule and G. Sparovek. 2008. *Impact of FSC forest certification on agroextractive communities of the state of Acre, Brazil. Instituto de Manejo e Certificação Florestal e Agrícola (Imaflora)*.
- Felton, A.M., L. Engström, A. Felton and C. Knott. 2003. "Orangutan population density, forest structure and fruit availability in hand-logged and unlogged peat swamp forests in West Kalimantan, Indonesia." *Biological Conservation* 114: 91–101.
- FSC (Forest Stewardship Council). 2009. *FSC reflected in scientific and professional literature. Literature study on the outcomes and impacts of FSC certification*. FSC Policy Series No. 2009 - P001. Bonn: FSC International Center, 245 pp. www.fsc.org/fileadmin/web-data/public/document_center/publications/FSC_Policy_Series/Impacts_report_-_Karmann_2009.pdf.
- Hughell, D. and R. Butterfield. 2008. *Impact of FSC Certification on Deforestation and the Incidence of Wildfires in the Maya Biosphere Reserve*. www.rainforestalliance.org/forestry/documents/peten_study.pdf.
- Husson, S.J., S.A. Wich, A.J. Marshall, R.D. Dennis, M. Ancrenaz, R. Brassey, M. Gumal, A. Hearn, J. Andrew, E. Meijaard, T. Simorangkir and I. Singleton. 2009. Orangutan distribution, density, abundance and impacts of disturbance. In S.A. Wich, S. Utami, T. Mitra Setia, and C.P. van Schaik (eds.). *Orangutans: Geographic variation in behavioral ecology and conservation*. Oxford University Press, pp. 77–96.

- Knop, E., P.I. Ward and S.A. Wich. 2004. "Comparing orangutan density in a logged and unlogged forest on Sumatra." *Biological Conservation* 120: 183–188.
- Kollert, W. and P. Lagan. 2006. Do certified tropical logs fetch a market premium? A comparative price analysis from Sabah, Malaysia. School of International Tropical Forestry, University Malaysia Sabah, and Sabah Forestry Department.
- Mannan, S., K. Kitayama, Y.F. Lee, A. Chung, A. Radin and P. Lagan. 2008. "RIL for biodiversity conservation and carbon conservation: Deramakot forest shows positive conservation impacts of reduced-impact logging". *ITTO Tropical Forest Update* 18(2): 7–9.
- Marshall, A.J., L. Nardiyono, M. Engström, B. Pamungkas, J. Palapa, E. Meijaard and S.A. Stanley. 2006. "The blowgun is mightier than the chainsaw in determining population density of Bornean orangutans (*Pongo pygmaeus morio*) in the forests of East Kalimantan." *Biological Conservation* 129: 566–578.
- Meijaard, E. and D. Sheil. 2007. "A logged forest in Borneo is better than none at all." *Nature* 446: 974.
- Morgan, D. and C. Sanz. 2007. Best Practice Guidelines for Reducing the Impact of Commercial Logging on Great Apes in Western Equatorial Africa. Gland: IUCN SSC Primate Specialist Group (PSG), 32 pp.
- Morrogh-Bernard, H., S. Husson, S.E. Page and J.O. Rieley. 2003. "Population status of the Bornean Orangutan (*Pongo pygmaeus*) in the Sebangau peat swamp forest, Central Kalimantan, Indonesia." *Biological Conservation* 110: 141–152.
- Nellemann, C., L. Miles, B.P. Kaltenborn, M. Virtue and H. Ahlenius. 2007. *The last stand of the orangutan: State of emergency. Illegal logging, fire and palm oil in Indonesia's national parks*. United Nations Environment Programme.
- Ota, I. 2007. "A forest owners' cooperative in Japan: obtaining benefits of certification for small-scale forests." *Unasylva* 58 (228): 64–66.
- Payne, J. and C. Prudente. 2008. *Orang-utans: Behaviour, Ecology and Conservation*. London: New Holland Publishers.
- PricewaterhouseCoopers. 2007. Sustainable Investments for conservation: the business case for biodiversity.
- Putz, F.E., G.M. Blate, K.H. Redford, R. Fimbel and J. Robinson. 2001. "Tropical forest management and conservation of biodiversity: an overview." *Conservation Biology* 15: 7–20.
- Rao, M. and C.P. van Schaik. 1997. "The behavioral ecology of Sumatran orangutans in logged and unlogged forest." *Tropical Biodiversity* 4: 173–185.
- Rijksen, H.D. 1978. *A field study on Sumatran orangutans (Pongo pygmaeus abelii): ecology, behaviour and conservation*. Wageningen: Veenman.
- Tutin, C., et. al. 2005. *Regional Action Plan for the Conservation of Chimpanzees and Gorillas in Western Equatorial Africa*. Washington, D.C: Conservation International.
- van Kreveld, A. and I. Roerhorst. 2009. *Great apes and logging*. Zeist: WorldWide Fund for Nature. www.worldwildlife.org/what/globalmarkets/forests/WWFBinaryitem13597.pdf.