Impact of timber exploitation on western lowland gorilla populations.

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Timber exploitation is strongly involved in the economic development of countries of the Congo Basin. Nowadays, logging concessions cover around 20% of the total rainforest area and they largely overlap with the natural range of endangered mammal species such as western lowland gorilla (*Gorilla gorilla gorilla*). Timber exploitation impacts on gorilla populations both negatively and positively. On the one hand, logging changes habitat characteristics, and road construction facilitates human access to isolated forests. This phenomenon combined with increased human density associated to logging activities reinforces hunting pressure on forest mammals. On the other hand, the development of herbaceous vegetation (e.g. Marantaceae and Zingiberaceae) due to logging activities (forest canopy opening) may benefit to gorillas, because these herbs constitute important food and nest construction items. Since most of interactions between gorilla populations and timber production are unclear or poorly documented, the present study aims to provide an exhaustive literature review related to those aspects.

The role played by western lowland gorillas in the maintenance of forest structure and composition, and in forest recovery after logging could be essential. In fact, its frugivorous diet, high stomach capacity, ability to swallow large-sized seeds, long gut retention time and long daily travelled distances make this animal species a probable key disperser for numerous plant species. In addition, most ingested seeds are deposited in nest sites that are generally suitable habitats for the development of light-demanding plant species. Thus the preservation of the role of gorilla in forest dynamics could be fundamental in the context of logged forests. Therefore implementation of specific timber harvesting methods that preserve gorilla populations should become a common challenge for forest managers, for both forest maintenance and gorilla conservation.

Keywords: logging, plant-animal interactions, ecosystem dynamics