Jaguars and well-managed logging concessions can coexist, say conservationists

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A logging road in Peru. Logging activities in biodiverse forests can have a huge negative impact on wildlife, particularly large species such as big cats, but a new study proves that the Western Hemisphere's largest cat species--the jaguar (Panthera onca)--can do well in logging concessions that are properly managed, according to conservationists from the San Diego Zoo Global and the Bronx Zoo-based WCS (Wildlife Conservation Society). Credit: San Diego Zoo Global

Logging activities in biodiverse forests can have a huge negative impact on wildlife, particularly large species such as big cats, but a new study proves that the Western Hemisphere's largest cat species—the jaguar (Panthera onca)—can do well in logging concessions that are properly managed, according to conservationists from the San Diego Zoo Global and the Bronx Zoo-based WCS (Wildlife Conservation Society).

The study titled "Do responsibly managed logging concessions adequately protect jaguars and other large and medium-sized mammals? Two case studies from Guatemala and Peru" appears in the online version of the journal *Biological Conservation*. The authors are: Mathias W. Tobler and Samia E. Carrillo-Percastegui of San Diego Zoo Global; Rony Garcia Anleu, Gabriela Ponce Santizo, John Polisar, and Isaac Goldstein of WCS; and Alfonso Zuñiga Hartley of San Diego Zoo Global and Servicio Nacional Forestal y de Fauna Silvestre, Lima, Peru.

"Our findings indicate that certified logging operations can play an important role in maintaining vital habitat for jaguars and other large wildlife species," said Tobler, a scientist for San Diego Zoo Global and lead author of the study.

Much of the world's tropical forests have disappeared as a result of deforestation, particularly in biodiverse regions such as Central and South America that are home to jaguars, tapirs, peccaries, and many other charismatic species. Reduced impact logging operations, which strive to prevent uncontrolled hunting and other negative environmental impacts, provide conservationists with a sustainable alternative in multiple-use and/or buffer areas near core zones or fully protected areas.

To that end, the study research team initiated large-scale camera trap surveys to gauge the effectiveness of Forest Stewardship Council (FSC)-certified logging concessions in both Guatemala and Peru in maintaining terrestrial mammal communities, with a focus on jaguars.

The camera traps in Guatemala's Maya Biosphere Reserve captured a total of 23 individual jaguars, whereas the traps in two concessions in Peru's Madre de Dios region recorded 43 of these big cats. The appearance of the same jaguar in two or more images can be determined from spot patterns that are unique to each individual; such "recaptures" are important for accurately determining jaguar densities.

The spatial capture-recapture models used to calculate jaguar densities in both certified logging concession locations estimated that the Guatemala site contained an average of 1.5 jaguars per 100 square kilometers, whereas the Peru site contained an average of 4.5 jaguars. Further, both sites supported more than 20 large and medium mammal species (with 22 in Guatemala and 27 in Peru).

Additionally, the scientists found that strictly controlled logging roads with limited access in well-managed concessions were used by several species, including carnivores, as movement corridors, a finding contrary to the conventional thinking of the roads being negative disturbances to wildlife. Authors caution that logging roads must still be closed to the public so that traffic levels can be kept low to ensure that impacts to wildlife are minimized.

A jaguar in Guatemala's Maya Biosphere Reserve. Credit: WCS-Guatemala

"Controlling access into an area and hunting of prey are paramount considerations for the objectives of preserving biodiversity and ecological function, both of which are selling points for certified lumber products," said Dr. John Polisar, coordinator for WCS's Jaguar Program and a co-author of the study. "The presence of jaguars in a logging concession is testimony that environmental guidelines are being followed."

Polisar was the lead author in a previously published paper (in the journal Ambio) titled "Using certified timber extraction to benefit jaguar and ecosystem conservation." The study focused exclusively on jaguars (as opposed to jaguars and other large and medium sized species in the aforementioned paper) and explored the factors that contributed to the persistence of these big cats in certified forests in Bolivia, French Guiana, Nicaragua and Guatemala.

Studies assessing the environmental impacts of logging operations are crucial for saving wildlife, say study authors and other conservationists, who add that certified, low-impact timber management by community groups and industrial operators constitutes one of the most effective jaguar conservation strategies available to jaguar-range countries. Properly managed concessions help forests persist in the face of more intensive land uses, generate income for local stakeholders who become lead defenders of the forests, and maintain habitat for jaguars and their prey as they range beyond fully protected areas.

More information: Mathias W. Tobler et al, Do responsibly managed logging concessions adequately protect jaguars and other large and medium-sized mammals? Two case studies from Guatemala and Peru, *Biological Conservation* (2018). DOI: 10.1016/j.biocon.2018.02.015

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