

New simplified tropical forest assessment tool is highly effective at estimating forest condition

May 12 2021



Still from animation 'How do you estimate the condition of a forest?' Credit: University of Oxford

New collaborative research, led by the University of Oxford and published today in *Ecological Solutions and Evidence*, shows that a simple tropical forest assessment tool can robustly estimate forest condition, demonstrating high levels of agreement with detailed scientific data sets of biodiversity, forest structure and ecosystem

functioning.

The Forest Integrity Assessment Tool (FIA) is designed to enable forest managers with no prior experience in forestry or conservation to assess and monitor the condition of tropical forest conservation areas. The FIA tool requires no taxonomic knowledge, time-consuming measurements, expensive equipment or inaccessible satellite technologies, only simple yes/no questions that can be answered based on observations during a short walk along a forest trail.

It is increasingly clear that conserving tropical forests requires more than national protected area networks. More communities, companies, charities and individuals are becoming responsible for looking after natural forests. For example, the Roundtable on Sustainable Palm Oil requires oil palm companies and smallholders to set-aside and manage important forest areas but these [conservation efforts](#) are hampered by limited knowledge, experience and resources.

The FIA tool was adapted for use in SE Asian tropical forests where oil palm is the dominant land use then tested against independent scientific data sets of biodiversity, vegetation structure and ecosystem functioning.

The results of almost 1000 volunteer surveys across 16 forest sites in Sabah, Malaysian Borneo, found strong correlations with biodiversity, vegetation structure and ecosystem function metrics. This shows that this simple and easy to use method could be a vital tool in effective conservation for [tropical forests](#).

Andrew Suggitt of Northumbria University, and first author, said: "We found that the results from a rapid, one-hour survey of tropical forest match up very well with many of the detailed metrics we might choose to represent 'good' forest- be that biodiversity, aboveground carbon stocks or ecosystem function. This is great news for biodiversity

conservation, and underlines the important role that rapid, field-based surveys will play as we increasingly look to work beyond the boundaries of protected areas."

Dr. Jennifer Lucey from Oxford's Department of Zoology led the collaborative effort with the Universities of Northumbria, York, Leeds and Sheffield, along with partners, the HCVRN, SE Asia Rainforest Research Partnership and Wilmar International.

With innovation follow-on funding from UKRI, Dr. Lucey is now leading a project in collaboration with industry and NGO partners to develop the FIA tool into a smartphone application. The app will further enhance the accuracy of forest monitoring, reducing the variation in surveyor responses highlighted by the study. It will also enable forest managers to organize and analyze their data easily, as well as provide management decision support to help improve their forest condition scores, filling the critical knowledge gap between monitoring and adaptive management.

Dr. Lucey said: "We hope that the FIA smartphone app will enable [forest](#) stewards from diverse backgrounds to easily and effectively manage their conservation areas, maintaining and enhancing the biodiversity, carbon storage and other important ecosystem services that tropical rainforests provide."

More information: Andrew J. Suggitt et al. Testing the effectiveness of the forest integrity assessment: A field-based tool for estimating the condition of tropical forest, *Ecological Solutions and Evidence* (2021). [DOI: 10.1002/2688-8319.12067](https://doi.org/10.1002/2688-8319.12067)

Provided by University of Oxford

Citation: New simplified tropical forest assessment tool is highly effective at estimating forest condition (2021, May 12) retrieved 27 April 2024 from <https://phys.org/news/2021-05-tropical-forest-tool-highly-effective.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.