

► Project *brief*

Thünen Institute of Forestry

2024/26a

Substantial forest loss and degradation in Madagascar: when, where, and why?

 Andreas Kempe¹, Daniel Kübler¹, Ferdinand Peters¹, Sven Günter¹

- In Madagascar, deforestation and forest degradation have increased in recent years despite ongoing protection and reforestation measures.
- Key drivers are agricultural expansion, fire, and illegal charcoal production and timber extraction.
- Our findings enhance the understanding of forest decline dynamics, laying the groundwork for future targeted conservation strategies.

Background and aims

Madagascar's forests host numerous endemic plant and animal species. However, these ecosystems face significant threats from human activities, resulting in deforestation and forest degradation. Protecting the remaining natural forests requires targeted conservation strategies.

To address these challenges, we collaborated with the German Development Cooperation (GIZ) to carry out the AFOB project in the Malagasy regions of Boeny and DIANA. Our project focused on assessing deforestation and forest degradation, as well as their drivers, through spatial analysis using open-access remote sensing data.

Key findings

We mapped the timing and locations of deforestation and forest degradation in natural forests and analysed forest fragmentation dynamics, distinguishing between protected and non-protected areas. Our findings revealed that from 2000 to 2023, deforestation and forest degradation occurred on a significant scale, despite ongoing conservation and reforestation efforts. Notably, forest degradation was more significant than previously understood.

Key drivers include the conversion of forests into agricultural land, fire, illegal charcoal production, and extraction of valuable timber. Cropland expansion was particularly notable over the last two decades, with an accelerated increase in recent years.

Advice for policy-makers

Our findings suggest that deforestation and forest degradation are separate yet interrelated threats driven by different processes, each requiring targeted strategies and additional research.

In the buffer zones of protected areas, ongoing efforts for sustainable agricultural intensification are essential to prevent further deforestation for cropland. However, these efforts alone are not sufficient, and substantially greater efforts than previously assumed are required to protect natural forests and combat the root causes of forest decline. This includes ex-situ



Figure: Forest degradation in the Montagne d'Ambre National Park (Source: Andreas Kempe).

conservation measures for the most threatened tree species populations, which will become increasingly important given the ongoing forest degradation. We recommend promoting seed collection and establishing seed orchards and tree nurseries by local authorities. Involving the local population in these activities – such as employment in seed tree monitoring, seed harvesting, and nursery management – is crucial.

Further Information

Contact

¹ Thünen Institute of Forestry
andreas.kempe@thuenen.de
www.thuenen.de/en/wf

Duration

05.2023–07.2024

Project-ID

2604

DOI: 10.3220/PB1731914839000

Publications

Peters F, Kempe A, Kübler D, Günter S (2024) Evaluating Forest Degradation, Deforestation, and Reforestation in Boeny and DIANA: Current Efforts and Future Opportunities. Braunschweig: Johann Heinrich von Thünen-Institut, 116 p, Thünen Working Paper 248, DOI:10.3220/WP1728377983000

Funding

by the Federal Ministry for Economic Cooperation and Development (BMZ) and the European Union (EU), in partnership with the Ministry of the Environment and Sustainable Development (MEDD), through the Program on Natural Resources Management in Madagascar (PAGE II), which is implemented by GIZ.

