

Advances in Brazil's National Forest Inventory

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Abstract

Brazil's National Forest Inventory (IFN), coordinated by the Brazilian Forest Service (SFB), provides essential data on the country's forest resources. The availability of IFN data, collected over more than a decade, through the National Forest Information System (SNIF), promotes transparency and facilitates access to comprehensive information about Brazilian forests. This detailed survey covers biophysical, botanical and socio-environmental aspects, as well as interviews about the use of forest resources.

Keywords

Brazilian Forest Service, IFN, SNIF, Brazil.

Brazil's National Forest Inventory

The National Forest Inventory (IFN in *Portuguese*) of Brazil plays a crucial role in providing essential information about the country's forest resources (Brasil 2012, Kiataqui et al. 2022). The IFN Brazil is coordinated by the Brazilian Forest Service (SFB) of the Ministry of Environment and Climate Change (MMA), in partnership with universities, herbariums and research institutes. The IFN produces and provides vital information to help Brazil meet its international commitments, such as the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD) and Sustainable Development Goal (Jordace 2018, Brasil 2023).

The recent publication of the dataset collected in the field by the IFN over more than a decade in the National Forest Information System (SNIF) in open access is a significant step to promote transparency and facilitate access to valuable information about Brazilian forests (Inventário Florestal Nacional 2024). These data cover a variety of topics, from [biophysics](#) to [botanical](#) and [socio-environmental](#) aspects, allowing national-level monitoring of land use, floristic composition, carbon stocks, biological diversity and human interactions with Brazil's tropical forests.

The data collection relies on one of the most comprehensive and detailed forest surveys in the world, with over 16,000 sample units distributed every 20 km throughout the country's territory (Inventário Florestal Nacional 2024). Reaching a sampling representing 57.7% (4.89 million km² inventoried) of Brazil's territory (Inventário Florestal Nacional 2024, Fig. 1), collecting abiotic data (soil and carbon), biotic (plants) and socio-environmental information data, is a remarkable milestone for this public initiative, which is capable of providing a solid foundation for understanding the distribution and health of forests nationwide.

The measurement of more than approximately 1 million trees, palms, bamboos, shrubs, herbaceous plants and lianas, covering 8,400 plant species (Inventário Florestal Nacional 2024), representing 47% of Brazilian tree species and 20% of all documented plant species in Brazil (BFG 2021). The expansion of the known distribution of plant species and the discovery of 13 new ones are notable outcomes of the IFN for science, contributing to the knowledge and conservation of Brazilian flora (i.e. São-Mateus et al. (2019), Fortes et al. (2023)). For instance, the identification of 370 endangered species is vital for guiding conservation efforts and forest use (Inventário Florestal Nacional 2024).

One of the most important distinctions of the Brazilian IFN is its socio-environmental aspect, with over 38,000 interviews carried out to date, about forest resource uses and their contribution to household income, economic activities, land uses and conflicting factors on inhabited forests and people's perception of environmental legislation, environmental services and climate change (Inventário Florestal Nacional 2024). This integrated approach recognises the importance of local communities in forest management and conservation, enabling the identification of potential value chains for forest products, as well as the most vulnerable regions and promoting a more holistic approach to biodiversity conservation policies and the sustainable use of Brazil's forest resources.

IFN: Open data and documents

1. **National Forest Inventory** ([Inventário Florestal Nacional](#)) - The National Forest Inventory (IFN) is a project coordinated by the Brazilian Forest Service to produce information about forests throughout the Brazilian territory. It consists of collecting field data, including measuring trees, collecting botanical (Darwin Core) and soil samples and also interviewing people who use the forests in their daily lives (see IFN [methodology](#)).

2. **Datasets** ([Conjuntos de dados](#)) - Dataset presented in spreadsheets.
3. **Interactive Panels** ([Painéis Interativo](#)) - Dataset synthesised into panels for visualisation.
4. **Image bank** ([Banco de Imagens](#)) - Access the IFN image bank, with general photos and mandatory photos, by sampling unit. Mandatory photos are images obtained during the collection of biophysical data, as a stage of the inventory data collection methodology.
5. **IFN/SFB Publications** ([Publicação](#)) - Collection of data from reports and bulletins of the IFN.

Future Directions

The next advances for IFN Brazil are to complete the biomes of the Amazon, Pantanal and the remaining Cerrado and Atlantic Forest biome (Fig. 1). The greatest challenges will be the uninhabited and remote areas of the Amazon, which depend on complex logistics and high financial costs for execution. The Pantanal also presents complexity and requires methodological adaptation for execution due to the environmental aspects of the region. Finally, a new cycle of IFN Brazil should be designed for the coming years since the climate demand is urgent and updated forest data will be priorities in the next decades for conservation and environmental public policies.

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Hosting institution

Serviço Florestal Brasileiro, Ministério do Meio Ambiente e Mudança do Clima.

Conflicts of interest

The authors have declared that no competing interests exist.

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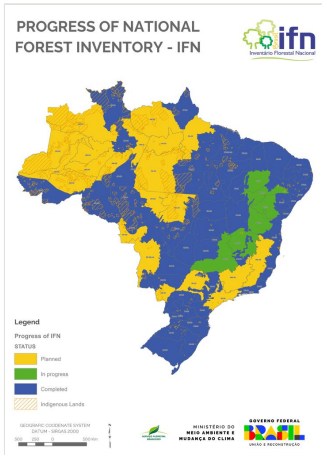


Figure 1.
Status and progress of the Brazilian Forest Inventory – IFN.