

Honduras - National Assessment of Forests and Biological Diversity 2011-2015

**National Institute for Forest Conservation, Protected Areas and Wildlife (ICF,
Instituto Nacional de Conservación Forestal, Áreas Protegidas y Vida Silvestre),
Department of Forest Management and Development, Forest Conservation
Institute**

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Identification

SURVEY ID NUMBER

HND_2011_2015_ENFB_v01_M_v01_A_ESS

TITLE

National Assessment of Forests and Biological Diversity 2011-2015

ABBREVIATION OR ACRONYM

HND ENFB 2011-2015

COUNTRY

Name	Country code
Honduras	HND

STUDY TYPE

Forest resource survey

SERIES INFORMATION

The National Assessment of Forests and Biological Diversity 2011-2015 was preceded by the National Forest Evaluation that took place during 2005-2006. Both surveys have similar sampling design and results are easily comparable.

ABSTRACT

The National Forest and Biodiversity Assessment (ENFB, Evaluación Nacional Forestal y de Biodiversidad) is the systematized process of verification of the benefits of the forest and trees. It is intended to be an instrument for evaluating the implementation and operation of current policies and laws in the Forestry Sector. It constitutes the fundamental element for the analysis of the state of the country's forests and trees outside the forest and to generate information that supports sustainable forest management.

The ENFB has a multipurpose and integrated approach aimed at evaluating:

- A. The dynamics of the agricultural frontier;
- B. The sustainable management of natural forests;
- C. Forest productivity;
- D. Forest plantation management;
- E. The integration of environmental services to forest management;
- F. The economic contribution of forests to society.

The main component of the ENFB is the gathering of field data from an inventory of forests and trees on a national scale, which was carried out between 2011 and 2015. The ENFB is based on the measurement of the identified indicators in what is known as the "Lepaterique Process of Central America on Criteria and Indicators for Sustainable Forest Management" (FAO, 1997). This process establishes Criteria and Indicators that enable countries of the region to measure their progress in sustainable forest management.

KIND OF DATA

Sample survey data [ssd]

UNIT OF ANALYSIS

Fields/plots

Scope

NOTES

The main criteria defined for the NFI drive its scope. These are:

1. Forest cover and areas outside forest
2. Productive functions of forest ecosystems
3. Health and vitality of forests and non-tree ecosystems

4. Status of forest plantations and agroforestry systems
5. Maintenance and enhancement of the multiple social, economic and cultural benefits of forest ecosystems
6. Contribution of forest ecosystems to environmental services
7. Biological diversity of forest ecosystems

For each, indicators were defined, associated with the measured variables.

TOPICS

Topic
Biomass Stock Measurement
Non-Timber Forest Products
Biodiversity

KEYWORDS

Keyword
Forest
Carbon
Tree Biomass
Tree Volume
Deadwood
Land Use
Canopy Cover
Tree Biodiversity
Forest Production
Land Cover
Forest Fire Evidence
Non-Timber Forest Products
Forest Pests

Coverage

GEOGRAPHIC COVERAGE

National coverage

UNIVERSE

Tree population throughout the country, inside and outside the forests.

Producers and sponsors

PRIMARY INVESTIGATORS

Name
National Institute for Forest Conservation, Protected Areas and Wildlife (ICF, Instituto Nacional de Conservación Forestal, Áreas Protegidas y Vida Silvestre)
Department of Forest Management and Development, Forest Conservation Institute (Departamento de Manejo y Desarrollo Forestal, Instituto de Conservación Forestal)

PRODUCERS

Name	Abbreviation	Role
European Union	EU	Contribution: Project Strengthening Local Natural Resource Management in the Pátuca, Choluteca and Negro River Basins (FORCUENCAS, Fortalecimiento de la Gestión Local de los Recursos Naturales en las Cuencas de los Ríos Pátuca, Choluteca y Negro) and Modernisation of Honduras forest sector (MOSEF, Modernización del Sector Forestal)
United States Forest Service	USFS	Contribution: International Programs and SILVACARBON

FUNDING AGENCY/SPONSOR

Name	Abbreviation
European Union	EU
National Institute for Forest Conservation, Protected Areas and Wildlife (ICF, Instituto Nacional de Conservación Forestal, Áreas Protegidas y Vida Silvestre)	ICF

Sampling

SAMPLING PROCEDURE

The ENFB involves the collection of biophysical, socioeconomic and environmental data from forests and non-forest areas. In 2005, during the National Forest Assessment (ENF) that preceded the ENFB, a systematic grid of 339 primary sampling units was traced. Grid cells had longitudinal sides of 20 and 10 arcminutes, respectively and primary sampling units were distributed in a chessboard pattern. The grid was halved in intensity to 170 PSUs because of budget constraints, and 11 PSUs were added taken from the more intense grid of 339 PSUs. In addition to the grid consisting of 181 sampling units established during the 2005 ENF, 99 sampling units were added to intensify the sampling in the forest strata.

The original design was a cluster, non-stratified (probability proportional to size) one. Each primary sampling unit (cluster) was composed of four secondary sampling units (plots), following FAO's NFMA plot design system (see attached document "Resultados de la Evaluación Forestal Nacional de Honduras"). In the original 339 sampling units plots were rectangular, 20 x 250 m in shape (0.5 ha), the other 99 were 20 x 130 m (0.26 ha). In each sampling unit the four plots were distributed along the sides of a 500 x 500 m square. The first plot was located in the southwest corner with a northwards direction. The second in the northwest corner with an eastward direction. The two remaining plots were in the northeast and southeast corner following southward and westward directions, respectively.

Each plot had a nested structure with three types of subplots and three measuring points systematically distributed, where each subplot size configuration depended on the resource to measure. In the whole plot, all trees greater than or equal to 20 cm diameter at breast height (DBH) or those greater than or equal to 10 cm DBH were measured whether they were in forest or in non-forest, respectively. The first nested subplots (10 x 20 m: 200 m²) were used to measure, only if the land use was forest, trees with DBH greater than or equal to 10 cm and lower than 20 cm. The second level subplots were circular (radius= 3.99 m: 50 m²) and measured trees, only in forest, with DBH lower than 10 cm and total height greater than or equal to 1.3 m. Finally there were soil and litter measuring locations, both in forest and non-forest in 0.5 x 0.5 m squares. There were also 20 m line intercept transects in all Secondary Sampling Unit (SSU) for dead wood greater than or equal to 10 cm in diameter and 10m line intercept transects for deadwoods lower than 10 cm in diameter.

DEVIATIONS FROM THE SAMPLE DESIGN

Missing data resulted primarily from elevated costs and access constraints.

RESPONSE RATE

Originally a systematic square grid with 339 PSUs had been envisioned for the 2005 ENF. However because of budget constraints, the grid was halved in intensity to 170 PSUs. Two PSUs in the Río Plátano area that belonged to the 170 PSU grid were substituted for another two from the more intense, grid of 339 PSUs located immediately to the west. In addition, another 11 PSUs belonging to the intense grid of 339 were added, located mostly in the dense forest areas within Atlántida and Olancho. As a result, a total of 181 PSUs were ultimately measured during the 2005 ENF. The 2011-2015 ENFB was designed to measure these 181 PSUs (2 ha each), and to include an additional 105 PSUs redesigned to be slightly smaller (1.04 ha each) and placed in areas inside the forest strata (according to the 2008 Land Use/Land Cover Map of Honduras). Of the total 286 PSUs intended to be measured, 263 were completed (158 of the 2 ha plot design and 105 of the 1.04 hectare plot design). Due to inconsistencies between the original 339 PSUs and reduced 170 PSUs sampling designs, defining a

robust and consistent response rate is challenging.

WEIGHTING

Sample weights were determined according to area expansion factors (2 ha total area per PSU or 1.04 ha total area per PSU). Each PSU consists of four Secondary Sampling Units (SSUs). The resulting weights are as follows:

Weight of whole plot land use and measured trees and stumps in forest with DBH greater than or equal to 20 cm or trees and stumps with DBH greater than or equal to 10 cm in areas outside the forest:

- $2 \text{ ha} / (0.5 \text{ ha} \times 4 \text{ SSU/PSU}) = 1$
- $1.04 \text{ ha} / (0.26 \text{ ha} \times 4 \text{ SSU/PSU}) = 1$

Weight of trees in forest with DBH between 10 and 20 cm:

- $2 \text{ ha} / (0.02 \text{ ha} \times 12 \text{ subplots/PSU}) = 8.33$
- $1.04 \text{ ha} / (0.02 \text{ ha} \times 8 \text{ subplots/PSU}) = 6.5$

Weight of regeneration, trees with DBH <10 cm and height greater than 1.3 meters:

- $2 \text{ ha} / (0.005 \text{ ha} \times 12 \text{ subplots/PSU}) = 33.33$
- $1.04 \text{ ha} / (0.005 \text{ ha} \times 12 \text{ subplots/PSU}) = 26$

Weight of litter in PSU:

- $2 \text{ ha} / (0.000025 \text{ ha} \times 12 \text{ subplots/PSU}) = 6666.67$
- $1.04 \text{ ha} / (0.000025 \text{ ha} \times 8 \text{ subplots/PSU}) = 5200$

Weight of downed dead wood greater than or equal to 10 cm in diameter:

- Estimated using the line-intersect sampling method, with 12 transects of 20 m per PSU
- Estimated using the line-intersect sampling method, with 8 transects of 20 m per PSU

Weight of downed dead wood lower than 10 cm in diameter:

- Estimated using the line-intersect sampling method, with 12 transects of 20 m per PSU
- Estimated using the line-intersect sampling method, with 8 transects of 20 m per PSU

Data collection

DATES OF DATA COLLECTION

Start	End
2011-01	2016-09

DATA COLLECTION MODE

Field measurement

Data Processing

DATA EDITING

For the review and approval of the field information received at the central headquarters, the following quality control mechanisms were used:

1. Preparation of a control sheet to record the entry of the information received.
2. Once the information had been registered and considered received, a UTENF technician was responsible for verifying that the data were consistent across the report, the field forms, and the database. Once the information was reviewed, the field forms were scanned in order to have a backup copy in case of loss, since the originals were sent back to the consultants to make the requested corrections.
3. Initially, if the information received presented inconsistencies, the documentation was returned to the consultant for

correction, for the first or second time. As this practice became common, it was decided that, once most of a consultant's MUs had been completed, the consultants would travel to the UTENF headquarters in Tegucigalpa. There, together with the supervisors, they would review and enter all the information into the database to ensure it was fully verified and reliable. After this the information was accepted and filled.

4. Finally, each sampling unit was digitized and geo-referenced, in order to perform geographic analysis.

Further information can be found in the attached field manual in the Downloads section.

Data Appraisal

ESTIMATES OF SAMPLING ERROR

All the estimates included the estimation error, which is the limit of the estimator with a confidence level of 95 percent ($\alpha/2$) expressed as a percentage of the mean.

Data are provided here without responsibility whatsoever on the error estimation procedures developed by the user.

Results considered sampling error at a 95 percent confidence level.

Access policy

CONTACTS

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CONFIDENTIALITY

Due to Honduras' Transparency and Access to Public Information Act (Article 3 #7) and for security reasons and property disputes prominent in the country, all personal and contact information regarding ownership of the land where the survey plots are located is completely anonymized. The users shall not take any action with the purpose of identifying any individual entity (i.e. person, household, enterprise, etc.) in the micro dataset(s). If such a disclosure is made inadvertently, no use will be made of the information, and it will be reported immediately to FAO.

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- Any results derived from the micro dataset will be used solely for reporting aggregated information, and not for any specific individual entities or data subjects;
- The users shall not take any action with the purpose of identifying any individual entity (i.e. person, household, enterprise, etc.) in the micro dataset(s). If such a disclosure is made inadvertently, no use will be made of the information, and it will be reported immediately to FAO;
- The micro dataset cannot be re-disseminated by users or shared with anyone other than the individuals that are granted access to the micro dataset by FAO.

CITATION REQUIREMENTS

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Metadata production

DDI DOCUMENT ID

DDI_HND_2011_2015_ENFB_v01_M_v01_A_ESS_FAO

PRODUCERS

Name	Abbreviation	Affiliation	Role
Statistics Division	ESS	Food and Agriculture Organization of the United Nations	Metadata producer

Data Dictionary

Data file	Cases	Variables
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