

Release Notes: National Ecological Footprint and Biocapacity Accounts, 2021 Edition

The 2021 Edition of the National Ecological Footprint and Biocapacity Accounts details Ecological Footprint and Biocapacity, by total and by component, at a national level and on a world-total basis, from 1961 to 2017.

Versions and updates

- Version 1.0. Public Release. November 18, 2020.

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Credits:

At York University, this edition was produced by Eric Miller, Elizabeth Holloway, Mark Milnes, Sophie Angoh, Anuja Kapoor, Chaya Kapoor, with contributions from Maria-Louise McMaster, Mary Thornbush, and Jason Robinson. At the Global Footprint Network, production of the accounts was directed and reviewed by David Lin, with contributions from Laurel Hanscom and Mathis Wackernagel and Robert Williams. Production of this edition benefited from an accumulation of prior-year research and work from other staff at the Global Footprint Network.

The accounts integrate data from global statistics that detail consumption, production, population, and economic parameters by year, and by country or the world. Key sources include the International Energy Agency (IEA), the Food and Agriculture Organization (FAO) of the United Nations and its ProdStat, TradeStat, ResourceStat, and FishStat databases, UN COMTRADE, CORINE Land Cover, Global Agro-Ecological Zones (GAEZ), Global Land Cover (GLC), Global Carbon Budget, World Bank, International Monetary Fund, and Penn World Tables. The accounts also use parameters from peer-reviewed science journals and thematic collections.

Definitions and concepts

Ecological Footprint is measured in global hectares as the sum of the following components: cropland, grazing land, built-up land, fishing grounds, forest products, and carbon (sequestered by forested lands). Biocapacity is also measured in global hectares as the sum of the following components: cropland, grazing land, built-up land, fishing grounds and forest biocapacity

(which provides the capacity to supply forest products and to absorb the carbon emitted by burning fossil fuels).

A global hectare is a hectare of land that provides a world-average amount of biological regeneration each year. Global hectares are derived from hectares by applying several conversion factors, including: a yield factor that relates national yield of a specific land type relative to world-average yield, an equivalence factor that relates components to one another based upon their level of biological productivity, and an intertemporal yield factor that relates changes in biological productivity over time. Expressing Ecological Footprint and Biocapacity in standardized units of global hectares allows for comparisons across the world and over time.

Further details about the concepts and calculations are provided in:

Lin, D., Hanscom, L., Murthy, A., Galli, A., Evans, M., Neill, E., Mancini, M.S., Martindill, J., Medouar, F.Z., Huang, S. and Wackernagel, M., 2018. Ecological footprint accounting for countries: updates and results of the national footprint accounts, 2012–2018. *Resources*, 7(3), p.58. doi:10.3390/resources7030058

Borucke, M., Moore, D., Cranston, G., Gracey, K., Iha, K., Larson, J., Lazarus, E., Morales, J.C., Wackernagel, M. and Galli, A., 2013. Accounting for demand and supply of the biosphere's regenerative capacity: The National Footprint Accounts' underlying methodology and framework. *Ecological indicators*, 24, pp.518-533. doi:10.1016/j.ecolind.2012.08.005

How this edition compares to the prior 2019 edition:

This 2021 edition adds the year 2017 to the timeline of Ecological Footprint and Biocapacity and re-calculates the entire timeline prior to 2017 from data that was newly downloaded in 2020.

Related to the fishing grounds component of footprint and biocapacity, this 2021 edition reflects an updated list of species and commodities tracked by FAO FishStat. Compared to the prior edition, 12 commodities and 3 captured species were removed while an additional 44 commodities and 70 captured species were added. Data for the new commodities were recorded in the period of 1976 to 2017 while data for most of the additional captured species were recorded in the recent period of 2017-2018.

The 2021 edition incorporates updates to Canada's land area that was disseminated in the FAO ResourceStat database during the most recent data collection cycle. Using more accurate boundary data, Statistics Canada provided FAOStat with an up-to-date value for Canada's "land area". This updated data is integrated into the 2021 Edition of the National Ecological Footprint and Biocapacity accounts and applies to all years from 1961.

Several countries in the 2021 edition have different data-quality scores than the prior edition, which affects the amount of national data published on the open-data platform. Jamaica, Mongolia, South Africa and Turkmenistan now have an improved data-quality score of 3A such that all footprint and biocapacity components for these countries are published for all years.

Montserrat, British Virgin Islands, and the State of Palestine now have an improved data-quality score of 2A such that the totals of footprint and biocapacity are published for all years, although their components are not. Totals are not provided for Uruguay and South Sudan in this edition whereas they were in a prior edition. Only totals are published for Guadeloupe whereas previously the components of footprint and biocapacity were included.

This 2021 edition updates the official name of Macedonia to the Republic of North Macedonia.

Data availability:

National and global measures of Ecological Footprint and Biocapacity, and their components, are available through an open-access data platform at <https://data.footprintnetwork.org/>

Data for all countries are categorized with a “data quality score” that informs whether all or some or none of the data from a particular nation is included in the open data platform.

Advanced data users can download the data from <https://data.world/footprint/>

A public data package may be requested as an MS Excel Workbook containing national and global statistics. Other information may be requested including an MS Excel Workbook of all datapoints that were used to generate the accounts for one nation in one year.

Questions and comments:

Please direct questions or comments to data@fodafo.org or by mail to:

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York University’s Ecological Footprint Initiative has the website: <https://footprint.info.yorku.ca>

The Global Footprint Network has the website: <https://www.footprintnetwork.org>