

Forests are strategic assets for sustainable development and for climate change mitigation. Besides being essential for biodiversity and the environment, they fulfil other functions for society, providing employment opportunities as well as recreational value. A significant fraction of the land of OECD countries is covered by forests. There are however large differences across and within countries. Among the countries with the largest interregional variation, the United States, Canada, Chile, Mexico and Norway in the OECD – and Brazil and the Russian Federation among emerging economies – display regions with more than 80% of the land covered by forests (Figure 28.1). At the same time, in all these countries with the exception of Norway, more than one region has less than 10% of forested land. Given these large regional differences, it is very important to put in place co-ordinated policies for forest conservation at the national, regional and local level.

Significant changes in the extent of forest and natural vegetation have occurred in several OECD countries (Figure 28.2). Some countries have registered relatively larger gains than losses in land covered by vegetation, partly as a result of agricultural abandonment. This is the case in Hungary, Ireland and the Netherlands. Relative large losses in natural vegetation are observed in Portugal and Spain, as well as in Japan (for which the change is measured from 1997 to 2006). In most countries, these changes have been concentrated in space. In fact, the regions with the largest changes in natural vegetation within countries have registered either losses (e.g. Oost-Vlandereen in Belgium, Lausitz-Spreewald in Germany, Baixo Alentejo in Portugal) or gains (e.g. Szabolcs-Szatmár-Bereg in Hungary, Sydjylland in Denmark, Drenthe in the Netherlands) several folds higher than the national average (Figure 28.2). Countries tend to differ significantly in the destination use of the land taken away from forests and natural vegetation. If in some countries urbanisation was the main pressure behind natural vegetation losses (Austria and Norway), in other countries (Spain, Finland, Portugal and Turkey) a great fraction of the lost vegetation transited to agricultural use (Figure 28.3).

Converting natural landscapes to developed areas has relevant implications for the carbon footprints of regions and countries, since plants absorb carbon dioxide (CO₂) in the process of photosynthesis. Through the modelling of remote-sensing data, it is possible to quantify how photosynthetic production, (measured by net primary productivity [NPP]), contributes in terms of reductions of carbon in the atmosphere. Regions in Portugal, India and New Zealand have on average very large values per square metre of NPP, meaning that they contribute significantly to absorbing the carbon generated by human activity (Figure 28.4). Differences in the regional distribution of vegetation types, sunlight, water and temperature translate into very large dif-

ferences in the contribution of places to carbon absorption (Figures 28.5-28.9). Targeted allocation of resources to protect these local reserves thus makes sense, not only for landscape preservation, but for the global objective of climate change mitigation.

Definition

The percentage of regional land covered by forests is computed as the land classified in the categories 1 to 5 in the International Geosphere Biosphere Programme (IGBP) over total regional land.

Gains and losses of forest and natural vegetation are respectively the hectares transiting to and from forest and natural vegetation classes, over total forest and natural vegetation hectares in the starting year.

NPP measures the amount of carbon stored by the landscape through the production of biomass, excluding the one used for plant respiration, expressed in grams of carbon/m²/year.

Source

MODIS MCD12Q1 for % of forest cover in 2008.

Corine Land Cover 2000-06 (Europe); National Land Cover Dataset (NLCD) United States; Japan NLSI data for natural vegetation changes.

Average 2000 to 2006 yearly NPP from Improved MOD17 by Zhao and Running (2010).

See Annex B for references, details on, and differences across, the datasets.

Reference years and territorial level

2008; TL2 for % of forest cover.

Average 2000-06; TL2 for NPP.

2000 to 2006; TL3 for changes in Europe and the United States. In Japan the changes are calculated for the period between 1997 and 2006.

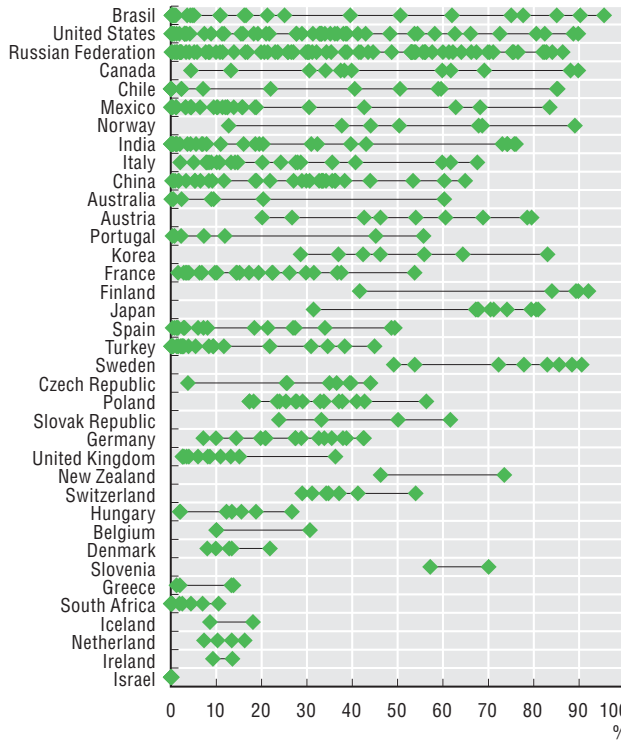
Figure notes

28.1-28.6: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West.

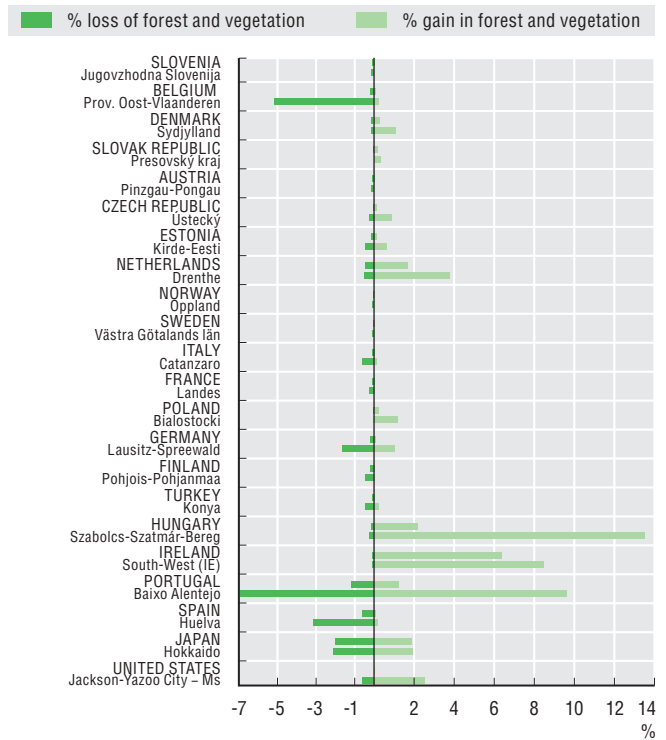
Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

28. FORESTS, NATURAL VEGETATION AND THE CARBON FOOTPRINT OF REGIONS

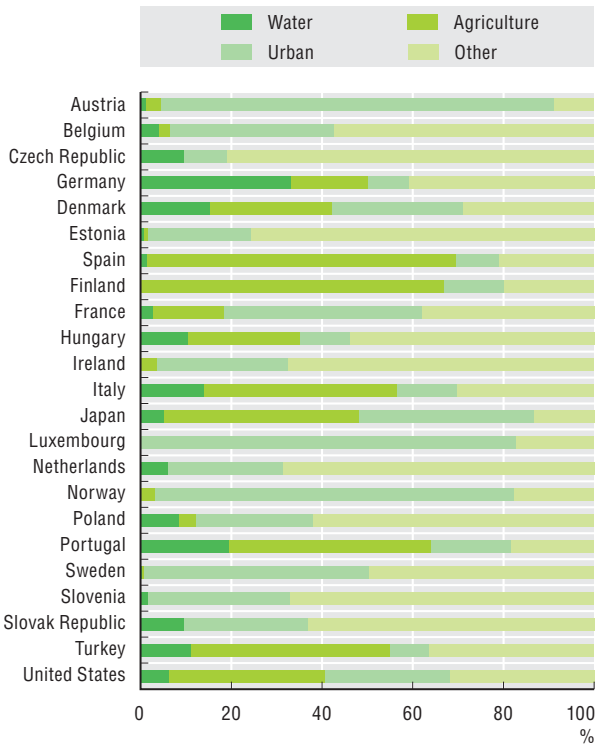
28.1. Percentage of TL2 regional land covered by forests, 2008



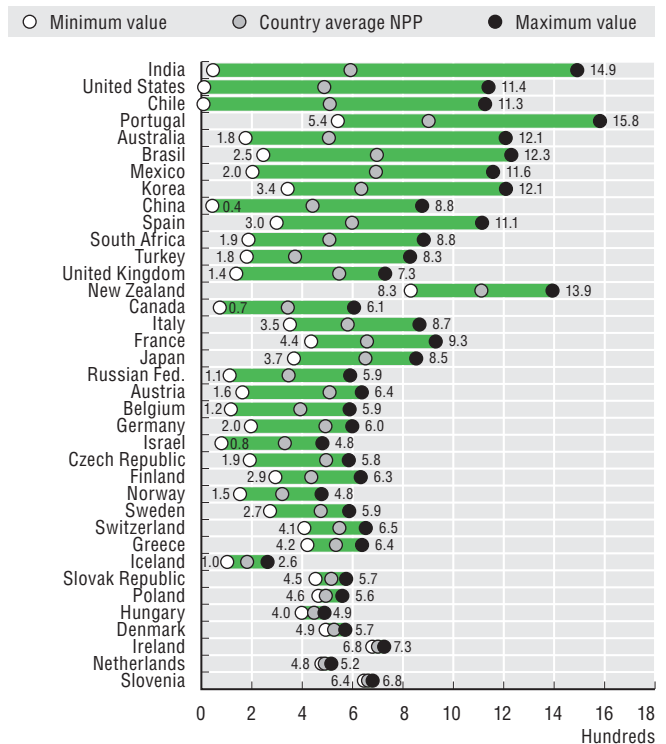
28.2. Gains and losses of forests and natural vegetation, by country and TL3 region with the largest transition, as a % of total change, 2000-06



28.3. Destination use of land originally covered by forest and natural vegetation, 2000-06



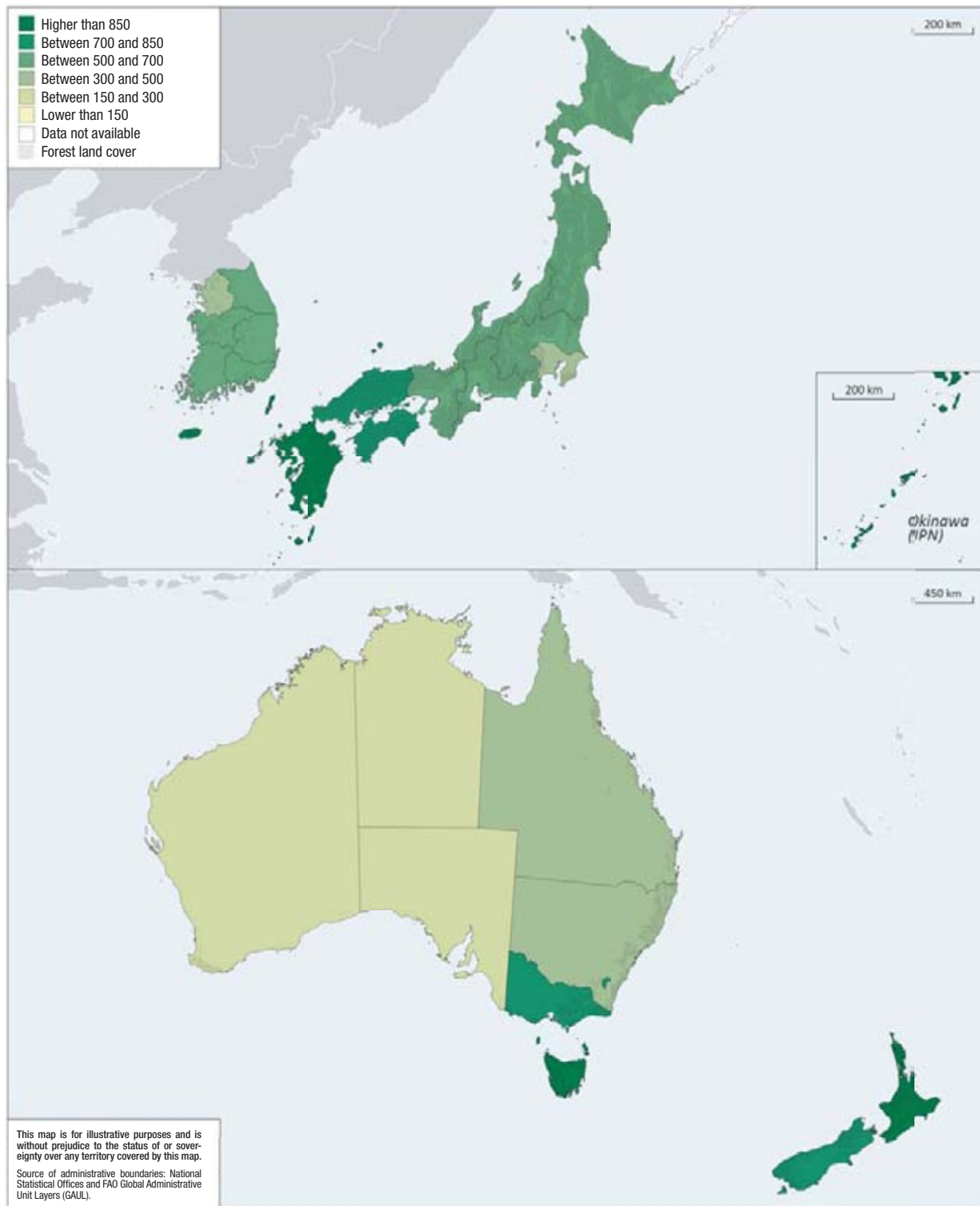
28.4. TL2 regional range in carbon absorption through biomass production (NPP as grams of carbon per square metre), average 2000-06




28. FORESTS, NATURAL VEGETATION AND THE CARBON FOOTPRINT OF REGIONS

28.5. Regional range in carbon absorption through biomass production (NPP measured as grams of carbon per square metre): Asia and Oceania, 2000-06

TL2 regions, average 2000-06

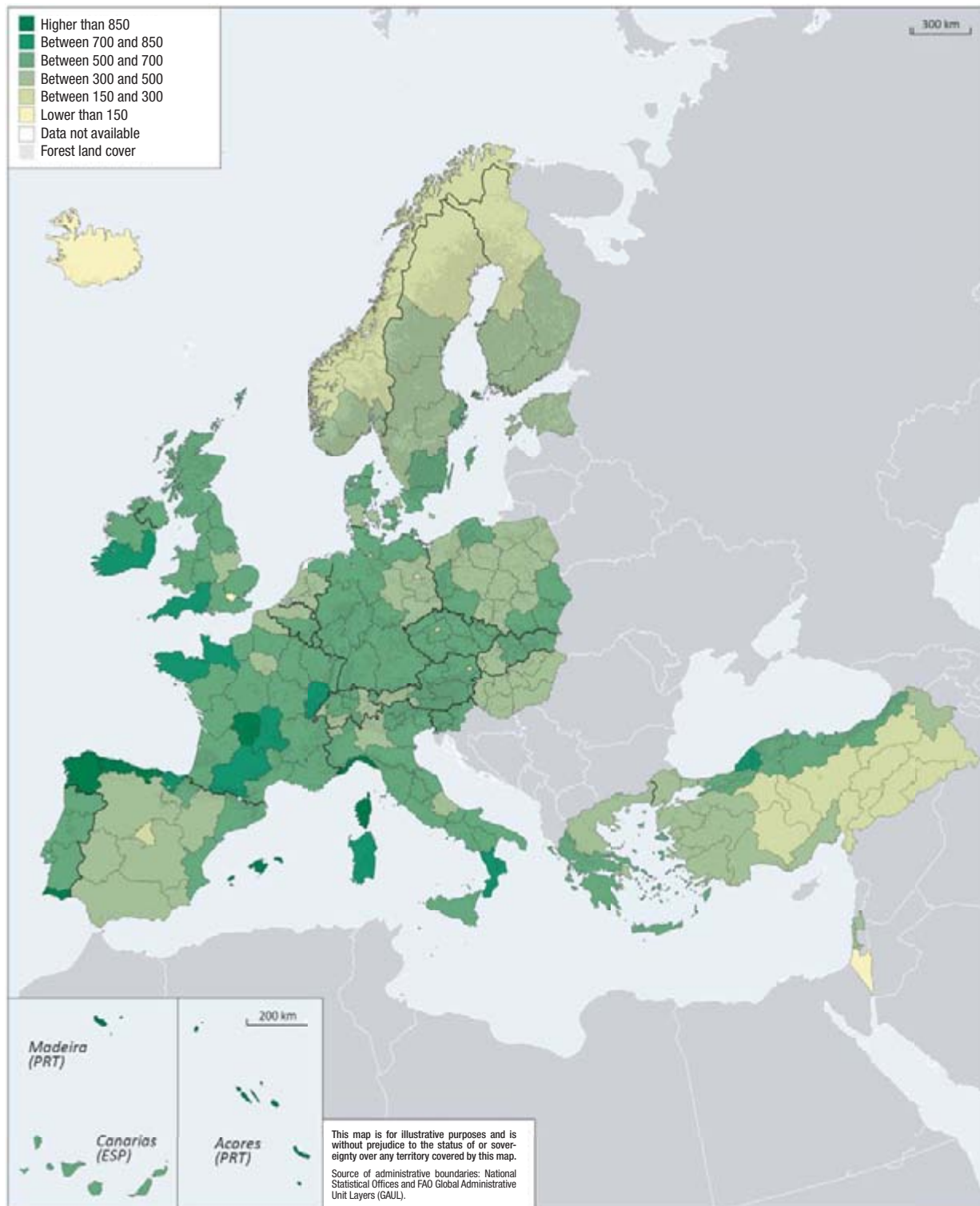



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28. FORESTS, NATURAL VEGETATION AND THE CARBON FOOTPRINT OF REGIONS

28.6. Regional range in carbon absorption through biomass production (NPP measured as grams of carbon per square metre): Europe, 2000-06

TL2 regions, average 2000-2006

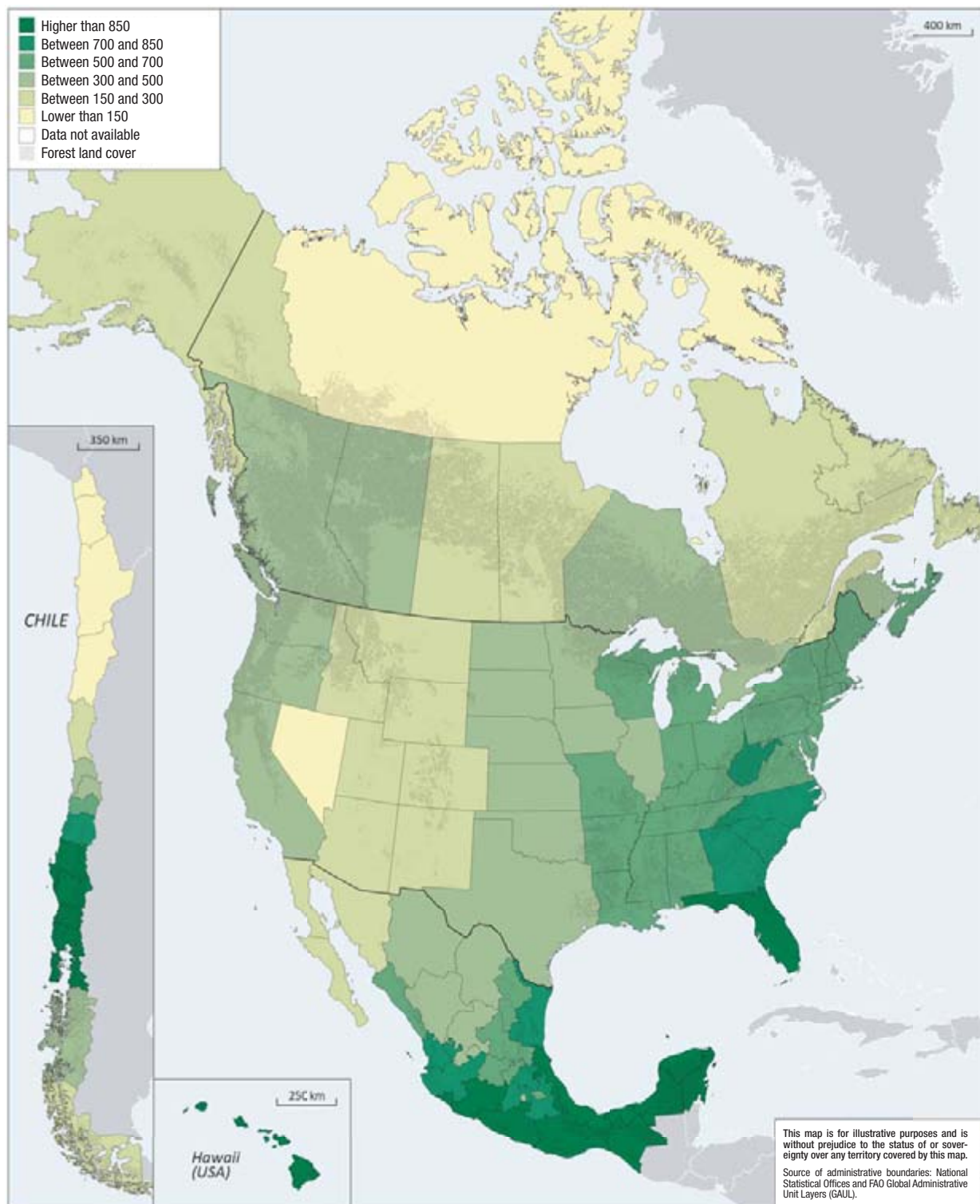



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28. FORESTS, NATURAL VEGETATION AND THE CARBON FOOTPRINT OF REGIONS

28.7. Regional range in carbon absorption through biomass production (NPP measured as grams of carbon per square metre): Americas, 2000-06

TL2 regions, average 2000-2006

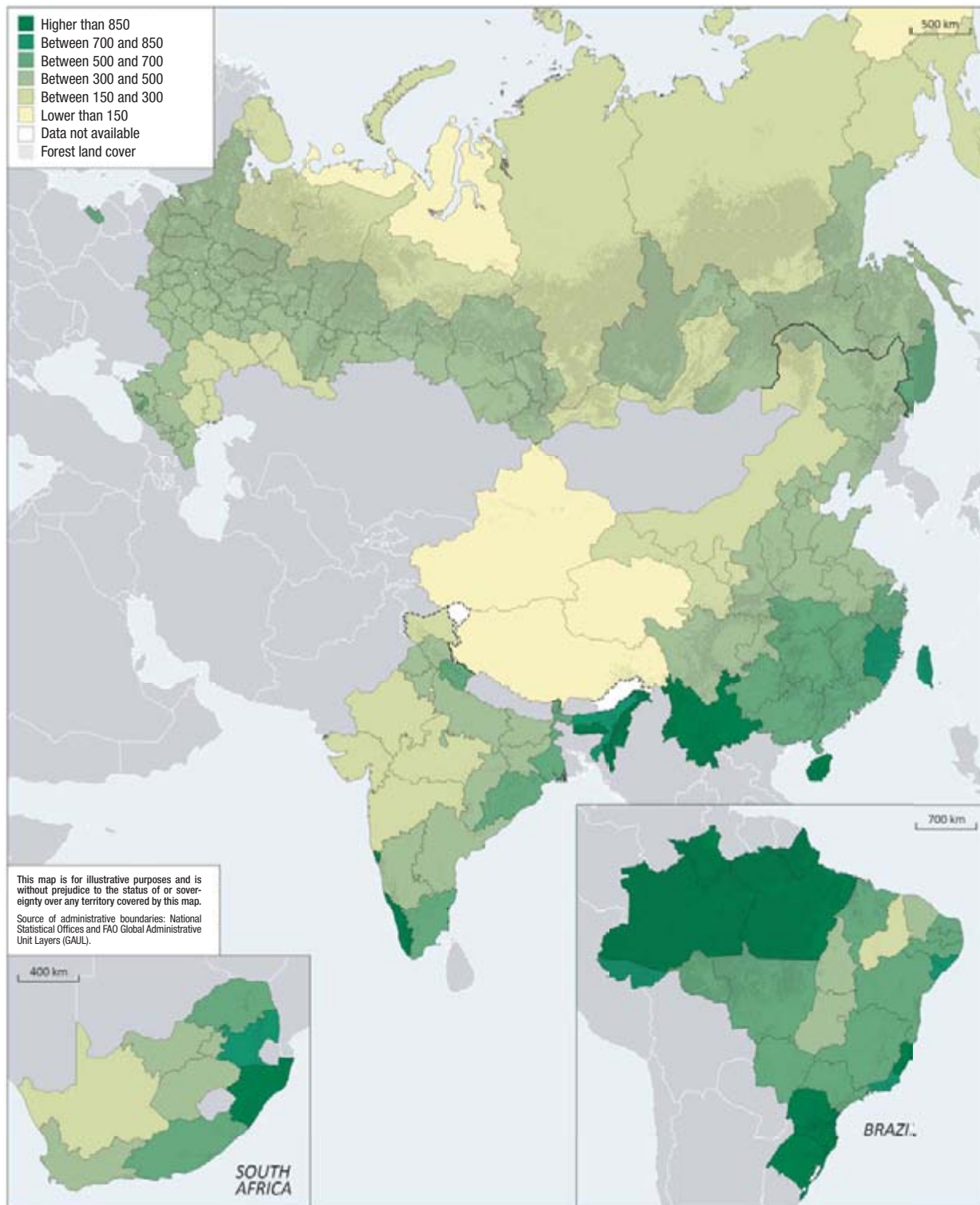



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28. FORESTS, NATURAL VEGETATION AND THE CARBON FOOTPRINT OF REGIONS

28.8. Regional range in carbon absorption through biomass production (NPP measured as grams of carbon per square metre): Emerging economies, 2000-06

TL2 regions, average 2000-06



StatLink  <http://dx.doi.org/10.1787/888932440261>



From:
OECD Regions at a Glance 2011

Access the complete publication at:
https://doi.org/10.1787/reg_glance-2011-en

Please cite this chapter as:

OECD (2011), "Forests, natural vegetation and the carbon footprint of regions", in *OECD Regions at a Glance 2011*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/reg_glance-2011-33-en

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