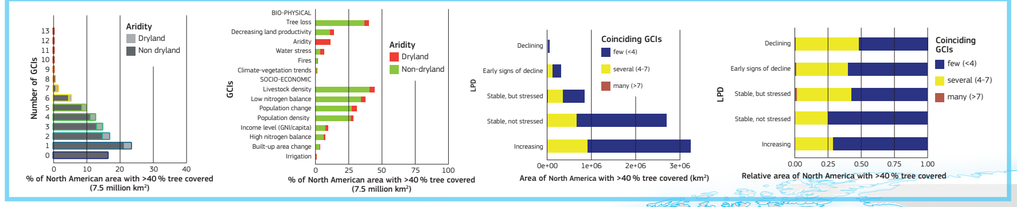
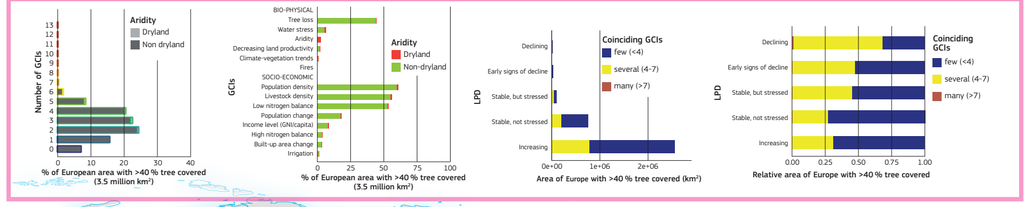
Convergence of Evidence: Forests

Forests are areas where more than 40 % of each grid cell (1 km²) is covered with trees

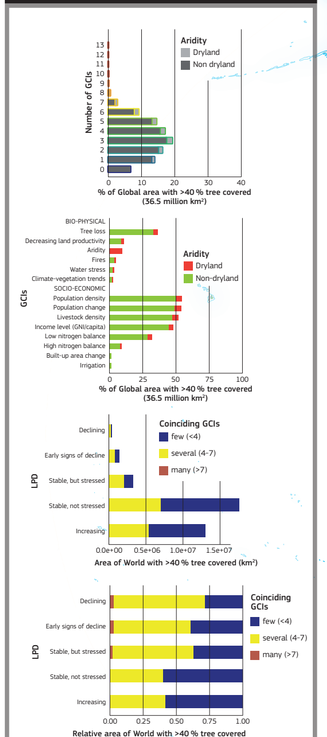
Distributions of predominant issues in NORTH AMERICA

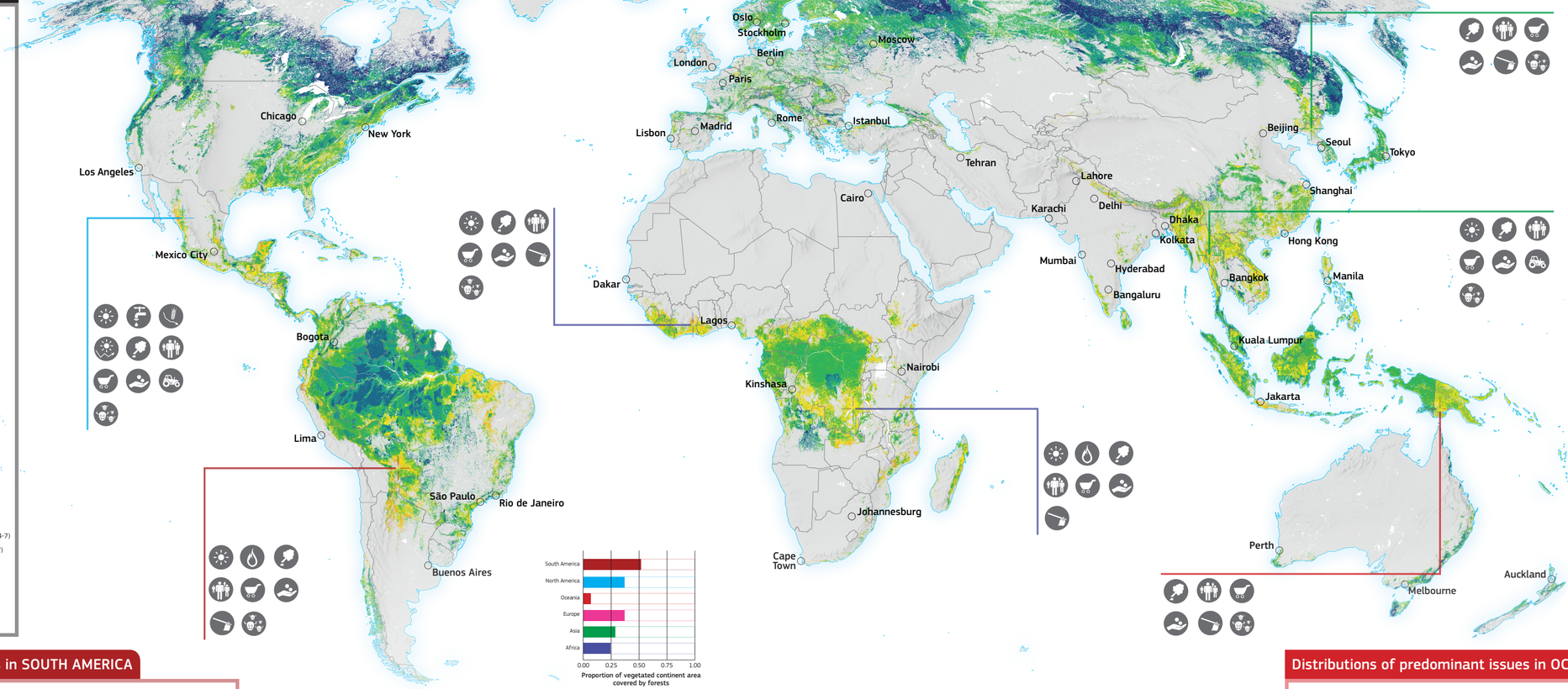


Distributions of predominant issues in EUROPE

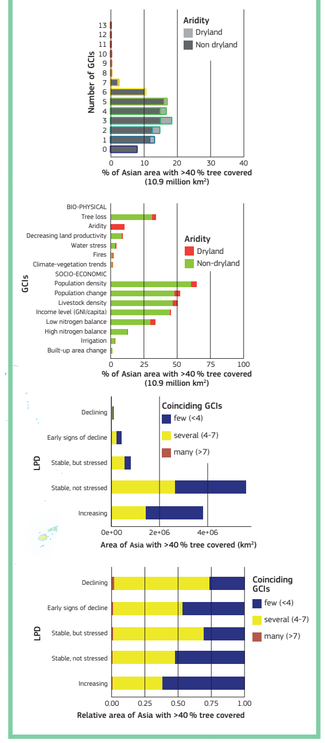


Distributions of predominant issues in WORLD

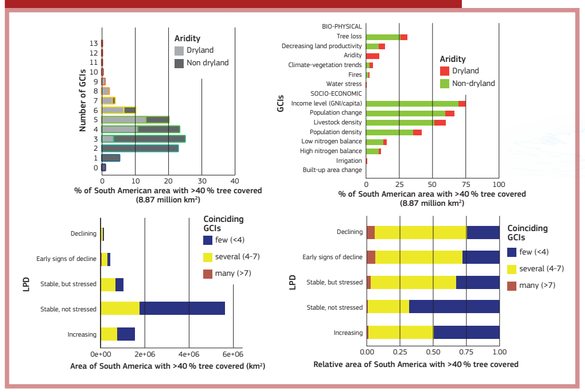




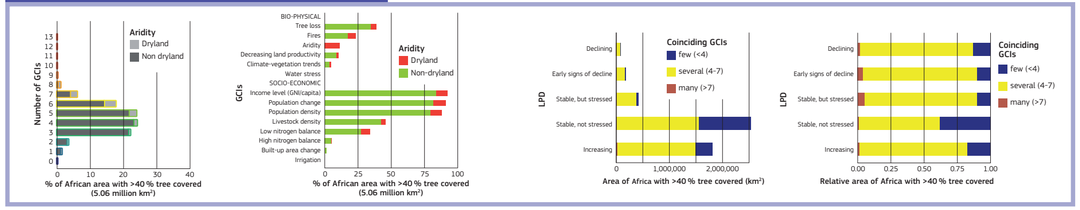
Distributions of predominant issues in ASIA



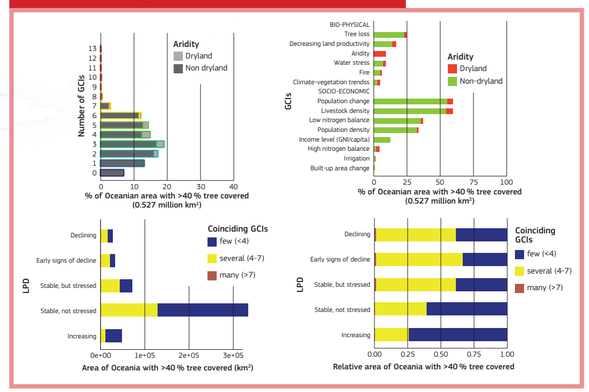
Distributions of predominant issues in SOUTH AMERICA



Distributions of predominant issues in AFRICA



Distributions of predominant issues in OCEANIA



Number of coincident issues

0 1 2 3 4 5 6 7 8 9 10 11 12 13

See previous page for explanatory text.

Convergence of Evidence: Forests

See next spread for data.

Examples of global regions where forest occurs that are affected by global change issues (GCIs; see Table, page 145) include:

- Africa: coastal rainforest in Sierra Leone, Liberia, Ivory Coast and Ghana as well as the northern and southern fringes of the central African, with relatively large areas in the Democratic Republic of the Congo;
- Asia: Boreal regions; Himalayas, Thailand, Laos, Vietnam, Philippines, Papua New Guinea
- South America: western and eastern fringes of Amazon rainforest; Coastal areas in Brazil and Chaco region in Bolivia and Argentina;
- Europe: Boreal regions; and
- North America: United States, Mexico (Yucatan, around Acapulco and the Sinaloa and Sonoran coastal areas), Guatemala, Honduras, Nicaragua and the Dominican Republic.

Global change issues (GCIs) associated with transformations (including land degradation) in forest include population density, population change, low income and high livestock numbers. Tree loss is a main issue (36% of the area) while declining land productivity (12% of the area), fire and drought conditions are relatively frequent GCIs.

Forest occur predominantly in non-drylands. Dryland forest is about 10% of the total area. New data suggest this to be underestimated (see page 37) but could not be integrated here.

Analysis shows that in forest:

- Less than 1% (or 0.19 million km^2) of forest experiences potential pressure from 8 to 13 GCIs. Land productivity decline is observed in 62% of this area (0.12 million km^2).
- Approximately 43% (15.7 million km^2) of forest experiences potential pressure from 4 to 7 GCIs. Land productivity decline is observed in 21% of this area (3.2 million km^2).
- Approximately 50% (18.3 million km^2) of forest experiences potential pressure from 1-3 GCIs. Land productivity decline is observed in 10% of this area (1.9 million km^2).
- Around 7% (2.6 million km^2) have no GCIs. These forested regions are mostly in the northern boreal zone and Amazon tropics.

Tree loss occurs in about 36% of global forested regions.

At a continental scale, some patterns with regard to forest cover and global change issues (GCIs) emerge:

- **Africa**. Low per capita income, high population density and population changes are socio-economic GCIs that all occur in about 90% of African forest. Forest loss (38% of the area) and fire (25%) are the main biophysical GCIs. Fires are very common in Central African Republic, southern Democratic Republic of the Congo, Zambia and Tanzania.
- **Asia**. The extent of forest (nearly 11 million km^2) in Asia is the highest of all continents. Forest includes the vast boreal zone where few GCIs coincide. Tree loss (30% of the area), land productivity decline (10% of the area), population density (65%) and low income (45%) are all coinciding GCIs in the Himalayas, Laos, Vietnam, northern Thailand, Myanmar and southern China. A GCI combination of forest loss, livestock densities and low income occurs in the Philippines (Luzon and Mindanao), Indonesia (Kalimantan and Java) and Papua New Guinea.
- **South America**. The Gran Chaco area in Bolivia and Argentina (see Argentina case study, page 198), where there are intense land use changes occurring, stands out as a region where a high number of GCIs coincide (as compared to the global average). The key GCIs include forest loss, decreasing land productivity, population densities and livestock densities.
- **Europe**. Forest are mixed with other land uses. Nearly 90% of European forests have < 4 coinciding GCIs, including population densities, livestock densities and low input agriculture. Only 2% of the area is subject to a decrease of land productivity.
- **North America**. GCIs include tree loss, increasing population, increasing livestock densities, and low agriculture inputs. Forest in the southeast United States experience water stress and drought conditions.
- **Oceania**. GCIs on Vanuatu and Fiji include high population and livestock densities and low agricultural inputs, while on the Solomon Islands forest loss and water stress occur.

Low input - nitrogen deficient - cultivation is a concerning global change issue in 33% of the global forest area.

- Theme layer derived from: GFC v1.2 Hansen M.[23], 2013 (see page 36).
- This map has grid cells of 1 km^2.
- Statistics - in total area (km^2) or percentage of total area - are given for both global and/or continental scales.
- Refer to global change issues (GCIs) in the table on page 145.
- Refer to 'how to read the maps' on page 146.