



Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss



Overview



<https://www.un.org/sustainabledevelopment/biodiversity/>



Facts

Forests are home to more than 80 percent of all terrestrial species of animals, plants and insects

52 percent of the land used for agriculture is moderately or severely affected by soil degradation.

Arable land loss is estimated at 30 to 35 times the historical rate

Illicit poaching and trafficking of wildlife continues to thwart conservation efforts, with nearly 7,000 species of animals and plants reported in illegal trade involving 120 countries.

Micro-organisms and invertebrates are key to ecosystem services, but their contributions are still poorly known and rarely acknowledged

<https://www.un.org/sustainabledevelopment/biodiversity/>



15.1

Target

- By 2020, ensure the **conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems** and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

Indicators

- **Forest area** as a proportion of total land area
- Proportion of important sites for terrestrial and freshwater biodiversity that are **covered by protected areas**, by ecosystem type

<https://sustainabledevelopment.un.org/sdg15>

Forest area as share of land area, 1990

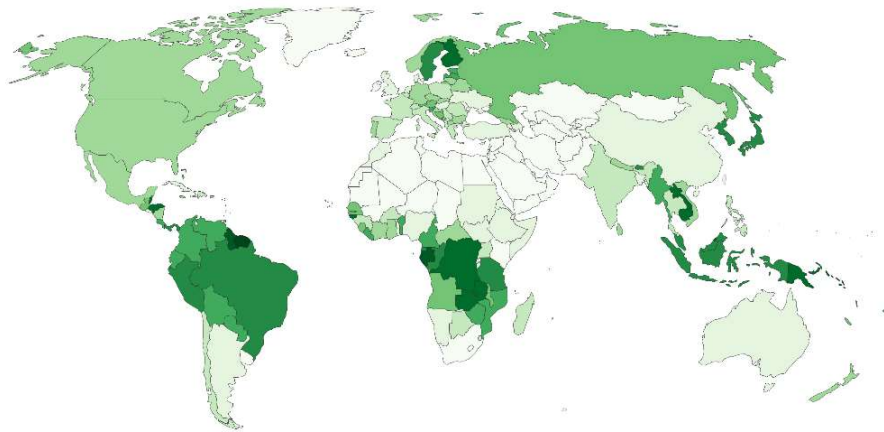
Forest area is land under natural or planted stands of trees of at least 5 meters in situ, whether productive or not, and excludes tree stands in agricultural production systems (for example, in fruit plantations and agroforestry systems) and trees in urban parks and gardens.

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Forest area as share of land area, 2015

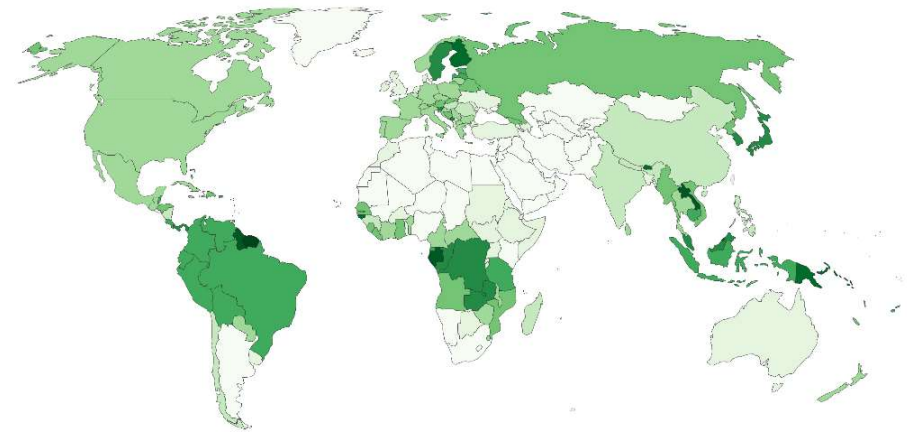
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Source: UN Food and Agriculture Organization (FAO)

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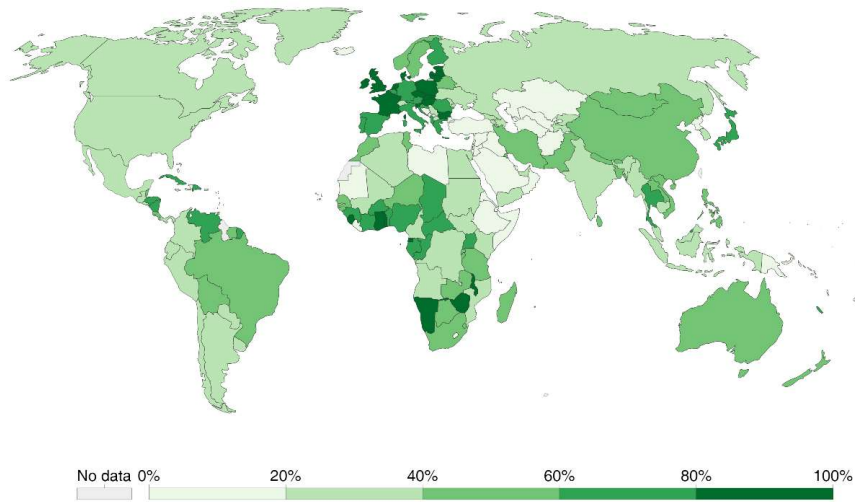
Source: UN Food and Agriculture Organization (FAO)

OurWorldInData.org/forests/ • CC BY

Slightly less forest areas over the past few decades in the key areas of forest, South America, Southern Africa, and Southeast Asia

Share of important terrestrial biodiversity sites that are protected, 2017

Proportion of important sites for terrestrial biodiversity that are covered by protected areas shows temporal trends in the mean percentage of each important site for terrestrial biodiversity that is covered by designated protected areas.

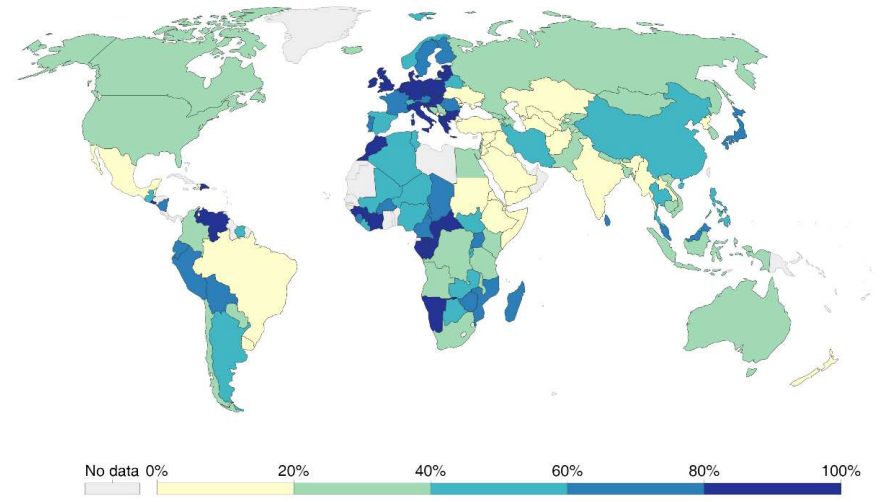


Source: World Database on Protected Areas (WDPA)

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Proportion of important sites for freshwater biodiversity that are covered by protected areas, 2017

Proportion of important sites for freshwater biodiversity that are covered by protected areas shows temporal trends in the mean percentage of each important site for freshwater biodiversity that is covered by designated protected areas.



Source: UN Statistics Division

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Protected areas of land and freshwater ecosystems.
For both, Africa and Europe generally are leading



15.2

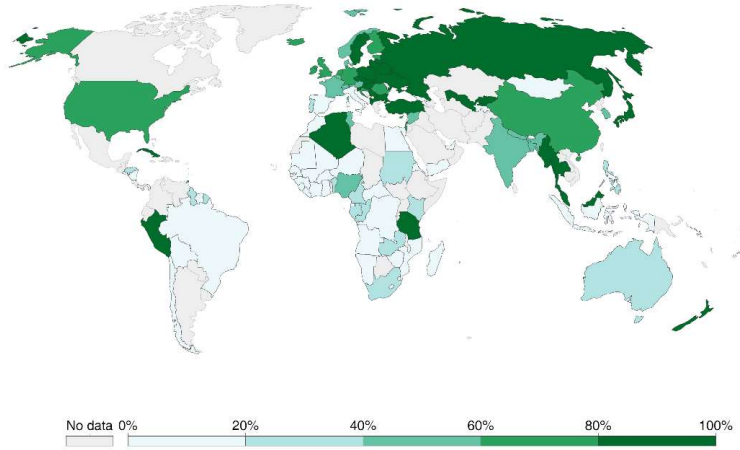
Target

- By 2020, promote the implementation of **sustainable management** of all types of forests, **halt deforestation**, **restore degraded forests** and substantially increase afforestation and reforestation globally

Indicators

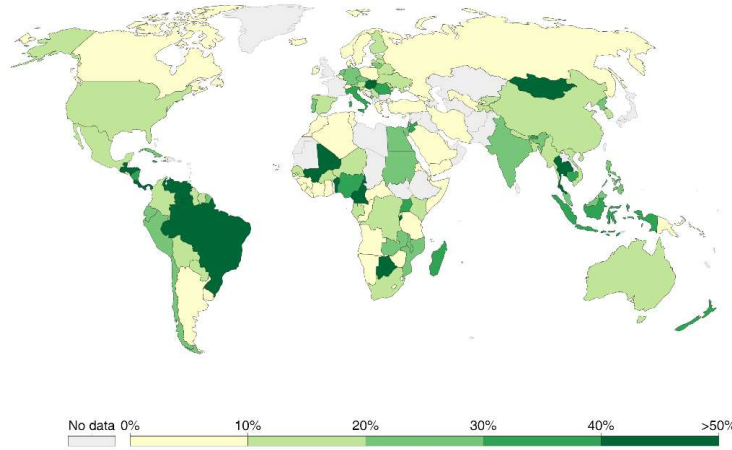
- Progress towards **sustainable forest management**

Proportion of forest area with a long-term management plan, 2010



Source: UN Food and Agriculture Organization (FAO)

Proportion of forest area within legally established protected areas, 2015



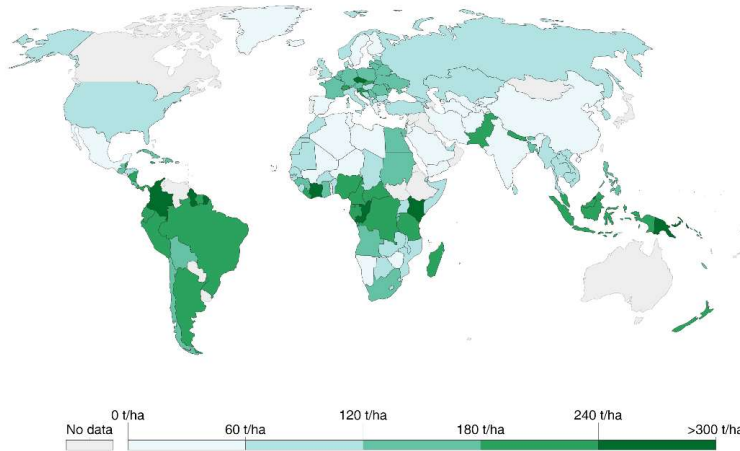
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Source: UN Food and Agriculture Organization (FAO)

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Above-ground biomass in forest per hectare, 2015

Above ground biomass density, measured in tonnes of forest biomass per hectare.

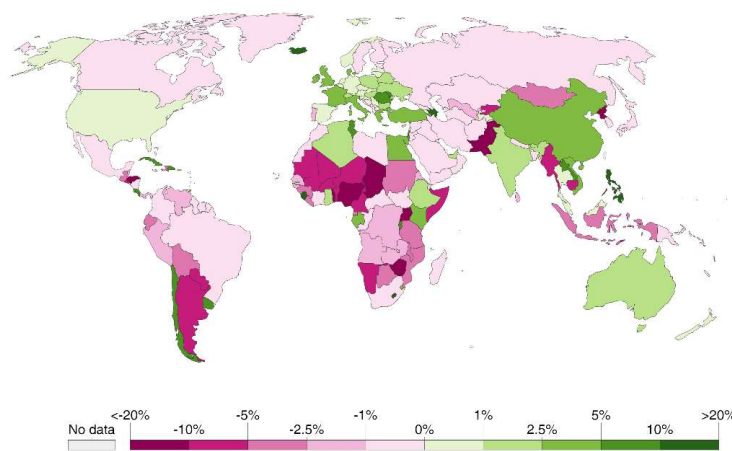


Source: UN Food and Agriculture Organization (FAO)



Forest area net change rate, 2015

Forest area net change rate measures the annual net change in forested area, as a percentage of total forest area. Negative values indicate a net loss of forest area, and positive values a net gain.



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Source: UN Food and Agriculture Organization (FAO)

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On top: areas with plans and protected forests

On bottom: biomass density and the forest change rate. The pink indicates that most areas of the world are undergoing deforestation.



15.3

Target

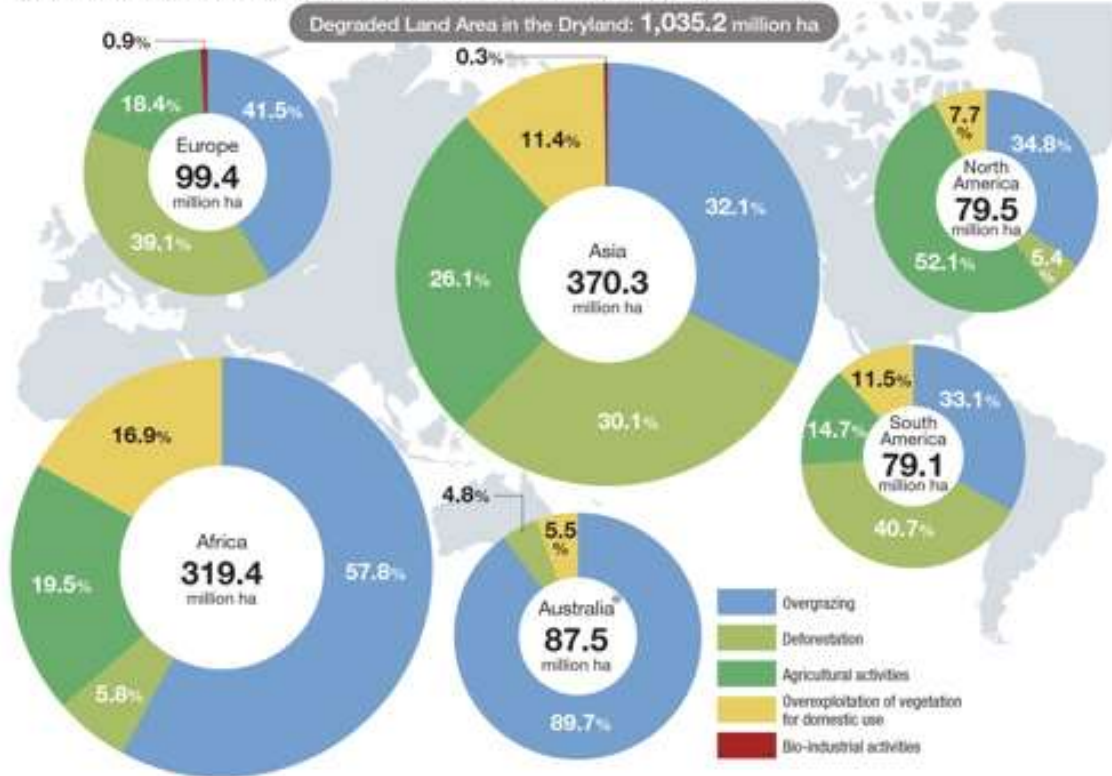
- By 2030, **combat desertification**, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

Indicators

- Proportion of **land that is degraded** over total land area

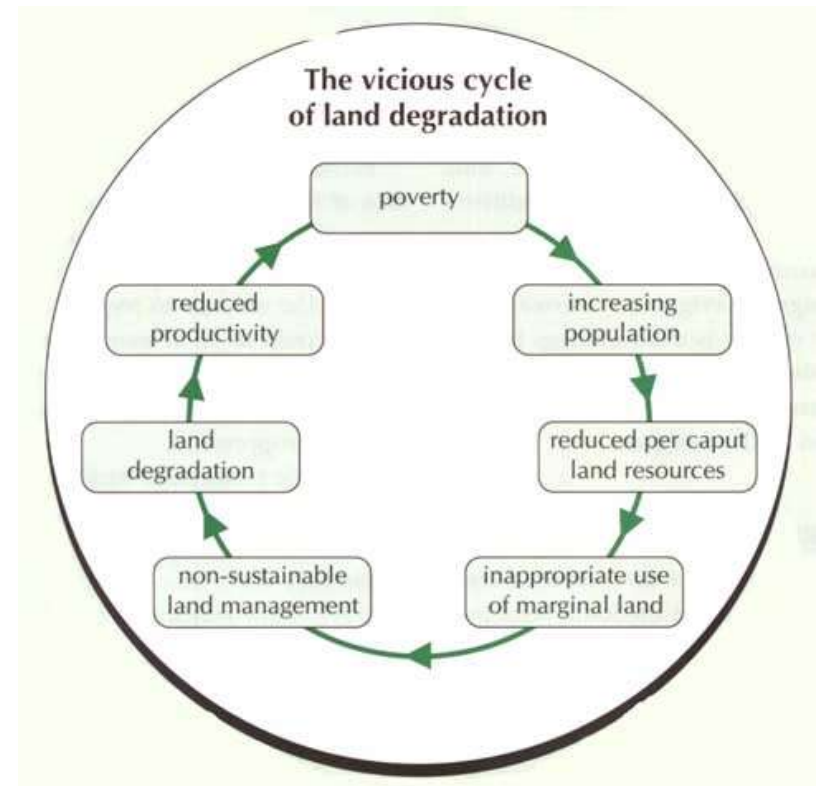
<https://sustainabledevelopment.un.org/sdg15>

▼Main Causes of Soil Degradation by Region in Susceptible Drylands and Other Areas



https://www.env.go.jp/en/nature/desert/global_2.html

Statistics for 1997 of different reasons for land degradation. In a sociological sense the process is cyclical. Once the process starts it makes it difficult to break



<http://blog.iasscore.in/overview-of-land-degradation-and-desertification/>



15.4

Target

- By 2030, ensure the **conservation of mountain ecosystems**, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development

Indicators

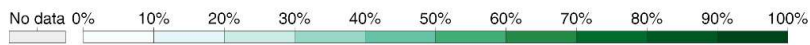
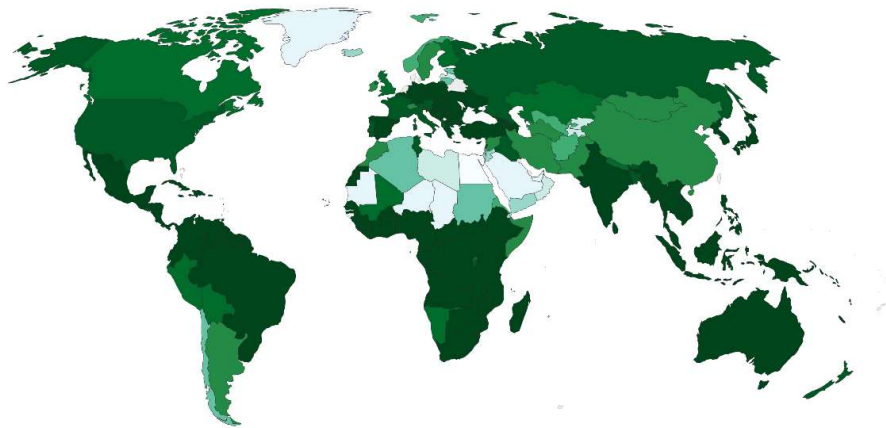
- **Coverage** by protected areas of important sites for mountain biodiversity
- **Mountain Green Cover Index**

<https://sustainabledevelopment.un.org/sdg15>

Mountain Green Cover Index, 2017

Mountain Green Cover Index measures the percentage of mountainous areas covered by some form of green vegetation.

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in Data



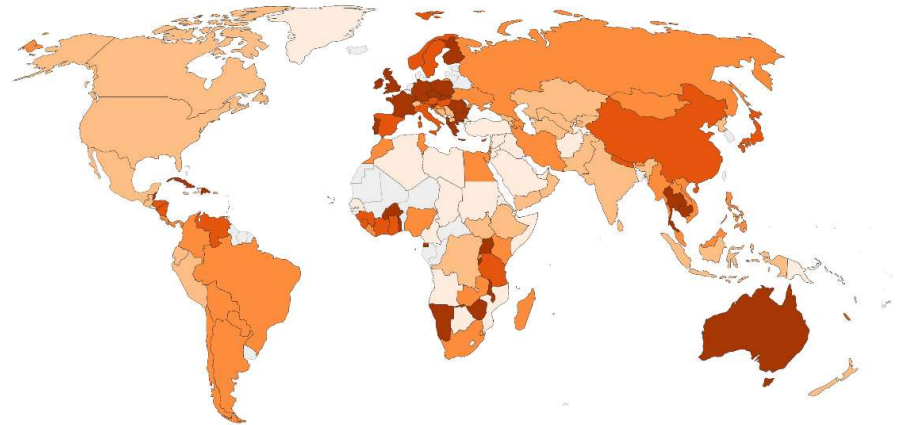
Source: UN Food and Agriculture Organization (FAO)

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Coverage by protected areas of important sites for mountain biodiversity, 2017

Average share of each important site for mountain biodiversity that is covered by designated protected areas. The indicator does not measure the effectiveness of protected areas in reducing biodiversity loss, which depends on a range of management and enforcement factors.

Our World
in Data



Source: UN Statistics Division

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The left looks at the percentage of mountains that have vegetation, and the right looks at the protections for the biodiversity of mountainous areas. Some associations, but also is just the climate and natural vegetation



Target

- Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, **by 2020, protect and prevent the extinction of threatened species**

Indicators

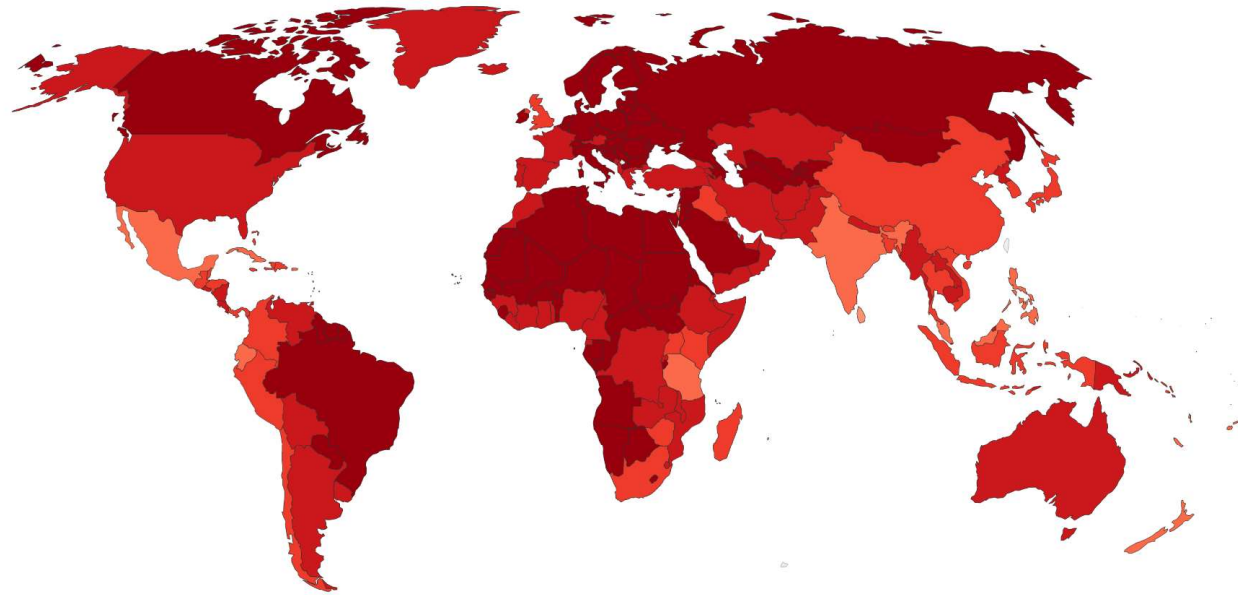
- **Red List Index**

<https://sustainabledevelopment.un.org/sdg15>

Red List Index, 2019

The Red List Index (RLI) defines the conservation status of major species groups, and measures trends in the proportion of species expected to remain extant in the near future without additional conservation action. An RLI value of 1.0 equates to all species being categorised as 'Least Concern', and hence that none are expected to go extinct in the near future. A value of 0 indicates that all species have gone extinct.

Our World
in Data



The lighter the red, the more animals are in danger of going extinct or already have. Mexico and India are areas of concern



Source: UN Statistics Division

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15.6

Target

- Promote fair and equitable sharing of the **benefits arising from the utilization of genetic resources** and promote appropriate access to such resources, as internationally agreed

Indicators

- Number of countries that have adopted legislative, administrative and policy frameworks to ensure **fair and equitable sharing of benefits**

Countries that are contracting Parties to the International Treaty on Plant Genetic Resources for Food and Agriculture (PGRFA), 2017



The Protocol provides greater legal certainty and transparency for both providers and users of genetic resources and associated traditional knowledge. It helps to ensure benefit-sharing in genetic knowledge and resources.



Source: UN Statistics Division

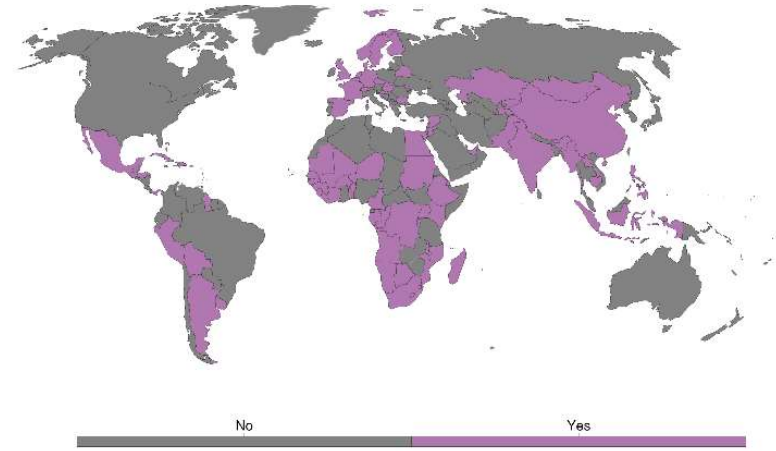
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Also known as the international seed treaty, sustainable agriculture and food security

Countries that are parties to the Nagoya Protocol



The Nagoya Protocol provides greater legal certainty and transparency for both providers and users of genetic resources and associated traditional knowledge.



Source: UN Statistics Division

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Fair and equitable sharing of benefits arising out of the utilization of genetic resources

Point is promotion and sharing of genetic resources for plants, food and agriculture.

Most of the world is involved in at least one.



15.7

Target

- Take urgent action to end **poaching and trafficking** of protected species of flora and fauna and address both **demand and supply of illegal wildlife products**

Indicators

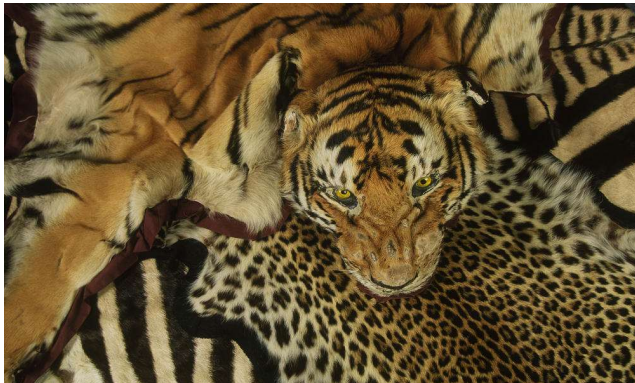
- Proportion of traded wildlife that was **poached or illicitly trafficked**

<https://sustainabledevelopment.un.org/sdg15>

A myth in Vietnam that Rhino horn could cure cancer led to a dramatic increase in poaching South Africa, from 7 in 2007 to 1004 in 2013: 7,700%



“Corruption, toothless laws, weak judicial systems and light sentences allow criminal networks to keep plundering wildlife with little regard to consequences.”



In 2011, 23 metric tons of ivory, representing 2,500 elephants was found in seizures.

<https://www.worldwildlife.org/threats/illegal-wildlife-trade>



15.8

Target

- By 2020, introduce measures to prevent the introduction and significantly **reduce the impact of invasive alien species on land and water ecosystems** and control or eradicate the priority species

Indicators

- Proportion of countries adopting relevant **national legislation** and adequately resourcing the prevention or control of invasive alien species

<https://sustainabledevelopment.un.org/sdg15>

Invasive species costs the world almost 5% of global gross domestic product or an estimated US\$1.4 trillion per year

Disproportionally affect the most vulnerable communities that depend on ecosystems, resources, and tourism for livelihood

Use biocontrol, using living pathogens to balance out the invasive species to create a natural balance

<https://www.cabi.org/what-we-do/invasive-species/>





Target

- By 2020, integrate **ecosystem and biodiversity values into national and local planning**, development processes, poverty reduction strategies and accounts

Indicators

- Progress towards national targets established in accordance with **Aichi Biodiversity Target 2** of the Strategic Plan for Biodiversity 2011-2020

Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020

“By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.”

<https://www.cbd.int/nbsap/>

Basically the same as the goal. Indicator then is the national programs implemented specifically for this.

“The ability of the geographical sciences to combine field studies, remote sensing data, climate data, and land-change models to understand ecosystem changes and biodiversity distribution will be critical to developing land-use policies and conservation strategies in the coming decade.”

[Understanding the Changing Planet: Strategic Directions for the Geographical Sciences](#) (2010)

Chapter: 2 How Can We Best Preserve Biological Diversity and Protect Endangered Ecosystems?

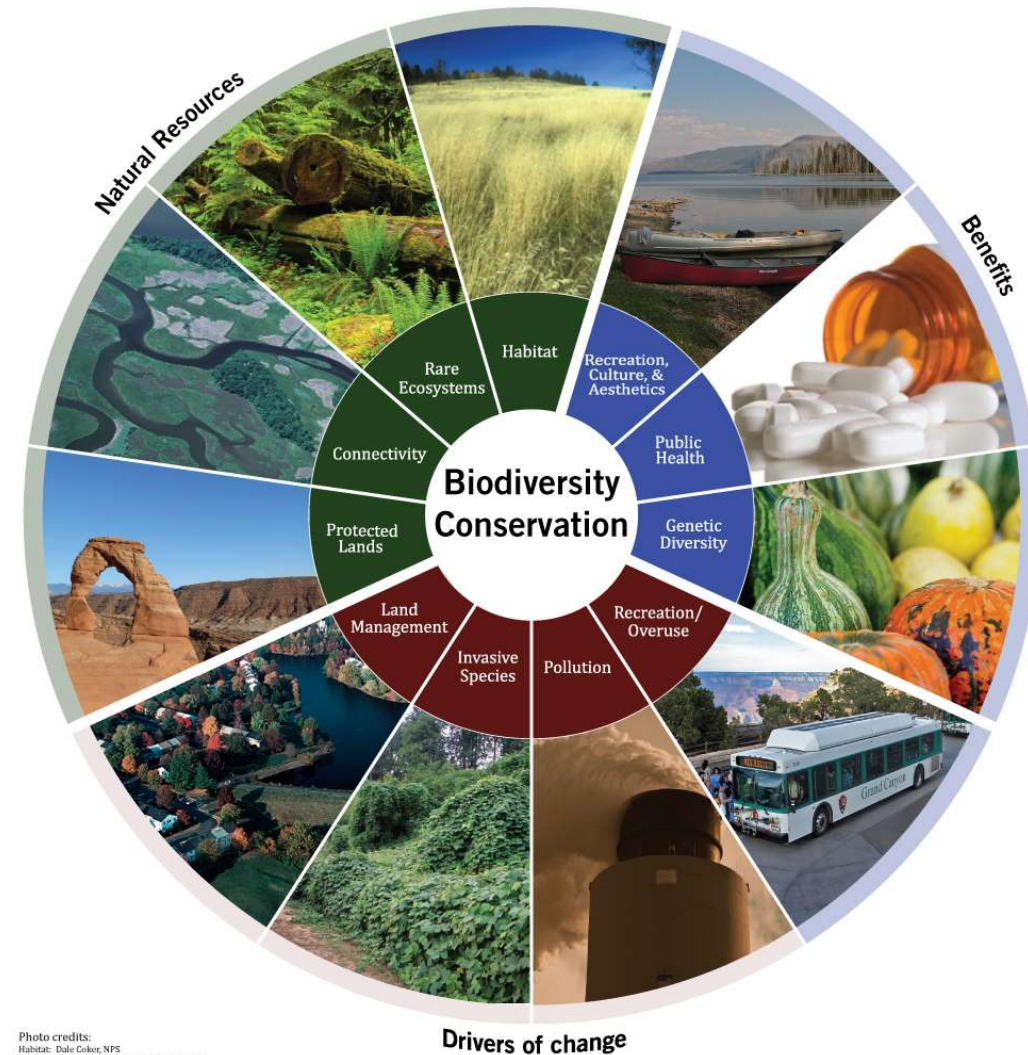


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Pollution: Eric Vance, EPA
Recreation/Overuse: Michael Quinn, NPS
Genetic diversity: Eric Vance, EPA
Public health: Amanda Mills, CDC
Recreation, culture, & aesthetics: Jim Peaco, NPS

This EnviroAtlas eco-wheel was created by Jessica Jahre, EPA contractor



15.A

Target

- Increase **scientific knowledge**, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries

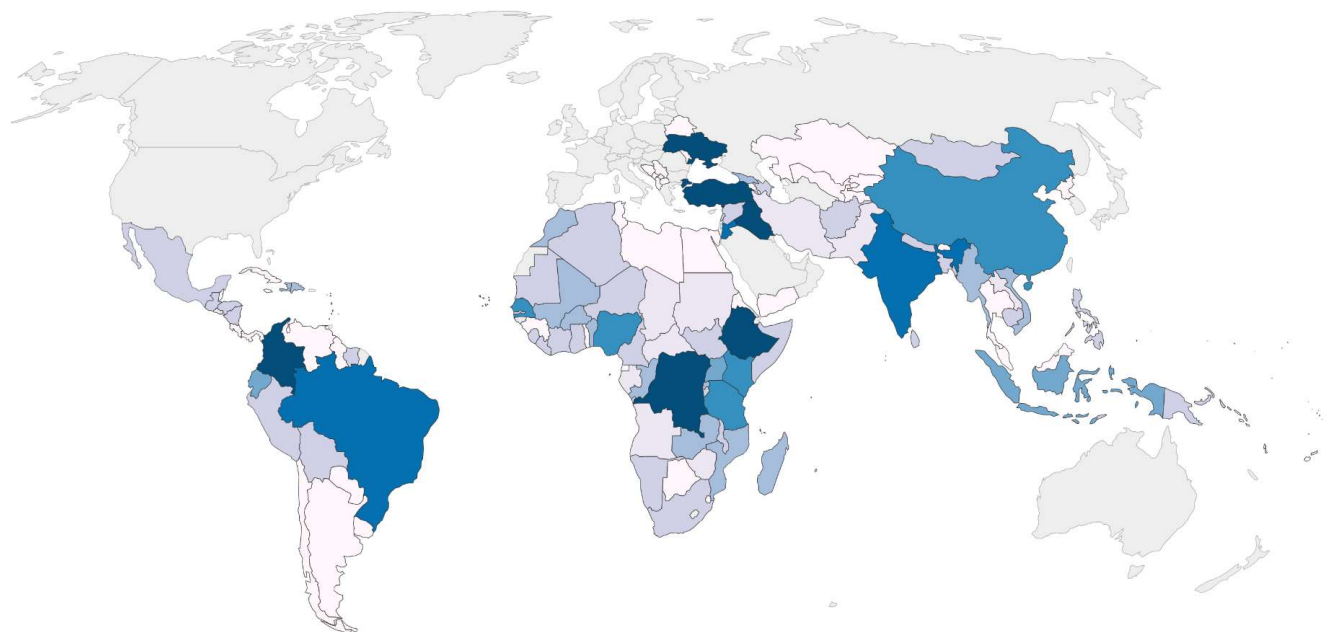
Indicators

- Official development assistance and **public expenditure on conservation** and sustainable use of biodiversity and ecosystems

<https://sustainabledevelopment.un.org/sdg15>

Total official development assistance for biodiversity, by recipient, 2015

Total official development assistance (ODA) transferred for use in biodiversity conservation and protection efforts, by recipient. This is measured in constant 2015 US\$.



Scattered donations around the world



Source: UN Statistics Division

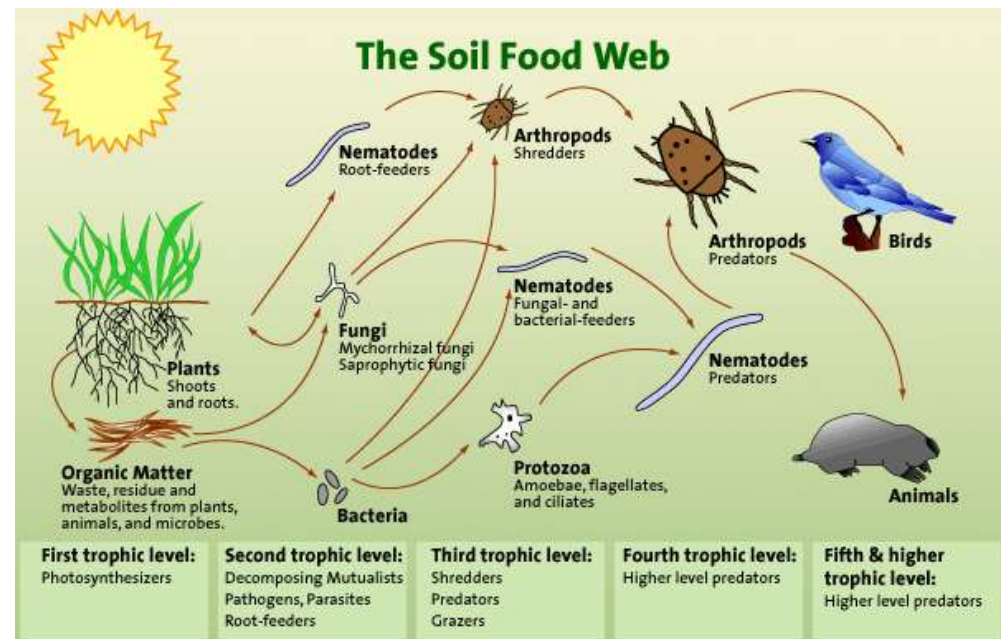
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Micro-organisms for Good Soil

Fertilizers, pesticides, and herbicides kill the necessary components of the food web.

The micro-organisms operate communication networks between plants and provide the nutrients needed

Bacteria survives through the worst conditions, and then only weeds will grow from bacteria ridden soil



Critically Endangered Species

Amur Leopard
84



Black Rhino
5,500



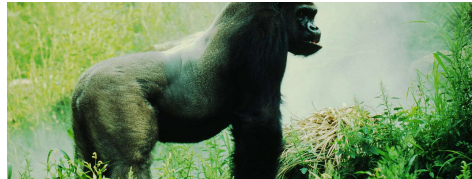
Bornean Orangutan
104,700



Sumatran Rhino
80



Eastern Lowland Gorilla
unknown



Hawksbill Turtle
unknown



Cross River Gorilla
200 to 300



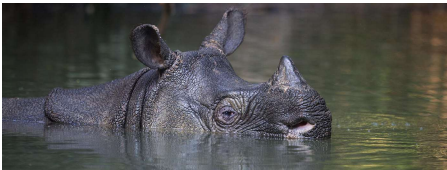
Malayan Tiger
250-340



Orangutan
104,700 (Bornean), 13,846 (Sumatran), 800 (Tapanuli)



Javan Rhino
58-68



Vaquita
30

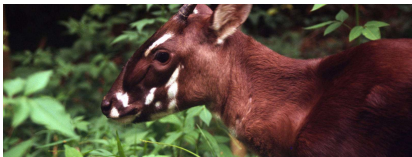


Yangtze Finless Porpoise
1000-1800



Saola

Unknown, none in captivity and only seen 4 times



Sumatran Elephant
2400-2800



South China Tiger
Extinct in the wild



Ted Talks

Why is biodiversity more important? (4:22): https://www.youtube.com/watch?v=GK_vRtHJZu4

Biodiversity hotspot (5:55): <https://www.youtube.com/watch?v=RaQBaveEbW8>