New study shows over one-fifth of the world's plants are under threat of extinction

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An orchid is seen at the University of Costa Rica in Cartago, close to San Jose. The greatest peril to plants came from human-induced habitat loss, mostly the conversion of natural habitats for crops or livestock, research by respected Kew Gardens in London has revealed.

A global analysis of extinction risk for the world's plants, conducted by the Royal Botanic Gardens, Kew together with the Natural History Museum, London and the International Union for the Conservation of Nature (IUCN), has revealed that the world's plants are as threatened as mammals, with one in five of the world's plant species threatened with extinction. The study is a major baseline for plant conservation and is the first time that the true extent of the threat to the world's estimated 380,000 plant species is known, announced as governments are to meet in Nagoya, Japan in mid-October 2010 to set new targets at the United Nations Biodiversity Summit.

Scientists from the Royal Botanic Gardens, Kew, the Natural History Museum and IUCN Specialist Groups carried out the Sampled Red List Index assessments on a representative sample of the world's plants, in response to the United Nations International Year of Biodiversity and the 2010 Biodiversity Target. The work relied heavily on the vast repository of botanical information held in Kew's Herbarium, Library, Art and Archives, which includes some eight million preserved plant and fungal specimens; on specimens held in the Natural History Museum's own extensive herbarium of six million specimens; on digital data from other sources and on collaboration with Kew's network of partners worldwide. The results of the Sampled Red List Index for Plants will be launched at the Royal Botanic Gardens, Kew at a press call on 28 September 2010 at 10am.

The Royal Botanic Gardens, Kew's Director, Professor Stephen Hopper, says: "This study confirms what we already suspected, that plants are under threat and the main cause is human induced habitat loss.

"For the first time we have a clear global picture of extinction risk to the world's known plants. This report shows the most urgent threats and the most threatened regions. In order to answer crucial questions like how fast are we losing species and why, and what we can do about it, we need to establish a baseline so that we have something against which to measure change. The Sampled Red List Index for Plants does exactly that by assessing a large sample of plant species that are collectively representative of all the world's plants."

He adds, "The 2020 biodiversity target that will be discussed in Nagoya is ambitious, but in a time of increasing loss of biodiversity it is entirely appropriate to scale up our efforts. Plants are the foundation of biodiversity and their significance in uncertain climatic, economic and political times has been overlooked for far too long.

"We cannot sit back and watch plant species disappear - plants are the basis of all life on earth, providing clean air, water, food and fuel. All animal and bird life depends on them and so do we. Having the tools and knowledge to turn around loss of biodiversity is now more important than ever and the Sampled Red List Index for Plants gives conservationists and scientists one such tool."

Environment Secretary Caroline Spelman says, "This report comes at an important time in the lead up to the major international biodiversity meeting in Nagoya next month. It is deeply troubling that a fifth of the world's plants are facing extinction because of human activity. Plant life is vital to our very existence, providing us with food, water, medicines, and the ability to mitigate and adapt to climate change.

"We must take steps now to avoid losing some of these important species and the UK will show leadership as we look to make progress towards a framework for tackling the loss of the Earth's plant and animal species."

The study revealed:

- About one third of the species (33%) in the sample are insufficiently known to carry out a conservation assessment. This demonstrates the scale of the task facing botanists and conservation scientists - many plants are so poorly known that we still don't know if they are endangered or not

- Of almost 4,000 species that have been carefully assessed, over one fifth (22%) are classed as Threatened

- Plants are more threatened than birds, as threatened as mammals and less threatened than amphibians or corals

- Gymnosperms (the plant group including conifers and cycads) are the most threatened group
- The most threatened habitat is tropical rain forest.
- Most threatened plant species are found in the tropics
- The most threatening process is man-induced habitat loss, mostly the conversion of natural habitats for agriculture or livestock use

The Sampled Red List Index for Plants is part of a worldwide effort to create a tool to monitor the changing status of the world's major groups of plants, fungi and animals. In the future, the project will involve reassessments at regular intervals which will chart the changing fortunes of the world's plants; much like a stock market index shows the ups and downs in the value of shares. This will highlight where and what conservation action is needed to protect plants. However, funding is needed in order to continue this important work.

7,000 plant species drawn from the five major groups of plants were included in the study: Bryophytes (mosses and liverworts), pteridophytes (these are land plants, such as ferns, that produce neither flowers nor seeds and reproduce via spores), gymnosperms (such as conifers and cycads), monocotyledons (one of the major groups of flowering plants including orchids and the economically important grass and palm families) and legumes (the pea and bean family), as representative of the other flowering plants. Both common and rare species were assessed in order to give an accurate picture of how plants are faring around the world.

As the task of assessing the threat to the world's plants (perhaps as many as 380,000 species) would present a much larger challenge than the assessments of threats to birds (10,027 species), mammals (5,490

species) or amphibians (6,285 species), a sampled approach was adopted where 1,500 species were randomly selected from each of the five major groups of land plants. Simulation modelling from the complete IUCN Red List assessments of birds and amphibians confirmed that 1,500 species for each group of plants would provide a representative view of plants overall.

Provided by Royal Botanic Gardens Kew