

Botanists gear up for second phase of Red List project

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Not so mighty: The IUCN Red List in July reported that a third of all conifers are under threat due to logging and disease.

Museum scientists are planning the next stage of a study to reveal the global destruction of plant life.

It is the second phase of a [collaborative project](#) between the Museum, The Royal Botanic Gardens, Kew and the International Union for the Conservation of Nature (IUCN), which began in 2005.

The information from the study feeds into the [Red List Index](#), an online barometer of animals, [plants](#), insects and fish at risk of extinction, produced twice-yearly by the IUCN.

The first phase, completed in 2010, was a desk-based analysis of some of the six million plant specimens in the Museum's herbarium collection and the seven million at Kew to monitor the status of the world's plants.

The specimens have been collected over hundreds of years by thousands of botanists, including Charles Darwin, and are preserved for study in the collections. They provide data to show where certain plants have been living in the past.

Darwin meets Google Earth

The team then used satellite imagery, including from Google Earth, to compare the historic data with what can be seen living on the ground and used to illustrate which habitats have been reduced or destroyed altogether.

Assessments of different areas then allowed them to create a map of hotspots of plant diversity and threatened [species](#).



Native flora on St Helena has been devastated by the British Navy's introduction of goats. Credit: Royal Botanic Gardens, Kew.

The researchers concluded in 2010 that more than 20 per cent of the world's plants, or one in five, are threatened with extinction, with a further 10 per cent classified as near threatened.

Truth on the ground

The second phase of the project, for which funds are being sought, involves going out into the field, or ground-truthing, to measure the desktop assessment with the situation on the ground, to plot decline and target certain areas for conservation. Some plants on the Red List haven't been seen for 150 years.

Other species have never been seen on the ground and are only known from the scientific paper where they are first described. There have even been cases of plants newly discovered in a collection that have already gone extinct in the wild.

Loss of habitat

The overwhelming threat to natural habitat is anthropogenic (caused by human activity), through habitat conversion to agriculture, for development or mining, or through the introduction of invasive species.

'A good example of this is the volcanic island of St Helena in the south Atlantic, where several species of a shrub, *Trochetiopsis*, were indigenous', said Museum botanist Neil Brummitt, who has worked on the project from the beginning.

'Local deforestation for fuel and ship-building, as well as for agriculture, disturbed the habitat, which was then put under further pressure by the introduction of goats by the Royal Navy to feed sailors stationed on the island. The goats fed on the endemic species, causing havoc to the island's ecosystem. '

Biodiversity jigsaw

The latest Red List, published last month, assessed 71,576 species of animals, plants, insects and fish and reported that 21,286 are under threat.

'If you can't preserve everything, it becomes a value judgement deciding what to preserve,' Brummitt said. 'We're losing a large proportion of the world's biodiversity without knowing what the knock-on effect will be on other species, such as birds and insects. We're losing pieces of a biodiversity puzzle.'

Eighty per cent of calories consumed by people around the world come from just 12 species of plants.

'Plants provide the foundation for the entire world's ecosystems,' Brummitt said. 'Biodiversity is important because it's essential not to rely on a handful of species to provide the ecosystem services most developed countries still depend on, for food, shelter and clean water.'

Provided by Natural History Museum

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