The threat status of endemic Atlantic Forest trees

Reporting

Project Information

THREAT

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Project website

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Project closed

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STICHTING NATURALIS BIODIVERSITY CENTER
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Periodic Reporting for period 1 - THREAT (The threat status of endemic Atlantic Forest trees)

Reporting period: 2018-08-01 to 2020-07-31

Summary of the context and overall objectives of the project

We face a global biodiversity crisis, with species extinctions representing one of the most drastic impacts of man on Earth. Thus, actions to protect species from extinction are urgently needed, particularly in tropical forests, home to the largest part of Earth's biodiversity. The first step is to identify which species are currently threatened with extinction. Known as "red listing", species are

categorized according to their risk of extinction, which are then used to monitor biodiversity and to prioritize conservation actions. Therefore, “red listing” efforts are crucial for our society, by providing the basic knowledge to help to avoid a sixth mass extinction caused by man.
The central goal of the project THREAT is the assessment of the conservation status of all endemic tree species occurring in the Atlantic Forest biodiversity hotspot in South America, home to thousands of tree species. The project asked and answered the following questions: How many tree species occur in the Atlantic Forest? How many of them are endemic? How many are threatened? What can we do and where to conserve them? The project also aimed at creating awareness among the general public about issues related to species extinction.

Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far

The project compiled over 3 million herbarium records and over 1 million tree inventory records for the tree species occurring in the Atlantic Forest from multiple sources. This information was combined with time series of forest cover maps to calculate the loss of habitat for the Atlantic Forest tree species. Altogether, this allowed us to generate the species threat assessments based on multiple IUCN criteria, that make use of estimates of population decline (criteria A and C), geographic range (criterion B) and small populations (criteria C and D).
As its main results, the project updated 20% of the accepted list of species occurring in the Atlantic Forest and to quantify the endemism ratio of tree species for this global biodiversity hotspot, which was found to be 45%. The project also delivered new conservation assessments for nearly 3000 species, 55% of which are global. Five species that were previously considered as extinct or extinct in the wild were rediscovered and 21 species were classified as critically endangered and possibly extinct.
Besides the generation of scientific publications and conferences, all information generated by the project is or will be made public, so that it can be useful for planning conservation locally and for future scientific studies. All assessments and associated information will be transmitted to CNCFlora, the red list agency responsible for species assessments in Brazil.

Progress beyond the state of the art and expected potential impact (including the socio-economic impact and the wider societal implications of the project so far)

The project developed some new approaches on how to detect endemic species from regional biotas, manage species records from biological collections and implement multiple IUCN criteria for assessing the threat status of thousands of species simultaneously. These approaches are/will be published in scientific studies so that other researchers can apply them in other parts of the world or using other groups of plants or animals.
The project resulted in the development of two open-access, open-source computer programs in R language, a widely used free software environment. These programs will allow users to manage

species records from biological collections, and to perform automated IUCN conservation assessments using multiple criteria.

Inside the Atlantic Forest

The Lowland Atlantic Forest

The Montane Atlantic Forest from above

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