



*Quercus carmenensis* (Sierra del Carmen, Coahuila, Mexico), an endangered species (EN B1ab(iv)) based on the Morton's recent threat assessments (Béatrice Chassé).

# The Red List of Oaks

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In collaboration with the Global Trees Campaign, Botanic Gardens Conservation International, and the IUCN/SSC Global Tree Specialist Group, The Morton Arboretum has launched a project to complete threat assessments for all of the world's ~470 oak species for the IUCN Red List – the global gold standard for evaluating the threat status of all plant and animal species.

It is known that many oak species are under threat from habitat destruction, climate change, invasive pests and pathogens, and competition from invasive plants. However, to date less than half of the world's oak species have been evaluated for the Red List. Given the great global economic, ecological, and cultural value of oaks, it is important to understand the threats they face. To complete the Red List assessments, the oak conservation team at The Morton Arboretum is gathering extensive data on oak distributions, threats, population trends, and human uses.

The two centers of diversity for oaks are Mexico/Central America and China, so developing a network of experts on oaks of these regions is a key step in completing the oak red listing project. As of November 2015, the oak conservation team has published 52 completed Red List assessments (see [www.iucnredlist.org](http://www.iucnredlist.org)), mostly for US oaks, with 10% of species evaluated falling into a threatened category. Preliminary assessments of the remaining species indicate that, globally, 1 in 4 oaks are likely threatened with extinction. Preliminary results indicate that, regionally, North American oaks face a 1 in 3 chance of being threatened, Europe and Middle Eastern oaks a 1 in 4 chance, and in Asia a 1 in 8 chance of being threatened. While Asian oaks appear to be less threatened than oaks in other regions, Asia also has the highest percentage of data deficient species (roughly 48%), which raises serious concerns because data needed to determine appropriate threat categories are largely lacking. Many data deficient species turn out to be threatened once the necessary demographic information is obtained. Once published, Red List assessments can be used to influence conservation policy and to prioritize species for protection and propagation.



# THE RED LIST OF OAKS

Assessing the threat status of *Quercus* species worldwide to set conservation priorities and inform policymakers

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## OAKS ARE CRUCIAL AND UNDER THREAT

Oaks hold ecological, economic and cultural value as:

- Keystone species providing animal habitat, soil stabilization, and water and air purification
- Sources of timber, fuel, medicine and food
- Iconic symbols of strength and endurance

However, oaks face serious threats including:

- Habitat destruction and land use changes
- Over exploitation
- Invasive pests and pathogens
- Competition from other tree species
- Global climate change



## THE IUCN RED LIST OF THREATENED SPECIES

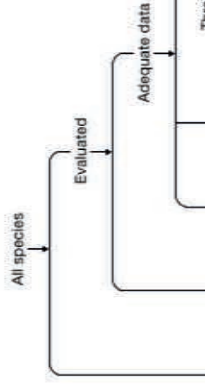
A tool for conservation

For over 50 years, the IUCN Red List has been the international gold standard for evaluating the threat status of plant and animal species. The Red List provides a subjective and widely applicable process for evaluating threat based on a set of criteria that consider:

- Population size and trend
- Range of species distribution
- Density of species distribution
- Fragmentation of populations
- Imminent threats

### WHO RED LISTS?

Botanic Gardens Conservation International (BGCI) coordinates the red listing of all tree species through the Global Tree Specialist Group. The Morton Arboretum has partnered with BGCI to lead the Oak Red List Project.





The goal of the Oak Red List Project is to complete threat assessments for all ~450 species of oaks (genus *Quercus*).

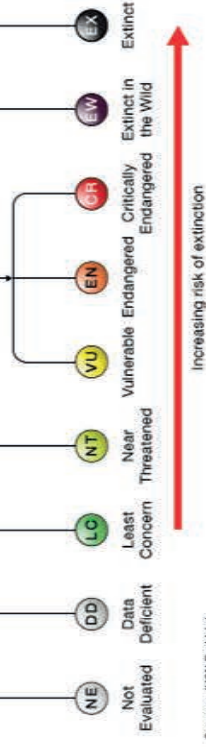
### *Quercus boyntonii*



### *Quercus acerifolia*



### *Quercus arkansana*



## Case Study: Gardens and arboreta leading oak conservation efforts

### *Quercus georgiana*: Quantifying genetic diversity to improve living collections

Scientists at The Morton Arboretum and Chicago Botanic Garden are studying the genetics of the endangered Georgia oak, a southeastern US endemic. By comparing the genetic diversity of living collections to that of wild populations, the study will identify under-represented populations to target for future collecting efforts to develop improved, scientifically informed conservation collections.



Georgia oak growing on a granite outcrop at Stone Mountain, GA. Most garden accessions come from this population.

### *Quercus sichouensis*: Researching and reinforcing the rarest of the rare

At Kunming Botanical Garden in China, researchers are working to protect the critically endangered Sichou oak, a species with only five remaining wild individuals. By reinforcing existing populations, identifying potential habitat, introducing new populations into protected natural areas, and maintaining an *ex situ* conservation grove, Kunming Botanical Garden is saving this oak from certain extinction.



The Sichou oak conservation grove at Kunming Botanical Garden.



The Oak Red List Project is sponsored and coordinated by The Morton Arboretum, in collaboration with Botanic Gardens Conservation International and the Global Trees Campaign