



The Red List of Magnoliaceae

Daniele Cicuzza, Adrian Newton and Sara Oldfield



A detailed botanical illustration of a Magnoliaceae flower and its leaves. The flower is light pink with a prominent central stamen. The leaves are large, green, and have a distinct pinnate venation pattern. The illustration is set against a plain white background.

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FAUNA & FLORA INTERNATIONAL (FFI), founded in 1903 and the world's oldest international conservation organization, acts to conserve threatened species and ecosystems worldwide, choosing solutions that are sustainable, are based on sound science and take account of human needs.



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THE **GLOBAL TREES CAMPAIGN** is a joint initiative developed by FFI and the UNEP World Conservation Monitoring Centre in partnership with BGCI and a wide range of other organizations around the world. The aim of the Campaign is to save the world's most threatened trees and the habitats in which they grow through the provision of information, delivery of conservation action and support for sustainable use.



THE **IUCN/SSC GLOBAL TREE SPECIALIST GROUP** forms part of the Species Survival Commission's volunteer network of over 7000 volunteers working to stop the loss of plants, animals and their habitats. SSC is the largest of the six Commissions of IUCN-The World Conservation Union. It serves as the main source of advice to the Union and its members on the technical aspects of species conservation. The aims of the IUCN/SSC Global Tree Specialist Group are to promote and implement global red listing for trees and act in an advisory capacity to the Global Trees Campaign.

Published by Fauna & Flora International, Cambridge, UK.

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ISBN: 9781 903703 23 6

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PHOTOS AND ILLUSTRATIONS

Front cover and title page background: *Magnolia sinicum*, Zhang Yu

Front cover composite (left to right): *Magnolia coriacea*, Sun Weibang; *Magnolia grandis*, Yan Lu; *Magnolia* sp., John-Paul Shirreffs

LAYOUT

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A Banson production
17f Sturton Street
Cambridge CB1 2QG

Printed on FSC paper by The Lavenham Press

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ACKNOWLEDGEMENTS

Many experts around the world have contributed information and undertaken assessments for this global evaluation, and their contributions are gratefully acknowledged. The GIS work was carried out by Daniele Cicuzza at Bournemouth University with generous support from Jeff Chartrand and Vanessa Constant of Bournemouth University. The assistance of staff at the Missouri Botanical Garden and Lera Miles at UNEP-WCMC is gratefully acknowledged. Wolfgang Bopp kindly provided geographical data for a selection of Magnoliaceae species. The work of Daniele Cicuzza was supported by an exchange grant from La Sapienza University of Rome.

Paul Mathew, formerly the Secretary of the Global Tree Specialist Group, carried out much of the initial work for the evaluation as part of his work at Fauna & Flora International and was responsible for organising the Magnoliaceae red listing workshop held in Kunming, China in June 2004. Participants in the China workshop were Li Yuyuan, Sima Yongkang, Fang Bo, Jiang Hong, Zhang Maoqin and Xu Liang (Yunnan Academy of Forestry Sciences), Gong Xun and Sun Weibang (Kunming Institute of Botany), Xu Tao (Department of Biology, Yunnan University), Li Daxiao (Breeding Center of Endangered Plants, Kunming), Zeng Qingwen (South China Botanical Garden, Guangdong), Zhou Ren-zhang (South China Institute of Botany, Guangdong), Paul Mathew, Yan Lu and Zhang Yingyi (Fauna &

Flora International), Shi Wensen (Yunnan Keseng Cooperation Ltd.)

Dr Georgina Magin, Global Trees Campaign Coordinator, also supported many aspects of the project, including valuable assistance with final editing of the report and liaison with production. Jemima Taylor, Red Listing assistant at BGCI, helped source reference material at the Royal Botanic Gardens, Kew and collated information for the final species listings. Martin Aveling worked on the maps for publication.

Other experts who have contributed information include Eduardo Calderón Saenz and Marcela Serna González, who provided information on the *Magnolia* species of Colombia; Dr Lillian Chua, Forest Research Institute Malaysia; Professor I.A.U.N. Gunatilleke, University of Peradeniya; Dr Milcíades Mejía, National Botanic Garden of the Dominican Republic; Alejandro Palmarola Bejerano, Jardín Botánico Nacional, Cuba; John Sugau, Sabah Forest Department; Professor Sun Weibang, Kunming Botanic Gardens; Dr Andrew Vovides, Instituto de Ecología, Xalapa, Mexico; Dr Jan Wolf, University of Amsterdam; Peter Wharton, University of British Columbia Botanic Garden. Dick Figlar has kindly commented on the nomenclature followed and provided guidance on recent taxonomic literature.

The provision of photographs and drawings for this report is also gratefully acknowledged with credits given alongside each image.

FOREWORD

Trees are important to the wellbeing of people in every country of the world, providing essential ecological, economic and cultural services. Trees of the Magnoliaceae family are valued for their timber, medicinal and food products and for their ornamental values. They are also of exceptional scientific importance in studies of plant evolution and biogeography. The species of this important plant family act as indicators of the status of the varied Asian and American forests where they occur and demonstrate the impact of environmental change on an entire taxonomic group of plants. This is particularly important at a time of unprecedented environmental change resulting from human activities, including widespread habitat loss and global warming.

Since its establishment in 2003, the primary role of the IUCN/SSC Global Tree Specialist Group has been to evaluate the conservation status of tree species in selected geographical areas and taxonomic groups. The evaluation of the conservation status of all species in the Magnoliaceae was recognized as an urgent priority by the Group. The evaluation process has drawn together information from a wide variety of sources including published national red lists of threatened species, botanical literature and expert knowledge. The results of the evaluation indicate that over half of the Magnoliaceae species are threatened with extinction in the wild. Although conservation measures are in place for some species there is an urgent need to increase conservation efforts for the family.

The second role of the IUCN/SSC Global Tree Specialist Group is to act as an advisory body for the Global Trees Campaign, which aims to save the world's most threatened tree species and the habitats where they

grow. The Global Trees Campaign provides an important practical mechanism for implementation of the Global Strategy for Plant Conservation of the Convention on Biological Diversity. Global tree red listing contributes directly to Target 2 of the Strategy, which calls for a provisional list of threatened plant species by 2010. In many ways Target 2 underpins the other ambitious targets that relate to *in situ* and *ex situ* conservation and sustainable use and trade in plants. Projects of the Global Trees Campaign carried out in partnership with organizations and individuals around the world contribute to the delivery of these various targets by seeking to halt the loss of forest biodiversity and support rural livelihoods.

The Global Tree Specialist Group is committed to undertaking a global assessment of the conservation status of tree species. Results of the global assessment will be published as components of the work are completed. This will ensure that regular indicators of progress are produced, updated tree conservation data are made widely available and that tree conservation initiatives around the world can be supported. This third publication, *The Red List of Magnoliaceae*, provides one of the few attempts to assess the global conservation status of an entire plant family. The report summarizes currently available information, draws attention to knowledge gaps and makes a strong plea for further research and conservation action. With many species popular in cultivation for their beautiful flowers and foliage, magnolias act as attractive flagships for tree conservation worldwide.

Sara Oldfield
Chair of the IUCN/SSC Global Tree
Specialist Group

ACRONYMS

BGCI	Botanic Gardens Conservation International
CAS	Chinese Academy of Science
CBD	Convention on Biological Diversity
FAO	Food and Agriculture Organization of the United Nations
FFI	Fauna & Flora International
GFRA	Global Forest Resources Assessment
GIS	Geographical Information System
GSPC	Global Strategy for Plant Conservation
IUCN	The World Conservation Union
MODIS	Moderate Resolution Imaging Spectroradiometer
SEPA	State Environmental Protection Administration (China)
SFA	State Forestry Administration (China)
SSC	Species Survival Commission
UNEP-WCMC	United Nations Environment Programme World Conservation Monitoring Centre
VCF	Vegetation Continuous Fields



Sun Weibang/The Harry Smith Collection/RHS

INTRODUCTION

The Magnoliaceae is a family in the flowering plant order Magnoliales, the members of which are evergreen or deciduous trees and shrubs. The family is of exceptional evolutionary interest, as it displays many characters that are considered evolutionarily primitive. For example, the flower parts are arranged in spirals rather than in rings, unlike most other flowering plants, and the sepals and petals are not so clearly differentiated as in most other angiosperms. Although in the late Cretaceous and Tertiary periods the family occurred throughout the Northern Hemisphere, today it displays a disjunct geographical distribution. Some two thirds of species are distributed in Asia, from southern and eastern India, Sri Lanka, Indochina, Malesia, China, Korea and Japan, reaching as far south as New Guinea. The remaining species are found in eastern North America, Mexico and Central America and the West Indies, reaching a southern limit in Brazil (Azuma *et al.*, 2001).

Due largely to their attractive flowers, these plants are widely appreciated as ornamental trees and shrubs, and have consequently attracted much interest from horticulturalists. This interest is illustrated by the existence and work of the Magnolia Society (www.magnoliasociety.org), which has produced a number of publications and an informative

internet resource describing the cultivation, conservation and use of magnolias (see also Hunt, 1998). Some species are also prized as medicinal plants (for example *Magnolia officinalis* is a widely known Chinese traditional medicinal material), whereas others (e.g. *Magnolia cylindrica* and *M. hedyosperma*) are a source of foodstuffs (Shi *et al.*, 2000).

The family has been the focus of much recent taxonomic research, including the use of molecular systematics (DNA sequencing) (Qiu *et al.*, 1995a,b; Azuma *et al.*, 1999, 2001; Kim *et al.*, 2001; Shi *et al.*, 2000) as well as more traditional analysis of morphological characters (Figlar, 2000, 2002a,b; Kim *et al.*, 2002; Sima *et al.*, 2001; Baranova and Jeffrey, 2000; Nootboom, 1985, 1998, 2000; Li and Conran, 2003; Figlar and Nootboom, 2004). The family has long been divided into two subfamilies: Magnolioideae and Liriodendroidae, the latter consisting of just two species of the genus *Liriodendron* (Tulip trees). However, as a result of recent research, the number of genera within the Magnolioideae has been reduced from as many as 11 to just one, *Magnolia* (Figlar and Nootboom, 2004). According to these authors, the genus *Magnolia* is divided into three subgenera: *Magnolia*, *Yulania* and *Gynopodium*.

A full checklist of the family, including a bibliography of the most relevant taxonomic literature, was provided by Frodin and Govaerts (1996). This recognized 223 species. However, the family continues to be the subject of taxonomic revisions (Zhang, 2004), and a number of additional *Magnolia* species have been described since publication of this work, including *M. amabilis* from Yunnan, China (Sima *et al.*, 2006), *M. shangsiensis* from Guangxi, China (Chen *et al.*, 2005), *M. krusei* from Guerrero, Mexico (Ramirez and Duran, 2005), *M. thailandica* (Nootboom and Chalermglin, 2002) and *M. sirindhorniae* from Thailand (Nootboom and Chalermglin, 2000). Doubtless other new species await discovery and description.

Magnolia species have also attracted a great deal of attention from evolutionary biologists and biogeographers (Qiu *et al.*, 1995a,b). In particular, *Magnolia* is one of around 65 plant genera common to both eastern Asia and eastern North America (Wen, 1999). This disjunction is one of the best-known biogeographic patterns in the Northern Hemisphere, and has been intensively studied. A striking feature of the two floras is the presence of morphologically similar pairs of species. Phylogenetic analyses, however, have indicated



Magnolia megaphylla

Sun Weibang

that such species pairs are rarely closely related (Wen, 1999). The floristic similarity between these two regions is attributed to the fact that both are derived from a mixed mesophytic forest that was once continuously distributed throughout the Northern Hemisphere. This forest was fragmented by the climatic and geological changes that occurred throughout the late Tertiary and Quaternary (Wen, 1999; Xiang *et al.*, 2000). Molecular data closely agree with palaeontological evidence, indicating that exchange of plant elements between North America and eastern Asia may have occurred into the Miocene via both the

North Atlantic Bridge and the Bering Strait. Since the mid-Miocene, palaeontological evidence suggests that temperatures in the Northern Hemisphere declined dramatically. Molecular analyses of angiosperms indicate that most species with the eastern Asian-eastern North American disjunct pattern appear to have diverged in the late Miocene and Pliocene, coinciding with this climatic deterioration (Xiang *et al.*, 2000). Qui *et al.* (1995b) concluded from analysis of a range of taxa that disjunction has occurred at different times in different taxa, which suggests that the floristic similarity between the two continents may have

arisen through multiple migrations via both land bridges.

A striking feature of the two floras is that around twice as many species occur in eastern Asia as in eastern North America. This difference was analysed in detail by Qian and Ricklefs (2000), who attributed the apparent higher net speciation rate in eastern Asia to the region's extreme physiographic heterogeneity, which in conjunction with climate and sea-level change has provided opportunities for evolutionary radiation through allopatric speciation. This hypothesis was further confirmed by Xiang *et al.* (2004), who found higher rates of molecular evolution in eastern Asia compared to eastern North America, in an analysis of 10 genera common to both regions. While *Magnolia* did not form part of the latter study, it is likely that these same processes account for the relatively high number of Asian species within this genus.

Azuma *et al.* (2001) analysed the molecular phylogeny of the Magnoliaceae, and found that although the origin of the family dates back to the late Cretaceous (around 100 million years ago), diversification of extant taxa within the subfamily Magnolioideae appears to have been relatively recent, notably during the middle Eocene (around 42 million years ago). The ancestral lineage of the Magnolioideae is thought to have spread at high latitudes in the northern hemisphere during the early Eocene (50-54 million years ago), which was a relatively warm period (Azuma *et al.*, 2001). Subsequent climatic cooling in the mid-Eocene appears to have been associated with diversification of the Magnolioideae, as well as being responsible for the disjunction between North America and eastern Asia, which was associated with the widespread extinction of many lineages in North America and Europe. The climate continued to fluctuate between the early Oligocene and middle Miocene (around 34-15 million years ago), providing opportunities for intercontinental migration of temperate lineages of the Magnolioideae (Azuma *et al.*, 2001).

Despite their scientific, cultural and socio-economic importance, a comprehensive conservation assessment of all the

Magnoliaceae species has never previously been undertaken. However, *Magnolia* species are increasingly attracting the interest of conservation biologists, and a significant amount of research relevant to their conservation has been undertaken in recent years, particularly in Japan and Mexico. For example Corral-Aguirre and Sanchez-Velasquez (2006) examined seed ecology and germination requirements in the threatened *M. dealbata*, whereas Ramirez-Bamonde *et al.* (2005) and Gutierrez and Vovides (1997) investigated seedling survival and growth in the same species. In Japan, Ueno *et al.* (2005) assessed genetic diversity and differentiation in the endemic *M. stellata*, Isagi *et al.* (2000) performed a microsatellite analysis of a population of *M. obovata* and Isagi *et al.* (2004) analysed pollen movement in the same species. Setsuko *et al.* (2004) used microsatellite markers to examine genetic structure in clonal populations of the threatened *M. tomentosa*, whereas Kikuchi and Isagi (2002) examined microsatellite genetic variation in small populations of *M. sieboldii* ssp. *japonica*, and Hirayama *et al.* (2005) examined the pollination ecology of *M. stellata*. In a particularly interesting study, Matsuda *et al.* (2003) applied measures of extinction risk to evaluate the potential environmental impacts of the Japanese World Exposition held in 2005, noting that impacts on species of concern were minimized by changing the site plan.

INFORMATION COLLECTION FOR CONSERVATION ASSESSMENT

The collection of information on the conservation status of Magnoliaceae and evaluation using the IUCN Red List categories and criteria has been a collaborative endeavour involving botanists worldwide. The experts who have provided information for this report are listed on page 4.

A major component of the evaluation has been analysis of the distribution of each species using information compiled from a variety of sources. These included regional and monographic floras, national Red Data Books, online herbarium specimen databases, and the taxonomic and ecological scientific literature. The information available for different species varied in terms of both accuracy and precision, and



Magnolia sargentiana

Sun Weibang; Inset: Paul Mathew

also reflected a variety of different time scales; both recent and historical distribution data were included in the analyses. In cases where precise locality data were lacking, information on the political units (country, province, district) and altitude range (minimum and maximum altitude) within which the species has been reported were used to define the maximum potential range of the species. The latter approach was adopted for 32 per cent of the species considered.

The Magnoliaceae checklist provided by Frodin and Govaerts (1996) was used as a basis for the study. An attempt was

made to locate information on all of the species considered by these authors and for subsequent taxa described. An online search was conducted using Web of Science (<http://scientific.thomson.com/products/wos/>) and Google to identify and obtain information regarding species of the Magnoliaceae described since 1996. In the analysis, we considered species, subspecies and varieties, but did not take into consideration hybrid taxa or those known only in cultivation. The taxonomy and nomenclature of the Magnoliaceae has been subject to considerable revision since the publication of Frodin and Govaerts (1996).



Magnolia sinicum

Yan Lu; Inset: Yang Shaozeng

As far as possible we have attempted to follow current nomenclature. It should be noted, however, that the species listed in this report cannot be considered a full checklist for the Magnoliaceae.

A map of global forest cover obtained from satellite remote sensing imagery was used to define the potential distributional range of each species. For this purpose, we used the Moderate Resolution Imaging Spectroradiometer (MODIS) Vegetation Continuous Fields (VCF) product (Hansen *et al.*, 2003). This product depicts the percentage tree cover at a resolution of 500 m using a

supervised regression tree algorithm. The data are available through the University of Maryland Global Land Cover Facility (www.glc.f.umd.edu) and are also distributed as a MODIS land cover product. To produce the distribution map, forest was defined as those cells with at least 50 per cent cover, based on the MODIS dataset, which uses a 500 m equivalent grid in geographic projection (Hansen *et al.* 2002). For each species considered, a single potential distribution map was generated using ArcView 9.1 Geographic Information System (GIS) (made by ESRI; see www.esri.com) software by combining data on

distribution and forest cover. This was achieved by drawing a polygon around all of the individual locations recorded, or around the boundaries of political units in which the species has been reported. The resulting polygons for individual species were intersected with the forest cover map derived from MODIS data. The resulting maps indicate the current extent and distribution of forest in which each species is likely to occur.

It is important to consider a number of limitations when interpreting the results obtained. Note that the MODIS dataset does not differentiate between secondary and primary forests, or between natural and plantation forests. Furthermore, *Magnolia* species tend to be sparsely distributed in the forests within which they occur. For these reasons, the distribution maps obtained are likely to overestimate the potential area in which each species is likely to occur. As the current distribution of many *Magnolia* species is poorly known, it is possible that populations of some species exist outside the currently known limits of distribution. Also, this study did not consider the possible persistence of Magnoliaceae individuals outside forests. In such cases, it is possible that the approach adopted here may have underestimated the current extent of distribution of some of the species considered.

The maps were used as a basis for assessing the risk of extinction, according to the IUCN Red List categories and criteria (IUCN, 2001). Application of the criteria was undertaken by the Global Tree Specialist Group. Information was also assembled during regional workshops undertaken by the Group in Guatemala, Cuba and China. The workshop held in Kunming, China in June 2004 brought together experts specifically to evaluate the conservation status of and prioritize action for threatened Magnoliaceae (FFI, 2004) whereas those in Guatemala (Vivero *et al.*, 2006) and Cuba (Lazcano Lara *et al.*, 2005) considered a range of tree species in different families. Where categories were available for endemic species considered in such regional assessments, these were followed. For most species, however, the potential area of occupancy was also estimated,

using GIS. The measurement is given as 'potential forest distribution' in species summaries given in the list of globally threatened species (pp. 17-41). This potential forest distribution represents the total forest area (estimated from the MODIS data) that occurs within the polygon describing the distributional range of the species. This figure is intermediate between the 'area of occupancy' and the 'extent of occurrence' used in the IUCN Red List criteria (IUCN, 2001). This is because the figure calculated here represents the total forest area occurring within the distributional range of the species; in reality, only a proportion of this forest area is likely to be occupied by the species being considered (i.e. the area of occupancy). As the current distribution and status of most *Magnolia* species is poorly known, this approach was considered to provide the most accurate assessment possible with the information available. The IUCN criteria were applied conservatively; in other words, estimates of potential area of occupancy were applied to criteria relating to extent of occurrence.

Information on the rate of forest habitat loss was obtained using statistics for change in national forest cover, obtained from the Global Forest Resources Assessment (GFRA) produced by the FAO (2006). The guidelines for using the Red List criteria produced by IUCN refer to 'continuing decline' as 'a recent, current or projected future decline, which is liable to continue unless remedial measures are taken'. We

considered that the criterion of 'continuing decline' was met if the area of forest cover was considered to be declining in the latest GFRA, as well as in previous assessments (as far back as 1990).

RESULTS OF THE EVALUATION

This global evaluation of the conservation status of the Magnoliaceae has been one of the few attempts to evaluate an entire plant family. In total there are about 245 taxa described in the family and IUCN Red List categories and criteria have been applied to 151 of these. A further 94 taxa are listed in this report as Not Evaluated (NE). The NE species are mainly those for which insufficient information could be found for mapping purposes during the course of the study. It is likely that some of the NE species are threatened in the wild given their limited range and the threats to forests in general but this could not be confirmed during the evaluation. It is also clear that some of the NE species have wide distributions and may be considered Least Concern (LC) when further information becomes available.

The summary of results given in the table below indicates that 112 Magnoliaceae taxa are threatened with extinction in the wild according to the IUCN Red List categories and criteria (Critically Endangered, Endangered and Vulnerable). A further nine taxa are considered to be Near Threatened and 10 are recorded as Data Deficient. These Data Deficient species have been recorded as such as there is insufficient information to

apply the IUCN Red List categories and criteria. Nevertheless these taxa are considered to be threatened either in national Red Lists or based on suspected forest decline and so they are included in the list of globally threatened species (pp. 17-41). In total the results of this evaluation indicate that 131 Magnoliaceae taxa are threatened with extinction at a global scale. This is over half the known taxa within the family.

SUMMARY OF RESULTS

Conservation status	Number of Magnoliaceae taxa
Extinct	0
Critically Endangered	31
Endangered	58
Vulnerable	23
Near Threatened	9
Data Deficient	10
Least Concern	20
Not Evaluated	94

CURRENT CONSERVATION MEASURES FOR THREATENED MAGNOLIACEAE

Information on the distribution and abundance of threatened plant species is of primary importance in the planning and implementation of biodiversity conservation activities. The need for attention to be focused on rare and threatened species is recognized within the objectives and implementing mechanisms of the main international biodiversity conventions, notably the Convention on Biological Diversity (CBD). Target 2 of the CBD Global Strategy for Plant Conservation (GSPC) calls for a

Magnolia wilsonii



The Harry Smith Collection/RHS

Magnolia stellata



The Harry Smith Collection/RHS

Magnolia sieboldii ssp. *sinensis*



The Harry Smith Collection/RHS

Box 1: Assessment and conservation for priority species of Magnoliaceae in China

As part of the Global Trees Campaign, Fauna & Flora International, through its China office, has been working on a project for the assessment and conservation of five species of Magnoliaceae identified as priorities at the Kunming expert workshop held in 2004. The project, which has been conducted in partnership with the Kunming Institute of Botany, was supported by the Flagship Species Fund of Defra, the Stanley Smith Horticultural Fund and other funders.

The project's five target species were *Magnolia (Manglietia) sinica*, *Magnolia (Manglietia) grandis*, *Magnolia sargentiana*, *Magnolia phanerophlebia* and *Magnolia (Michelia) coriacea*. The project focused on *in situ* assessments of these species through a programme of field surveys, and an investigation of the level of use of the species for horticulture and other purposes.

The project has gathered a wealth of information about the populations, distributions and threats to these species, which will enable the development of conservation strategies to address their needs. Most notable was the discovery that *M. sargentiana* is far more numerous in the wild than previously thought, and its proposed threat category has been down-graded from Endangered to Vulnerable. *M. sinica*, however, was confirmed as Critically Endangered, with just 10 trees found in the wild. Plans are now being developed to supplement this wild population through careful planting-out of seedlings (all of known provenance) found in various local nurseries during the surveys.

Dr GenLin Jiao



provisional list of threatened plant species by 2010. Target 2 underpins the other ambitious targets of the GSPC which relate to *in situ* and *ex situ* conservation and sustainable use and trade in plants.

Southern China is the world centre of diversity and distribution of Magnoliaceae, with over 40 per cent of the species occurring there. A significant number are considered globally threatened because of habitat decline and, in some cases, over-exploitation. Various measures have been taken over recent years to survey populations of the threatened species in the wild and undertake *ex situ* and *in situ* conservation measures. In one recent initiative, the workshop held in China as part of the Magnoliaceae evaluation prioritized action for 14 species out of the 42 species assessed by Chinese experts. The priority species for action were identified because of their critically small numbers, or because of widespread use and collection, and some due to a lack of information. Five species out of these 14 have subsequently been the subject of a conservation initiative (see Box 1).

Various other initiatives are underway to conserve Chinese Magnoliaceae, through the work of universities, botanic gardens and government agencies. Coordination of efforts is clearly important. This will be enhanced by the forthcoming publication of China's Strategy for Plant Conservation, the national response to the GSPC which is being prepared by the State Environmental Protection Administration (SEPA), State Forestry Administration (SFA) and the Chinese Academy of Science (CAS).

In other parts of the world *Magnolia* species are subject to a variety of conservation research and practical conservation measures, some of which have already been mentioned. In Colombia, the country with the second highest diversity of Magnoliaceae after China, the Magnolia Society is supporting field work to assess the status and threats to the endemic species – essential for planning conservation action. Research is also being undertaken on the Critically Endangered *Magnolia wolfii*, which is now reduced to a tiny population of less than 10 trees in 2 ha of remnant forest

surrounded by coffee plantations. *Magnolia wolfii* is not known in cultivation. The life history and reproductive capacity of this species is being investigated with seed germination studied under natural and greenhouse conditions to facilitate future enhancement planting of seedlings in its natural habitat.

Various globally threatened taxa of Magnoliaceae are protected within National Parks and other forms of protected area. This is the case for the magnolias of Mount Kinabalu National Park in Sabah, which are listed as Least Concern on page 42. The limited distribution of these taxa would qualify them for listing as threatened according to the IUCN Red List categories and criteria, but as their forest habitat is protected and there is consequently no evidence of fragmentation or decline they are considered to be safe by local experts. Another species that benefits specifically from protected area status is *Magnolia pallescens*, a species endemic to the Dominican Republic. Between 1960 and 1980 populations of this species diminished rapidly in some areas as a result of indiscriminate felling for cabinet work. The Ebano Verde Scientific Reserve, with an area of 23 km² was created in 1989 to protect the species.

The examples provided highlight the type of activities that are underway to save magnolias from extinction. Different approaches will be required under different circumstances, appropriate for local needs. It is hoped that international efforts through, for example, the Global Trees Campaign, will build on the successes already achieved to secure a future for all globally threatened taxa.

PRIORITY NEEDS FOR FURTHER ACTION

The information compiled in this report should be used to guide conservation policy both at an ecosystem and species level. Although incomplete, the information provides a useful baseline for planning conservation action. With over half the Magnoliaceae now recorded as globally

threatened it is essential that conservation efforts should be increased.

Further efforts will be made by the IUCN/SSC Global Tree Specialist Group to collect information on the taxa currently listed as Not Evaluated. We will greatly appreciate receiving information on any of these taxa, whether or not they are considered threatened, so that a more complete evaluation of the family can be produced. As far as possible, information should be based on field assessment of the conservation status of the taxa and an analysis of the threats which are leading to decline of populations in the wild. This type of information will greatly enhance the design of appropriate conservation activities.

Based on the information already available, urgent attention is required for the taxa considered to be Critically Endangered. Some of these Magnolias are reduced to a handful of individuals in the wild and it would be a tragedy if species are needlessly lost. It is important that all Critically Endangered taxa are represented in well-managed *ex situ* collections as an insurance policy for the future. At the same time, habitat protection needs to be reviewed and mechanisms put in place for local people to be involved in the *in situ* conservation of these globally important trees. Various species have the potential to be managed sustainably as a source of rural income.

A thorough survey of *ex situ* collections of globally threatened Magnoliaceae taxa is a priority action that is now being undertaken by BGCI, building on information held within the PlantSearch Database. The information on existing holdings and propagation techniques is potentially of great value in both species and habitat restoration. An important preliminary component of the BGCI survey of Magnoliaceae in cultivation will be to access information on species held in botanic garden collections in China, working with the Chinese Academy of Science (CAS) Botanic Gardens Committee



Juan Lobo

Magnolia wolfii

and other gardens. The survey will enable the identification of precisely which Critically Endangered (CR) and Endangered (EN) species are not yet held in *ex situ* collections and the implementation of action to ensure that integrated conservation measures for these species are developed. The potential for restoration of CR and EN species in their natural habitats will be explored.

Magnoliaceae species will only be effectively conserved if their natural habitats are secure. A survey is required to establish which globally threatened taxa are not adequately protected within their natural habitat. Looking ahead, more information is needed on the impact of climate change on Magnoliaceae species. Given the, albeit preliminary, results of the global evaluation of the conservation status of this family and their global importance, there is great potential to use Magnoliaceae as indicators of the impacts of climate change. The information collected for this evaluation, on the conservation status and geographical distribution of the family, provides an important baseline for monitoring, which can be maintained and developed as a conservation resource available to all who wish to support the conservation of magnolias and their natural habitats.

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GLOBALLY THREATENED MAGNOLIACEAE

Distribution maps are provided for a selection of the most seriously threatened species (species names in colour).

Key to all maps

- Known range of species
- Remaining forest cover

Liriodendron chinense (Hemsl.) Sarg.

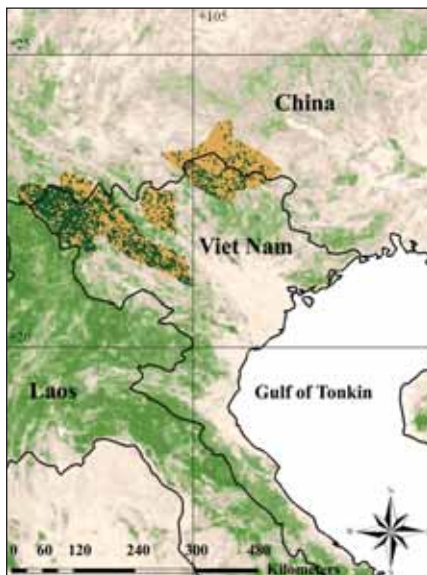
NT

China (Anhui, Fujian, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang), Viet Nam

The species is widely scattered in montane evergreen broadleaved forest in the Yangtze River valley and further south to northern Viet Nam. Poor regeneration, extensive logging and clearing of the habitat have affected populations throughout the range. In Yunnan, the area of occupancy for this species is about 0.4 km². It is a relict species from a once widespread and species-rich genus. The China Expert Workshop confirmed this status.

Assessor: Global Tree Specialist Group

Refs: 1,2,4,30,31

Magnolia aenea (Dandy) Figlar

EN B1ab(i,ii,iii)+B2ab(i,ii,iii)+C2a(i)

Viet Nam, China (S.E. Yunnan)

The potential forest distribution is 20,790 km². There is taxonomic uncertainty about this little known species.

Assessor: China Expert Workshop

Refs: 1,2,3,4,28

Magnolia albosericca Chun and C.H. Tsong

VU B1ab(i,ii,iii)+B2ab(i,ii,iii)+D1

China, Viet Nam

A little known species; there are thought to be very few individuals.

Assessor: China Expert Workshop

Refs: 2,4

Magnolia allenii Standl.

EN B1ab(i,iii)

Costa Rica, Panama (Cocle)

Formerly known as *Talauma gloriensis*, this species occurs on the mountains of Costa Rica and West Panama at about 1000 m in altitude. The potential forest distribution for the species is 1142 km².

Assessor: Global Tree Specialist Group

Refs: 2,3

Magnolia amoena W.C. Cheng

VU B1ab(i,ii,iii)+B2ab(i,ii,iii)

S.E. China (S. Anhui, S. Jiangsu)

Known from small scattered stands at elevations of 700-1000 m in hilly lowland mixed forest. The species is found in a restricted area just south of the mouth of the Yangtze River and is not thought to occur anywhere in large numbers. Scattered individuals have been recorded on the Huanggangshan, Jiangxi/Fujian border, Wuyishan Biosphere Reserve. The extent of forest remaining for this species is estimated at 24,769 km². Collection of flower buds for medicinal purposes is believed to be affecting the regeneration of the plant.

Assessor: China Expert Workshop

Refs: 1,2,3,4,35

Magnolia angustiblonda (Y.W. Law and Y.F. Wu) Figlar



EN B1ab(i,iii)
 China (Guizhou)
 The potential forest distribution is 4713 km².
 Assessor: Global Tree Specialist Group
 Refs: 2,3,28

Magnolia annamensis Dandy

NT
 Viet Nam
 A species known only from forests at 1470 m in Hon-Ba mountains in the Nhat Trang province of Annam, Viet Nam. The potential forest distribution is 13,949 km². The range is restricted and the species may be re-assessed as more threatened should information on fragmentation and decline become available.
 Assessor: Global Tree Specialist Group
 Refs: 2,3

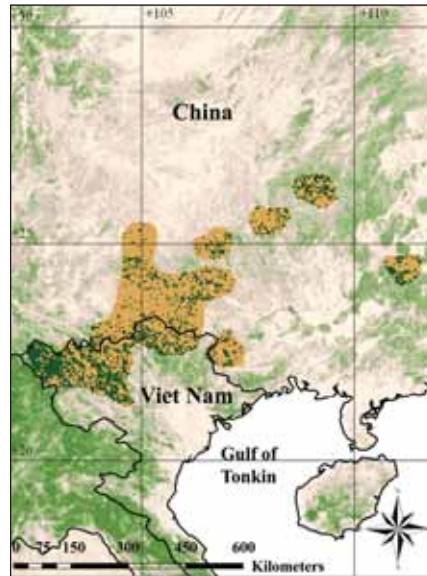
Magnolia arcabucoana (Lozano) Govaerts

EN B1ab(iii)
 Colombia (Boyaca, Cundinamarca, Santander)
 Assessor: Calderon, E. *et al.*
 Refs: 2,5,39

Magnolia argyothricha (Lozano) Govaerts

EN B1ab(i,iii)
 Colombia (Boyaca, Santander)
 Assessor: Calderon, E. *et al.*
 Refs: 2,5

Magnolia aromatica (Dandy) V.S. Kumar



EN C1
 N. Viet Nam, S. China (Yunnan, Guizhou, Guangxi)
 Also known as *Manglietia aromatica* Dandy, only a few scattered stands of this important timber tree remain in China. The species is found in monsoon forest on limestone hills between 800 m and 1550 m in a range stretching from south-east Yunnan to south-west Guangxi, with a potential forest distribution of 39,605 km². The actual area of occupancy in Yunnan is around 0.3 km². Several populations are reported to have become extinct in both provinces, largely because of overexploitation of the timber.
 Assessor: China Expert Workshop
 Refs: 1,2,3,4,22,30,31

Magnolia biondii Pamp.

DD
 China (Henan, Hubei, Shaanxi, Gansu, Sichuan)
 Listed as Vulnerable in the *China Species Red List*.
 Assessor: Global Tree Specialist Group
 Refs: 2,27

Magnolia blaoensis (Gagnep.) Dandy

VU B1ab(i,iii)
 Viet Nam
 A species occurring in Annam with a potential forest distribution of 12,537 km².
 Assessor: Global Tree Specialist Group
 Refs: 2,3

Magnolia boliviana M. Nee

VU B1ab(i,iii)
 Bolivia (Cochabamba, Santa Cruz)
 Originally described under the genus *Talauma*, the species is known only from forest in the foothills of Amboro Park and the Chapare region. It occurs at elevations of 360-1800 m. Deforestation is ongoing. The potential forest distribution in

Cochabamba is 48,709 km², however the actual extent of occurrence is likely to be less than 100 km².

Assessor: Global Tree Specialist Group

Refs: 1,2,3

Magnolia cacuminicola subsp. *bissei* Imch.

CR B1ab(ii,iii,v)+2ab(ii,iii,v)

Cuba

This endemic magnolia grows in the rainforests and cloud forest of Baracoa in the north of Guantanamo province. It occurs at elevations of 700-800 m. The potential area of distribution is less than 100 km² and population density is extremely low. Deforestation and exploitation of the timber are the main threats to this subspecies.

Assessor: Cuban Plant Specialist Group

Ref: 43

Magnolia cacuminicola Bisse subsp. *cacuminicola*

CR B1ab(ii,iii,v)+2ab(ii,iii,v)

Cuba

This subspecies grows in mountain rainforests of Sierra del Purial and Sierra de Imias in Baracoa, Guantanamo province, at 900-1100 m. Populations are composed of few plants. The reasons for decline include habitat destruction and timber production.

Assessor: Cuban Plant Specialist Group

Ref: 43

Magnolia calimaensis (Lozano) Govaerts



CR B1ab(i,iii)

Colombia (Valle del Cauca)

Recorded only from Valle del Cauca at an elevation of approximately 50 m. The potential forest distribution is 5919 km².

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia calophylla (Lozano) Govaerts



EN B1ab(iii)

Colombia (Nariño)

The species is recorded from Nariño and has a potential forest distribution of 15,121 km². It was previously considered Vulnerable but recent work by Colombian botanists suggests the species is Endangered.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia cararensis (Lozano) Govaerts



CR B1ab(i,iii)

Colombia (Norte de Santander)

The species is recorded only from Norte de Santander and has a potential forest distribution of 10,478 km².

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia caricifragrans (Lozano) Govaerts

EN A4cd

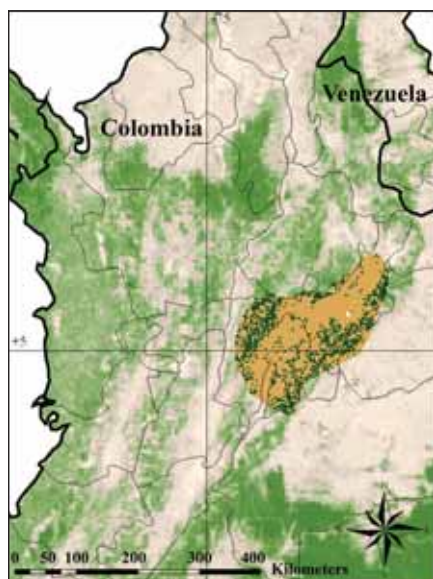
Colombia (Boyaca, Cundinamarca, Norte de Santander)

The species is recorded from localities in Boyaca, Cundinamarca and Norte de Santander at elevations of 1800-2900 m. The potential forest distribution is 20,779 km².

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5,39

Magnolia cespedesii (Triana and Planch) Govaerts



CR B1ab(i,iii)

Colombia (Cundinamarca, Boyaca)

Known from Cundinamarca and from a less definite record in Boyaca, it occurs at elevations of approximately 100 m. The potential forest distribution for the species is 10,108 km².

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia chimantensis Steyerm. and Maguire

CR B1ab(i,iii)

Colombia, Venezuela (Bolivar)

A species found at altitudes of 1800-2200 m.

Assessor: Calderon, E. *et al.*

Refs: 2,5,39

Magnolia chocoensis (Lozano) Govaerts

EN B1ab(i,iii)

Colombia (Choco, Risaralda)

Assessor: Calderon, E. *et al.*

Refs: 2,5

Magnolia colombiana (Little) Govaerts

EN B1ab(i,iii)

Colombia (Huila)

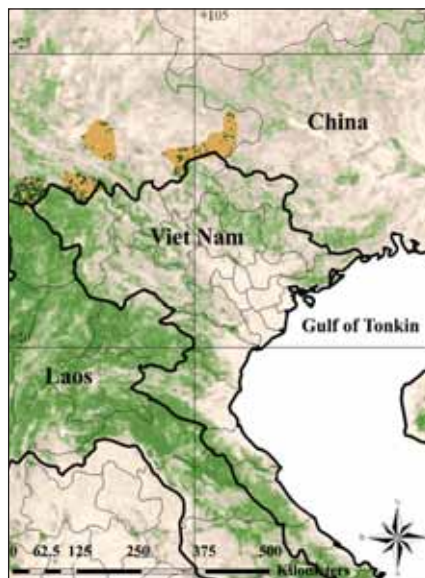
The accepted name for *Dugandiodendron colombianum*. The

species has been recorded only from Huila with a potential forest distribution of 4731 km².

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia coriacea (Hung T. Chang and B.L. Chen) Figlar



CR B2ab(i,ii,iii,v)

China (S.E. Yunnan)

The species, also commonly known as *Michelia coriacea* Hu and W.C. Chen, is known only from Xichou and Malipo Counties in the south-east of Yunnan. It occurs as scattered individuals in evergreen woods on limestone mountain slopes at 1200-1450 m. The potential forest distribution for the species is 4190 km². Global Trees Campaign field surveys in December 2005 estimated that there are about 300-500 individuals remaining, mainly outside nature reserves. Most of the individuals are sprouted multi-trunks from the base of chopped trees. In Malipo County, big trees remain because local people protect them as symbols of good luck. Raising awareness about this species in local communities and government authorities is vital. Studies on reproductive biology and the genetic and ecological factors causing poor fruiting and low natural regeneration are also urgently needed.

Assessor: Global Tree Specialist Group

Refs: 1,2,3,4,19,28,31

Magnolia crassipes (Y.W. Law) V.S. Kumar

EN B2ab(i,ii,iii)

China

Also known as *Manglietia pachyphylla* Chang, this species is known from one location with an area of occupancy less than 100 km². The population is thought to be less than 1000 individuals.

Assessor: China Expert Workshop

Refs: 4,22

Magnolia cristalensis* subsp. *baracoana Imch.

CR B1ab(i,ii,v)+2ab(i,ii,v)

Cuba

This magnolia is only known from a single locality – Loma los Guineos – at Baracoa, Guantanamo province. It occurs in the tropical rainforests on acid soils below 500 m elevation. Potential distribution is less than 50 km². Herbarium specimens are scarce and very few plants have been located.

Assessor: Cuban Plant Specialist Group

Ref: 43

Magnolia cristalensis* Bisse subsp. *cristalensis

CR B2ab(i,ii,iii,iv,v)+C2a(i)

Cuba

This endemic taxon is restricted to the montane rainforests of Sierra de Nipe and Sierra del Cristal in Holguin province. It grows at elevations of 700-900 m on lateritic soils. Its very small populations are scattered throughout the species range. This magnolia is illegally overexploited for timber and its habitat is affected by deforestation and mining.

Assessor: Cuban Plant Specialist Group

Ref: 43

Magnolia cristalensis* subsp. *moana Imch.

CR B2ab(iv,v)

Cuba

This subspecies grows in the tropical montane rainforests over ultramafic derived soils in the Sierra de Moa (Moa) and Mina Iberia (Baracoa). It occurs at elevations of 700-1000 m. The potential area of distribution is less than 300 km² but very few populations are known and most are very small. Deforestation and overexploitation have disturbed the habitat of this plant.

Assessor: Cuban Plant Specialist Group

Ref: 43

Magnolia cubensis* subsp. *acunae Imch.

CR B2ab(v)+C2a(ii)

Cuba

This subspecies is widely scattered in the montane rainforests of the Guamuhaia range. Seedlings are scarce in the wild but germination in cultivation is possible. Some protection activities have been carried out in the Alturas de Banao Ecological Reserve. The species reaches an elevation of 950 m but does not grow below 700 m. It is threatened by deforestation and low natural regeneration.

Assessor: Cuban Plant Specialist Group

Ref: 43

Magnolia cubensis* Urb. subsp. *cacuminicola (Bisse) G. Klotz

CR B1ab(ii,iii,v)+2ab(ii,iii,v)

Cuba

A rare tree of montane rainforest and cloud forest restricted to Baracoa in eastern Cuba. The potential forest distribution for this species is 1364 km².

Assessor: Cuban Plant Specialist Group

Refs: 1,2,3,15

Magnolia cubensis* Urb. subsp. *cubensis

CR B1ab(ii,iii,v)+C2a(i)

Cuba

A rare subspecies that lives in the mountain rainforests and cloud forests of the Gran Piedra range in Santiago de Cuba province, where it forms low-density populations at elevations of 1000-1200 m. The main threats to this subspecies are habitat degradation and overexploitation of timber. The potential forest distribution is 300 km².

Assessor: Cuban Plant Specialist Group

RefS: 1,2,43

Magnolia cubensis* subsp. *turquinensis Imch.

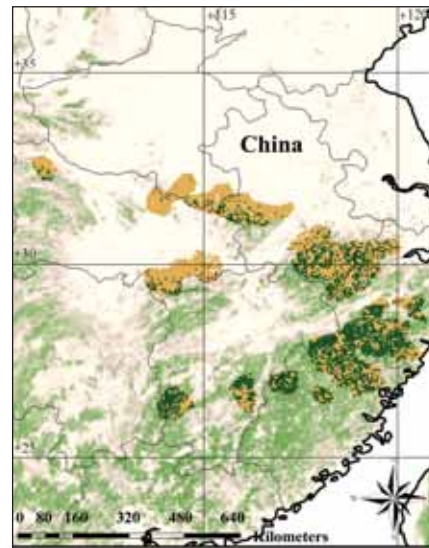
EN B1ab(v)+2b(v)

Cuba

This subspecies is restricted to montane rainforest and cloud forest of the Sierra del Turquino range in south-east Cuba. Its low-density populations are scattered at elevations of 800-1800 m. It has been affected by extensive logging and forest clearance throughout its range.

Assessor: Cuban Plant Specialist Group

Ref: 43

Magnolia cylindrica E.H. Wilson

VU B1ab(i,ii,iii)+B2ab(i,ii,iii)

China (Anhui, Fujian, Jiangxi, Zhejiang)

A tree known from a restricted area in the lower reaches of the Yangtze River, where it occurs in thickets and open forest up to 1700 m. Potential forest distribution for this species is 78,826 km². General forest clearance and collection of the flower buds for medicinal use are believed to be having detrimental effects throughout the range of the species.

Assessor: China Expert Workshop

Refs: 1,2,3,4

Magnolia dawsoniana Rehder and E.H. Wilson

EN B1ab(i,iii)

China (Sichuan, Yunnan)

Scattered populations have been recorded in western Sichuan in areas including Maowen, Little Gongga and north of Gongga Shan towards Kangding. A Sichuan University/University of British Columbia Botanic Garden team located populations in the Dafengding region of southern Sichuan in September 2006. Scattered individuals and groups were found in the Meigu – Dafengding National Nature Reserve within mixed deciduous forest covering an estimated 20,000 ha. Listed as Endangered in the *China Species Red List*.

Assessor: Global Tree Specialist Group

Refs: 2,27,35

Magnolia dealbata Zucc.



EN B1ab(i,iii)

Mexico (Hidalgo, Oaxaca, Veracruz)

About four or five relict populations exist in areas of cloud forest between 600 and 1600 m. The largest consists of between 80 and 100 individuals in disturbed cloud forest at Ixhuacan de los Reyes, Veracruz. Numbers are very small in Oaxaca and Hidalgo. The reasons for declines have largely been habitat destruction, timber production and poor regeneration. The species is represented in *ex situ* collections, including at the Jardín Botánico Francisco Javier Clavijero.

Assessor: Vovides, A.P.

Refs: 1,2,6

Magnolia decidua (Q.Y. Zheng) V.S. Kumar

EN B2ab(i,ii,iii)

China

Described in 1995 as *Manglietia decidua* Q.Y. Zheng, this species is known from one location and the population is thought to number less than 500 individuals.

Assessor: China Expert Workshop

Refs: 4,22

Magnolia delavayi Franch.

DD

China (Sichuan, Yunnan)

Listed as Vulnerable in the *China Species Red List*.

Assessor: Global Tree Specialist Group

Refs: 2,27

Magnolia denudata Desr.

DD

China (Anhui, Hunan, Jiangsu, Guangdong, Guizhou, Fujian, Zhejiang)

Listed as Vulnerable in the *China Species Red List*.

Assessor: Global Tree Specialist Group

Refs: 2,27

Magnolia dixonii Little

VU B1ab(i,iii)

Ecuador

Formerly known as *Talauma dixonii*, this large timber tree grows to 75 m tall and is used to make canoes. It is found in maritime humid forests at elevations of 75 m. The potential forest distribution for the species is 7171 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,9

Magnolia dodecapetala Lam.

VU B1ab(i,iii)

Martinique, Trinidad, Guadeloupe, St. Vincent, Dominica.

Formerly known as *Talauma dodecapetala*, this species occurs in dense humid forest at 200-800 m and has a potential forest distribution of 15,839 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,10

Magnolia domingensis Urb.

EN B1ab(i,iii)

Dominican Republic, Haiti

This species occurs in forests at 840-1470 m in north Haiti and in the south-east of the Cordillera Central in the Dominican Republic. Potential forest distribution for the species is 1652 km². In the Dominican Republic, the species occurs in an area of approximately 35 km², and is found within a National Park.

Assessor: Global Tree Specialist Group

Refs: 2,3,18,38

Magnolia ekmanii Urb.

EN B1ab(i,iii)

Haiti

This species occurs at the edges of pine forests at about 1170 m in south-west Haiti and has a potential forest distribution of 738 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,18,38

Magnolia emarginata Urb. and Ekman

EN B1ab(i,iii)

Haiti

A species native to forests at 1000-1300 m in north Haiti with a potential forest distribution of 1109 km². A major storm destroyed forest in one area from which the species was collected and it is not certain whether this species survived.

Assessor: Global Tree Specialist Group

Refs: 2,3,18,38

Magnolia ernestii Figlar

NT

China (Sichuan, Guizhou, Jiangxi, Hubei)

Also known as *Michelia wilsonii* Finet and Gagnep, this species is restricted to mountainous areas on the south to west fringe of the Sichuan basin and Lichuan in Western Hubei. It occurs in moist broadleaved forest between 700 m and 1600 m.

Uncontrolled logging and habitat clearance are believed to have caused considerable population declines. This species has previously been listed as Endangered but the China Expert Workshop expressed uncertainty about its status. The potential forest distribution for the species is 68,273 km².

Assessor: Global Tree Specialist Group

Refs: 1,2,3,4,28

Magnolia espinalii (Lozano) Govaerts

CR D1

Colombia (Antioquia)

The species is recorded only from Antioquia at elevations of around 2350 m. The potential forest distribution is 9639 km². Fewer than 50 mature individuals are known.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5,39

Magnolia fordiana (Oliv.) Hu var. ***forrestii*** (W.W. Sm ex Dandy)

V.S. Kumar

NT

China, Viet Nam

Also known as *Manglietia fordiana* Oliv. var. *forrestii* (W.W. Sm ex Dandy) B.L. Chen and Noot., this taxon occurs in Fujian, Guangdong, Hong Kong, Guizhou and Yunnan with a potential forest distribution of 71,461 km², which is fragmented. The species was previously considered to be Vulnerable.

Assessor: China Expert Workshop

Refs: 1,2,3,4,22

*Magnolia grandis*

Zhang Yu

Magnolia georgii (Lozano) Govaerts



EN B1ab(i,iii)
 Colombia (Boyaca, Santander)
 The accepted name for *Talauma georgii*. The species has been recorded only from localities in Boyaca and Santander and occurs at elevations of approximately 3400 m. The potential forest distribution is 5348 km². Recent work by Colombian botanists confirms its Endangered status.
 Assessor: Calderon, E. *et al.*
 Refs: 1,2,3,5

Magnolia gilbertoi (Lozano) Govaerts



EN B1ab(i,iii)
 Colombia (Risaralda, Valle del Cauca)
 Restricted to Risaralda and Valle del Cauca at elevations of 1500-2040 m, the potential forest distribution for this species is 1686 km².
 Assessor: Calderon, E. *et al.*
 Refs: 1,2,3,5

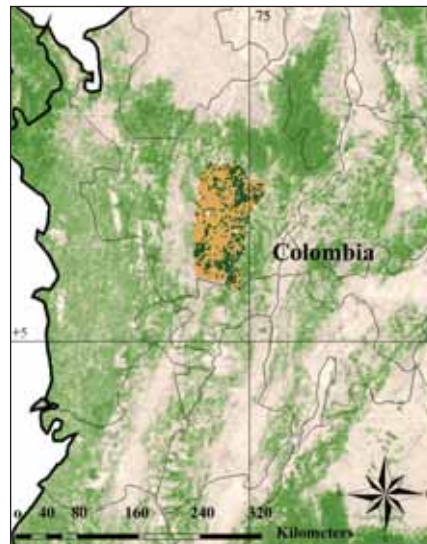
Magnolia grandis (Hu and W.C. Cheng) V.S. Kumar
 CR B2ab(i,ii,iii,v)

China (Guangxi, Yunnan)
 Also known as *Manglietia grandis* Hu and W.C Cheng, the species ranges from south-west Guangxi to south-east Yunnan, occurring in forested valleys on limestone mountains between 800 m and 1500 m, with a potential forest distribution of 4908 km². The habitat has been extensively cleared and degraded and population declines have been reported as a result. The area of occupancy in Yunnan is around 0.3 km². No specimens were seen in the wild in Guangxi province during Global Trees Campaign field surveys in December 2005. A large area surrounding the nature reserves visited during these surveys has been planted with economically valuable trees, threatening the habitat of this species.
 Assessor: Global Tree Specialist Group
 Refs: 1,2,3,4,19,22,30,31

Magnolia griffithii Hook.f. and Thompson
 DD

India (Assam), Myanmar (Kachin, Sagaing)
 This species occurs at elevations of 80-750 m and has a potential forest distribution of 148,687 km². It is suspected that deforestation may be having a negative impact on this species but confirmation of this is required.
 Assessor: Global Tree Specialist Group
 Refs: 1,2,3,32

Magnolia guatapensis (Lozano) Govaerts



EN B1ab(iii)+A4cd
 Colombia (Antioquia)
 The species is recorded only from Antioquia at elevations of approximately 1850 m and has a potential forest distribution of 3360 km². Previously considered to be Critically Endangered, Colombian botanists have applied this revised category based on GIS work.
 Assessor: Calderon, E. *et al.*
 Refs: 1,2,3,5

Magnolia guatemalensis Donn. Sm. subsp. *guatemalensis*



EN A2c+B2ab(ii,iii,iv)

Guatemala

This very attractive tree grows in swamp areas among forests at elevations of 1300-2000 m. It is relatively abundant in marshes in Tactic (Alta Verapaz), but at other locations is found as isolated trees. The potential forest distribution for the species is 5409 km².

Assessor: Vivero, J.L. and Szejner, M.

Refs: 2,3,16

Magnolia guatemalensis Donn. Sm. subsp. *hondurensis*

(Molina) Vázquez

EN B1ab(ii,iii)

El Salvador, Honduras

A tree of medium- to high-altitude mixed forest with an elevation range of 1800-2300 m. The potential forest distribution for the taxon is 1155 km².

Assessor: Global Tree Specialist Group

Refs: 1,2,3

Magnolia gustavii King.



EN B1ab(i,iii)

India (Assam)

A large tree confined to Makum forest in Assam with 1743 km² of potential forest remaining.

Assessor: Global Tree Specialist Group

Refs: 1,2,3

Magnolia hamorii Howard



EN B1ab(i,iii)

Dominican Republic

Native to Barahona province of the Dominican Republic, the species has been found in small stands on limestone hills in wet cloud forests at about 1320 m. The potential forest distribution for this species is 2857 km². The species occurs in the Sierra de Bahoruco Oriental National Park.

Assessor: Global Tree Specialist Group

Refs: 2,3,18,38

Magnolia hebecarpa (C.Y. Wu and Y.W. Law) V.S. Kumar

CR B2ab(i,ii,iii,v)

China (Yunnan)

Also known as ***Manglietia hebecarpa*** C.Y. Wu and Y.W. Law, this species is distributed in forest fragments and along rivers at 300-1200 m altitude in south-east Yunnan. The potential forest distribution is 9352 km² but the area of occupancy is now estimated at less than 1 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,18,22,31

Magnolia henaoui (Lozano) Govaerts

EN B1ab(i,iii)

Colombia (Huila)

The species is recorded only from Huila. The potential forest distribution for the species is 3056 km² but the actual area of occupancy is significantly less.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia henryi Dunn.

NT

China (Yunnan), Laos, Myanmar, Thailand

Ranging from south-east Yunnan to north-east Myanmar, Thailand and north Laos, the species is found in dry monsoon forest on limestone at low to medium elevations. An estimated 50 subpopulations are known in China, but extensive clearing and destruction of forest has resulted in populations there becoming scarce and threatened. It has been evaluated as Critically Endangered in Yunnan province.

Assessor: China Expert Workshop

Refs: 1,2,4,30

Magnolia hernandezii (Lozano) Govaerts

EN A4cd

Colombia

The species is recorded from localities in Antioquia, Quindío, Risaralda and Valle del Cauca with a potential forest distribution of 13,456 km². The elevation range for the species is 500-2100 m.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia hypolampra (Dandy) Figlar

VU C1

Viet Nam, China (Guangxi, Hainan, Yunnan)

Scattered records are known from Hainan Island, southern Yunnan and south-west Guangxi. The potential forest distribution is 36,802 km². The species is restricted to remaining areas of lowland monsoon forest, which has been severely reduced by high rates of habitat clearance and logging. This is not a well known tree but it is used for timber and a form of spice. The species is also known as ***Michelia hedyosperma*** Law and ***Michelia hypolampra*** Dandy.

Assessor: China Expert Workshop

Refs: 1,2,3,4,23,28

Magnolia iltisiana Vázquez

VU B1ab(i,iii)

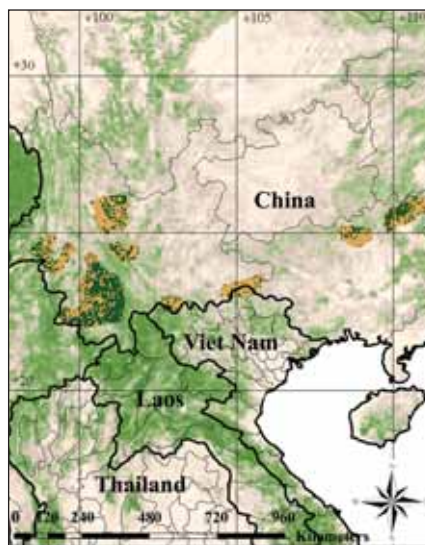
Mexico (Jalisco, Michoacan, Guerrero)

A majestic tree which forms part of the mesophyllous montane forest in the Sierra de Manantlán and Cacoma in Jalisco, at elevations of 1800-2200 m. There is also a disjunct population in Guerrero. The potential forest distribution for the species is 7947 km².

Assessor: Global Tree Specialist Group

Refs: 1,2,3

Magnolia ingrata (B.L. Chen and S.C. Yang) Figlar



EN B1ab(i,ii,iii)+B2ab(i,ii,iii)

China (E. and S. Yunnan)

The potential forest distribution for this species is 4378 km² and further field work may result in a more threatened status. The taxonomy of *M. ingrata* is not fully understood and different opinions on its taxonomic status remain.

Assessor: China Expert Workshop

Refs: 1,2,3,4,22,28



Magnolia megaphylla

Zhang Yu

Magnolia irwiniana (Lozano) Govaerts

EN B1ab(i,iii)

Brazil (Goiás)

A species found in lowland forest at altitudes of less than 100 m in the state of Goiás, Brazil with a potential forest distribution of 5116 km².

Assessor: Global Tree Specialist Group

Refs: 2,3

Magnolia kachirachirai (Kaneh. and Yamam.) Dandy

EN B1ab(i,iii)

China (Taiwan)

A species at the most southerly limit of the family's range, in southern Taiwan, from Taitung to the Hengchun Peninsula. Populations are healthy but fragmented, occurring in areas of lowland broadleaved forest at 500-1300 m. The potential forest remaining for the species is 2158 km². Kenting National Park

covers part of the range, but elsewhere encroaching settlements are causing loss of habitat.

Assessor: Global Tree Specialist Group

Refs: 1,2,3

Magnolia katorum (Lozano) Govaerts

CR B1ab(iii)

Colombia (Antioquia)

The species is known only from Antioquia at elevations of approximately 60-340 m. The potential forest distribution is 842 km². Previously assessed as Endangered, recent work by Colombian botanists has shown the species to be at greater risk.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5,39

Magnolia krusei J. Jimenez Ram and Cruz. Duran

VU B1ab(i,iii)

Mexico

A newly described species that on closer study may prove to be synonymous with *M. illisiana*. The potential forest remaining for the species is 9120 km².

Assessor: Global Tree Specialist Group

Refs: 3,23,24

Magnolia lacei (W.W. Sm.) Figlar

CR D

China

This species is known from less than five locations with an estimated 50-60 individuals. It requires further study but the precautionary principle has been applied in this assessment.

Assessor: China Expert Workshop

Refs: 2,4,28

Magnolia lenticellata (Lozano) Govaerts



EN B1ab(iii)

Colombia (Antioquia)

The species is recorded only from Antioquia and has a potential forest distribution of 32,148 km². Previously considered to be Vulnerable, recent work by Colombian botanists has resulted in this revised category.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia liliiflora Desr.

DD

China (Hubei, Yunnan)

Listed as Vulnerable in the *China Species Red List*.

Assessor: Global Tree Specialist Group

Refs: 2,27

Magnolia longipedunculata (Q.W. Zeng and Y.W. Law) V.S. Kumar

DD

China

Recently discovered and described as ***Manglietia***

longipedunculata Q.W. Zeng and Y.W. Law with very few individuals found at one location.

Assessor: China Expert Workshop

Refs: 4,22

Magnolia macrophylla subsp. ***ashei*** (Weath.) Spongberg

VU B1ab(iii)

USA (Florida)

Endemic to Florida, the species ranges from Leon and Wakulla counties westward to Santa Rosa county along the southern half of the Florida Panhandle. A record in Texas appears to be a misidentification. Occurring in broadleaved or mixed forest on ravine slopes and bluffs, the species is sporadic and scarce in distribution. It has a potential forest distribution of 8805 km².

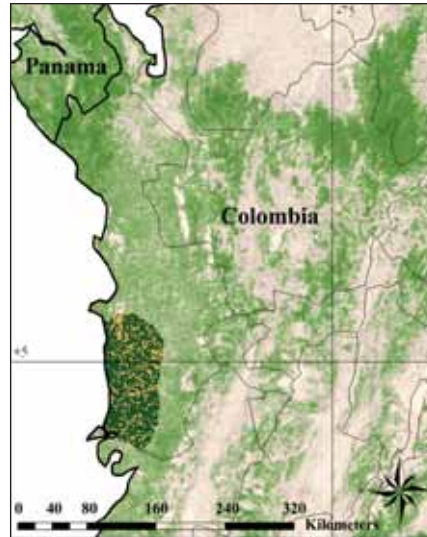
M. macrophylla does not respond well to disturbance and competition with more aggressive plants. In NatureServe this

taxon is listed as ***Magnolia ashei***, which is given a global ranking of G2.

Assessor: Global Tree Specialist Group

Refs: 1,2,3,25

Magnolia magnifolia (Lozano) Govaerts



EN B1ab(iii)

Colombia (Choco)

The potential forest distribution for this species is 6185 km². Previously Not Evaluated, the recent assessment has been undertaken by Colombian botanists.

Assessor: Calderon, E. *et al.*

Refs: 2,3,5

Magnolia mahechae (Lozano) Govaerts



EN B1ab(iii)

Colombia (Valle del Cauca)

The species is recorded only from Valle del Cauca and has a potential forest distribution of 5223 km². Previously considered to

be Critically Endangered, recent work by Colombian botanists has resulted in this revised category.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia mannii (King) Figlar

VU B1ab(i,iii)

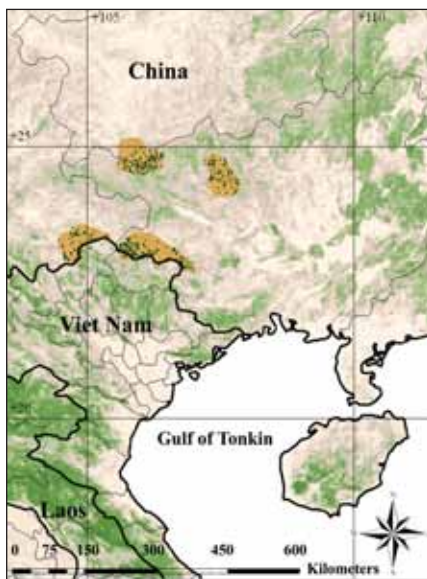
India (Assam)

The potential forest distribution for this species is 19,491 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,28

Magnolia megaphylla (Hu and W.C. Cheng) V.S. Kumar



CR B2ab(i,ii,iii,v)

China

Also known as *Manglietia megaphylla* Hu and W.C. Cheng, the remaining populations are believed to be small. They are restricted to broadleaved evergreen forest between altitudes of 450 m and 1500 m. The potential forest distribution is 4265 km² and the estimated area of occupancy is less than 10 km². This species occurs on Mt. Xiaoqiaogou, with *M. sinica*, Mt. Laojun in south-east Yunnan, and in Yunnan's border area with Guangxi Province. The forests are unprotected and heavily exploited for firewood and timber. This species provides a construction timber given particular preference by local inhabitants.

Assessor: Global Tree Specialist Group

Refs : 1,2,3,4,22,31

Magnolia minor (Urb.) Govaerts



EN B1ab(iii)+2ab(iii)

Cuba

A scarce tree of lower montane rainforest, confined to the Sierra Maestra. The habitat has been disturbed by logging and over-cutting. The potential forest distribution for this species is 4862 km².

Assessor: Cuban Plant Specialist Group

Refs: 1,2,3,15,43

Magnolia morii (Lozano) Govaerts



EN B1ab(iii)

Panama

The potential forest distribution for this species is 890 km².

Assessor: Global Tree Specialist Group

Refs: 2,3

Magnolia multiflora M.C. Wang and C.L. Min



EN B1ab(iii)
 China
 Distributed in forests at altitudes of 1690 m in Shaanxi (Ning Shan) with a potential forest distribution of 2011 km².
 Assessor: Global Tree Specialist Group
 Refs: 2,3

Magnolia narinensis (Lozano) Govaerts



CR B1ab(i,iii)
 Colombia (Nariño)
 The species is known only from Nariño. It has a potential forest distribution of 14,930 km² but an area of occupancy estimated at 100 km².
 Assessor: Calderon, E. *et al.*
 Refs: 1,2,3,5

Magnolia nana Dandy



EN B1ab(i,iii)
 Viet Nam
 A small evergreen shrub native to forests at 1290 m in the province of Annam, with a potential forest distribution of 2984 km².
 Assessor: Global Tree Specialist Group
 Refs: 2,3

Magnolia neillii Lozano (Govaerts)

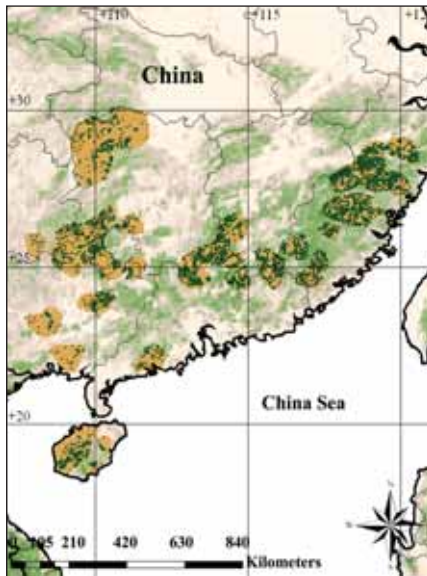
VU D2
 Colombia, Ecuador
 Formerly known as *Talauma neilli*, this species is found in the Amazonian rainforest at very few localities at elevations of 300-500 m. The potential forest distribution is 7798 km².
 Assessor: Global Tree Specialist Group
 Refs: 2,3,5,9

Magnolia nitida W.W. Sm var. *nitida*

DD
 Myanmar, China (Guangxi, Guizhou, Tibet, Yunnan)
 Considered Endangered in China, the taxon occurs in montane broadleaved evergreen forest between 1400 m and 1500 m on Mt. Damiao in northern Guangxi, Rongjiang in south-east Guizhou, and at various mountain localities in Yunnan extending into Tibet and Myanmar. It provides a useful timber and its exploitation as well as general habitat loss have caused considerable population declines. There is some concern that the androdioecious nature of the flowering system may be contributing to poor regeneration. Information is needed on its status in Myanmar.
 Assessor: Global Tree Specialist Group
 Refs: 1,2,4

Magnolia nitida* var. *lotungensis (Chun and C.H. Tsoong)

B.L. Chen and Noot.



EN C1

China (Guangdong, Guangxi, Guizhou, Hunan, Zhejiang, Hainan)
Previously considered to belong to a separate genus *Parakmeria*, this variety is scattered over parts of central and southern China. It is probably better placed as *Magnolia lotungensis* Chun and C.H.Tsoong as it is a haploid taxon with a distribution separate from the diploid *Magnolia nitida* W.W. Sm. The taxon occurs in broadleaved evergreen forest between 800 m and 1000 m and has a potential forest distribution of 116,451 km². As a result of logging and habitat degradation there has been a decline of more than 50 per cent in China in recent years and the total population is thought to be less than 2,500 individuals.

Assessor: China Expert Workshop

Refs: 1,2,3,4,23

Magnolia odora (Chun) Figlar and Noot.

VU B1ab(i,ii,iii)+B2ab(i,ii,iii)+C2a(i)

Viet Nam, China (Guangdong, Guangxi, Fujian, Hainan)

Previously known under the monotypic genus *Tsoongiodendron* and also as *Michelia odora* (Chun) Figlar and Noot., this species is relatively widespread in lowland moist forest within an area extending from southern China to northern Viet Nam. The potential forest distribution is estimated at 99,604 km². Population declines have occurred because of extensive logging and habitat clearance and mature trees are reportedly rare.

Assessor: China Expert Workshop

Refs: 1,2,3,4,28

Magnolia officinalis Rehder and E.H. Wilson

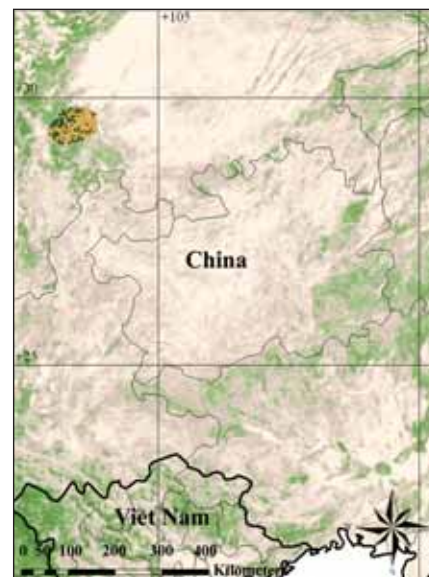
NT

China (Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Hubei, Jiangxi, Zhejiang, Shaanxi, Sichuan, Tibet)

A very widespread tree occurring in China with a potential forest distribution of 119,449 km². It generally occurs in broadleaved deciduous forest up to 1500 m, but the rate of decline of forest and also the levels of bark-stripping of the tree have led to the species becoming rare outside cultivation. It has been evaluated as Critically Endangered in Yunnan, China, as its area of occupancy in the wild in the province is about 0.96 km². The species is frequently divided into subspecies but the differences between the two forms are not thought to be sufficient for taxonomic distinction.

Assessor: China Expert Workshop

Refs: 1,2,3,4,30,31

Magnolia omeiensis (Hu and C.Y. Cheng) Dandy

CR C2a(i)

China (Guizhou, Sichuan)

A species closely resembling *M. nitida* var. *nitida*, confined to three locations with less than 100 individuals known. It is also referred to as *Parakmeria omeiensis*. Only male individuals have been found in an area of broadleaved evergreen forest between 1000 m and 1200 m. Logging appears to be continuing in the area and no special protection is yet in place to ensure that the population remains intact. The potential forest distribution for the species is 1910 km².

Assessor: China Expert Workshop

Refs: 1,2,3,4,23

Magnolia ovoidea (Hung T. Chang and B.L. Chen) V.S. Kumar



CR D
 China (Yunnan)
 Also known as *Manglietia ovoidea* Hung T.Chang and B.L.Chen, this species is distributed in evergreen broad-leaved forests at altitudes of 1700-2000 m in south-east Yunnan. The potential forest distribution is 148,264 km² but it is thought that there are less than 50 individuals in four subpopulations.
 Assessor: China Expert Workshop
 Refs: 1,2,3,4,22



Magnolia coriacea

Zhang Yu

Magnolia pacifica Vázquez subsp. *pugana* H.H. Iltis and Vázquez
 CR B1ab(i,iii)
 Mexico
 The potential forest distribution for this taxon is 114 km².
 Assessor: Global Tree Specialist Group
 Refs: 2,3

Magnolia pacifica Vázquez subsp. *tarahumara* Vázquez
 VU B1ab(i,iii)
 Mexico
 Only found in the Sonora islands of Mexico, where it is known from few localities. Potential forest distribution for the taxon is 8168 km².
 Assessor: Global Tree Specialist Group
 Refs: 2,3

Magnolia pacifica Vázquez subsp. *pacifica*



EN B1ab(i,iii)
 Mexico, (Jalisco, Nayarit)
 A variety which appears to be known only from a few localities in ravines and gorges from Zapopan and San Cristóbal at elevations of 800-1400 m. The potential forest distribution for the taxon is 4127 km².
 Assessor: Global Tree Specialist Group
 Refs: 1,2,3

Magnolia pallescens Urb. and Ekman

EN B1ab(i,iii)

Dominican Republic

A medium-sized tree native to forests at about 1560-2070 m in western Dominican Republic. The potential forest distribution for this species is 2703 km². Between 1960 and 1980 populations diminished rapidly in some areas as a result of indiscriminate felling for cabinet work. The Ebano Verde Scientific Reserve, with an area of 23 km², was created in 1989 to protect this species.

Assessor: Global Tree Specialist Group

Refs: 2,3,18,38

Magnolia panamensis H.H. Iltis and Vázquez

NT

Panama

Described only recently, the species is currently known from forest at elevations of between 2000 m and 2600 m on the Cordillera Central in Bocas del Toro and Chiriquí Provinces, right up to the border with Costa Rica. There is almost no doubt that the species continues into Costa Rica on the Cordillera de Talamanca, although it has yet to be collected there. The potential forest distribution for the species is 2107 km², but there is a protected population in La Amistad National Park. The species was previously listed as Endangered based on its limited distribution, but there is no evidence available on decline or fragmentation and much of the area where it occurs is protected.

Assessor: Global Tree Specialist Group

Refs: 1,2,3

Magnolia pealiana King.

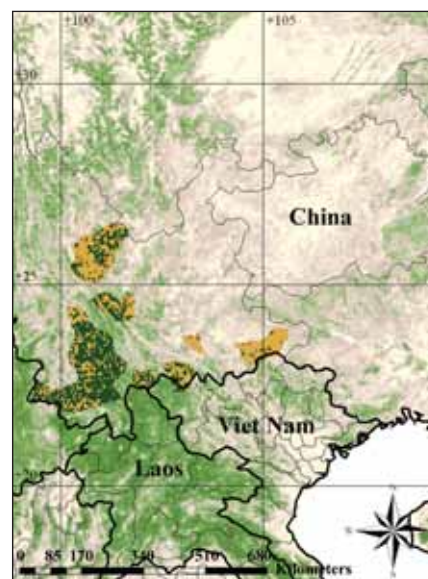
EN B1ab(i,iii)

India (Assam)

This species is restricted to Assam with a potential forest distribution of 1765 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,32

Magnolia phanerophlebia B.L. Chen

CR B2ab(i,ii,iii,v)+C2a(ii)

China (S.E. Yunnan)

The species is only known from Maguan in the south-east of Yunnan province. It was seen at two sites during Global Trees Campaign field surveys in December 2005 and it is estimated that the total wild population is less than 200 individuals. The biggest threat to the species is a decrease in habitat, with many suitable areas now replaced by banana plantation. Local awareness-raising is vital for this species, as well as research into nursery techniques for its cultivation. Some consider it to be a synonym of *Magnolia talaumoides*.

Assessor: Global Tree Specialist Group

Refs: 1,2,4,19,31

Magnolia phuthoensis (Dandy ex Gagnep.) V.S. Kumar

EN B1ab(i,iii)

Viet Nam

The potential forest distribution for this species is 738 km². This, together with an assumption of forest decline and fragmentation, has led to application of the Endangered category. Further information on the situation in the wild is urgently required.

Assessor: Global Tree Specialist Group

Refs: 3,22

Magnolia pleiocarpa (Dandy) Figlar and Noot.

CR B1ab(i,iii)

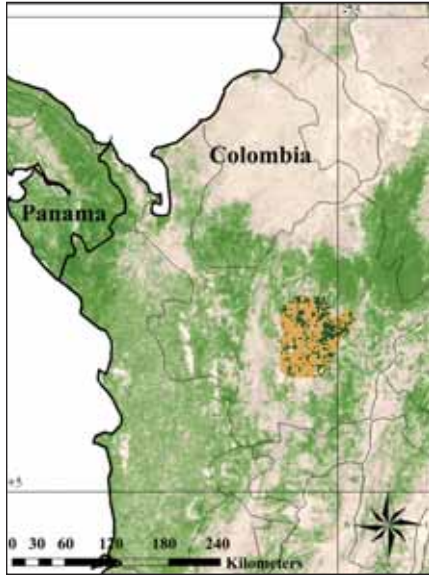
India (Assam)

Also known as *Pachylarnax pleiocarpa* Dandy, the potential forest distribution for this species is 123 km².

Assessor: Global Tree Specialist Group

Refs: 1,2,3,17

Magnolia polyhypsophylla (Lozano) Govaerts



CR A2cd+B1ab(iii)

Colombia (Antioquia)

The species is recorded only from Antioquia at an elevation range of 1800-2600 m. The potential forest distribution for this species is 1744 km² but actual distribution is less than 100 km². Previously considered to be Endangered, recent GIS work by Colombian botanists has shown the species to be at greater risk.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5,39

Magnolia polytepala Law, R.Z. Zhou and R.J. Zhang

DD

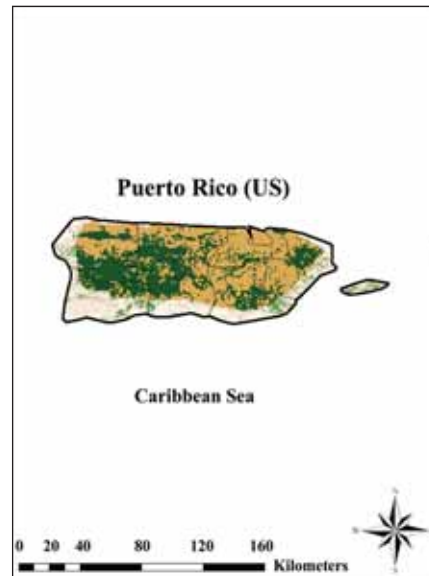
China (Fujian)

This species, described in 2006, is known only from the type locality in subtropical broadleaved forest at Mount Wuyishan. The authors propose the species as Endangered.

Assessor: Global Tree Specialist Group

Ref: 41

Magnolia portoricensis Bello



EN B1ab(v)

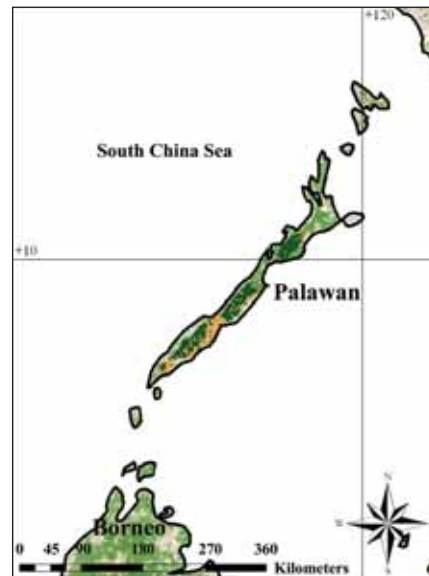
Puerto Rico

Endemic to Puerto Rico in montane forests at 780-960 m with a potential forest distribution of 3054 km², the species has declined as a result of cutting for its valuable timber.

Assessor: Global Tree Specialist Group

Refs: 2,3,18,20

Magnolia pulgarensis Dandy



EN B1ab(i,iii)

Philippines (Palawan)

A species confined to ridges at 600 m on Mt. Pulgar on Palawan, with a potential forest distribution of 2831 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,18

Magnolia punduana (Hook.f. and Thomson) Figlar

VU B1ab(i,iii)

India (Assam)

A species of open sunny places in moist forest in north-east India, with a potential forest distribution of 19,436 km². There have been no recent collections and both the species and its habitat are in decline because of overexploitation of timber resources.

Assessor: Global Tree Specialist Group

Refs: 1,2,3,28

Magnolia rajaniana (Craib) Figlar

VU B1ab(i,iii)

Thailand

The potential forest distribution for this species is 11,550 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,28

Magnolia rostrata W.W. Sm.

VU B2ab(ii,iii)

Myanmar, China (Tibet, Yunnan)

A montane forest tree occurring between 2100 m and 3000 m within a small area encompassing western Yunnan, Mêdog County in Tibet and north-east Myanmar. The potential forest remaining is 133,796 km² but populations are scattered and the global area of occupancy can be estimated at less than 500 km². Overexploitation and detrimental harvesting of the bark are believed to have caused significant population declines. It is considered Vulnerable in China.

Assessor: Global Tree Specialist Group

Refs: 1,2,4,31

Magnolia sambuensis (Pittier) Govaerts

NT

Panama, Colombia

Known under the genus *Talauma* in Panama, the species occurs in small sporadic populations, usually in inundated forest, in Darién National Park and slightly more frequently in the Serranía de Pirre, both in Panama. In Colombia, populations are recorded in Antioquia, Chocó and Córdoba. It grows at elevations of approximately 850 m. Outside protected areas the habitat has been extensively cleared for settlement and agriculture. The potential forest distribution for the species is 26,350 km². The species was previously considered Vulnerable based mainly on the situation in Panama.

Assessor: Global Tree Specialist Group

Refs: 1,2,3

Magnolia santanderiana (Lozano) Govaerts

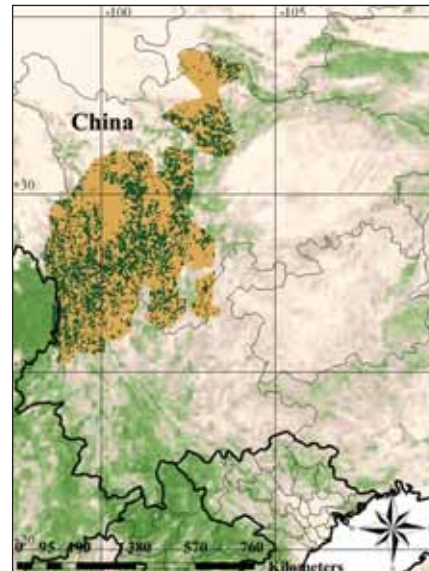
EN B1ab(iii)

Colombia (Santander)

The species is only recorded from Santander at elevations of 2350 m, with a potential forest distribution of 1283 km². Its Endangered status has recently been confirmed by Colombian botanists.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia sargentiana Rehder and E.H. Wilson

VU B2ab(i,ii,iv,v)

China (Sichuan, Yunnan)

This species has a wide distribution but is very fragmented. It was thought that only around 40-50 trees remained in Yunnan but Global Trees Campaign field surveys in April 2006 recorded 12 sites with a total population estimated at about 20,000. The total

area of evergreen and deciduous mixed forest habitat for this species is estimated at 66,000 ha. The species is threatened by forest clearance to make way for *Gastrodia* planting, cutting for wood and gathering of its bark for use in traditional medicines. A Sichuan University/University of British Columbia Botanic Garden team recorded extensive and protected populations in two of four main reserves in the Dafengding region of southern Sichuan covering at least 60,000 ha of mixed evergreen/deciduous forest, during fieldwork in September 2006. Peripheral areas covering approximately a further 20,000 ha have generally good protection and regeneration.

Assessor: Global Tree Specialist Group
 Refs: 1,2,3,4,19,35

Magnolia schiedeana Schltl.



EN B2ab(ii,iii)
 Mexico
 A species occurring at elevations of 1200-2100 m with a potential forest distribution of 17,411 km². Remaining stands show signs of disturbance or cutting. Regeneration is primarily vegetative, by resprouting from the roots and trunk bases: fertility appears low.
 Assessor: Global Tree Specialist Group
 Refs: 1,2,3

Magnolia sharpii V.V. Miranda



EN B1ab(i,iii)+C2a(i)
 Mexico
 A tree native to evergreen forests of the central plateau in Chiapas at elevations of 1950-2940 m. The potential forest distribution is 5543 km² but within this area only five populations are known.
 Assessor: Global Tree Specialist Group
 Refs: 3,18,21

Magnolia shiluensis (Chun and Y.F. Wu) Figlar



EN B2ab(i,ii,iii)+C1+D
 China (Hainan)
 A species endemic to Hainan with a potential forest distribution of 8966 km², within which it is known from less than five locations. The population is thought to have declined by more than 50 per cent during the last 10 years.
 Assessor: China Expert Workshop
 Refs: 2,3,4,28

Magnolia silvioi (Lozano) Govaerts

EN B1ab(iii)

Colombia

Formerly known as *Talauma silvioi*, this species occurs in the department of Antioquia at elevations of 400-1500 m. The potential forest distribution is 16,314 km² but actual distribution is around 5000 km².

Assessor: Calderon, E. *et al.*

Refs: 2,3,5,39

Magnolia sinensis

VU B1ab(i,ii,iii)+B2ab(i,ii,iii)

China (Sichuan)

Also known as *Magnolia sieboldii* K.Koch subsp. *sinensis* (Rehder and E.H. Wilson) Spongberg, this species is known only from Tianquan, Lushan and Wenchuan Counties in Sichuan, occurring on the edges of forest and in scrub. The potential forest remaining for this species is 21,986 km² but the actual area of occupancy can be estimated at less than 10 km² and a higher threat category may be appropriate. The habitat has been cleared in places and the trees may be detrimentally affected by frequent bark-stripping – the bark contains a medicinal extract often used as a substitute for that of *M. officinalis*.

Assessor: Global Tree Specialist Group

Refs: 1,2,3,4,31

Magnolia sinica (Y.W. Law) Noot.

CR D

China (S.E. Yunnan)

A species known from a single population that consists of less than 10 mature individuals on forested slopes between 1300 m and 1550 m in south-east Yunnan. Global Trees Campaign field surveys in December 2005 confirmed this low number of individuals. No effective protective measures are in place for the species and the area is open to cutting and clearance. However, there are a number of saplings in various nurseries and there are plans to use these to supplement the wild population. The species was previously known

under the monospecific genus *Manglietiastrum* and is also known as *Manglietia sinica* (Y.W. Law) B.L. Chen and Noot.

Assessor: China Expert Workshop

Refs: 1,2,4,6,19,23,31

Magnolia sirindhorniae Noot. and P. Chalermglin

CR B1ab(i)

Thailand

A species found in primary rainforest in freshwater swamp at altitudes of 60 m. The potential forest distribution is 35 km². It is also known as *Michelia sirindhorniae* (Noot. and P. Chalermglin) Xia and Zhang by botanists who retain the genus *Michelia*.

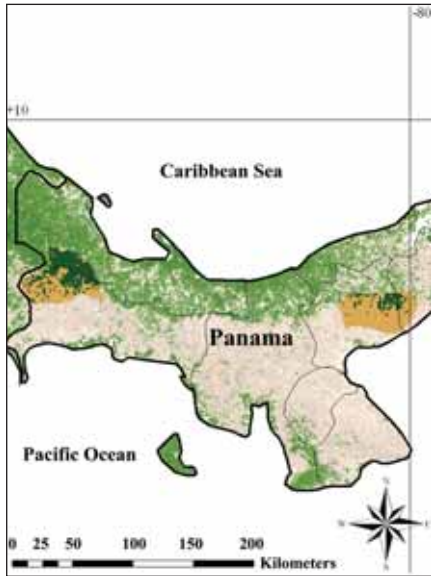
Assessor: Global Tree Specialist Group

Refs: 3,11,22

*Magnolia sargentiana*

Zhang Yu

Magnolia sororum Seibert subsp. *sororum*



EN B1ab(i,iii)

Panama

This subspecies is recorded from Chiriquí and Coclé Provinces, where it occurs in cloud forest between 1000 m and 2600 m. The potential forest distribution is 1357 km². It is fairly common in Volcán Barú National Park and is expected to be found in other protected areas. Coclé Province is facing a significant increase in human population and industrial and tourist activities, which may negatively affect the species.

Assessor: Global Tree Specialist Group

Refs: 1,2,3

Magnolia sororum Seibert subsp. *lutea* Vázquez

NT

Costa Rica

The potential forest distribution for the subspecies is 4507 km² but there is no evidence of fragmentation or decline.

Assessor: Global Tree Specialist Group

Refs: 2,3

Magnolia splendens Urb.



EN B1ab(i,iii)

Puerto Rico

A species native to montane forests of eastern Puerto Rico that produces a fine timber. The potential forest distribution is 206 km².

This category and criteria has been applied based on an assumption of forest decline and fragmentation. Further information on the status of its habitat or exploitation is desirable.

Assessor: Global Tree Specialist Group

Refs: 2,3

Magnolia sprengeri Pamp.

DD

China (Henan, Hubei, Guizhou, Sichuan, Yunnan)

Listed as Vulnerable in the *China Species Red List*.

Assessor: Global Tree Specialist Group

Refs: 2,27



Magnolia sinicum

Magnolia stellata (Siebold and Zucc.) Maxim

EN B1ab(i,iii)

Japan

The species is considered Vulnerable in Japan but based on extent of occurrence (it has a potential forest distribution of 1854 km²) and decline the above category and criteria can be applied. *M.stellata* forms part of the endemic flora of the Tokai floristic region in central Honshu. It occurs at elevations of 30-550 m in lowland hills, valleys, terraces and riverbeds, where its populations are decreasing due to land development and illegal collecting.

Assessor: Global Tree Specialist Group

Refs: 2,3,33

Magnolia striatifolia Little

EN B1ab(i,iii)

Colombia, Ecuador

The potential forest distribution for the species is 4907 km².

Assessor: Global Tree Specialist Group

Refs: 2,3

Magnolia subulifera (Dandy) Figlar

VU B1ab(i,iii)

Viet Nam

The potential forest distribution of this species is 9073 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,28

Magnolia tamaulipana Vázquez

EN B1ab(i,iii)

Mexico (Tamaulipas)

The potential forest distribution for this species is 2458 km².

Assessor: Global Tree Specialist Group

Refs: 2,3,8

Magnolia thailandica Noot. and Chalermglin

VU B1ab(i,iii)

Thailand

This endemic species occurs in evergreen forest at 600-1150 m and has a potential forest distribution of 9774 km².

Assessor: Global Tree Specialist Group

Refs: 3,13

Magnolia urraoensis (Lozano) Govaerts

EN B1ab(iii)

Colombia (Antioquia)

The species is recorded only from Antioquia and has a potential forest distribution of 32,148 km².

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5,39

Magnolia ventii (N.V. Tiep) V.S. Kumar

EN B2ab(i,ii,iii)+D

China

Also known as **Manglietia ventii** N.V. Tiep, this species occurs at few locations in Yunnan and has very small populations. Further survey work is required.

Assessor: China Expert Workshop

Refs: 2,4,22

Magnolia virolinensis (Lozano) Govaerts



CR B1ab(iii)

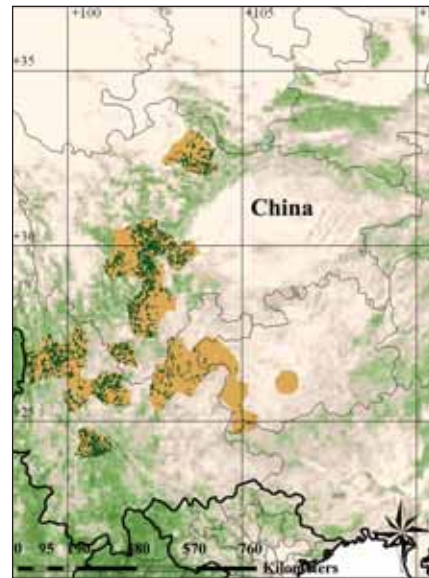
Colombia (Boyaca, Santander)

The species is recorded from localities in Boyaca and Santander and occurs at elevations of 2650 m. The potential forest distribution for the species is 1545 km². Previously considered to be Vulnerable, but recent GIS work by Colombian botanists shows the species to be at greater risk.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia wilsonii (Finet and Gagnep.) Rehder



EN B1ab(i,ii,iii)+B2ab(i,ii,iii)

China (Sichuan, N. Yunnan, Guizhou)

There are scattered populations within the range of western Sichuan, northern Yunnan and western Guizhou in montane forest and thicket between 2000 m and 3300 m. The potential forest remaining for this species is 49,618 km². The forest within the range has been extensively cleared and the bark of the tree is also exploited to a considerable degree. Although it contains the same medicinal extract as *M. officinalis*, it makes a relatively poor substitute.

Assessor: China Expert Workshop

Refs: 1,2,3,4



Magnolia panerophlebia

Zhang Yu

Magnolia wolfii (Lozano) Govaerts

CR B1ab(iii)

Colombia (Risaralda)

The species is recorded only from the type locality in Risaralda. Based on a site visit carried out in August 2006 it appears that only three full grown trees and two saplings remain in a 2 ha remnant of forest surrounded by coffee plantations. Flowers and fruits are produced but no seedlings are recorded.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5,37

Magnolia yarumalensis (Lozano) Govaerts

EN A2acd

Colombia (Antioquia)

The species is recorded only from Antioquia and has a potential forest distribution of 2457 km². Previously considered to be Critically Endangered, recent work by Colombian botanists re-assesses this species as Endangered.

Assessor: Calderon, E. *et al.*

Refs: 1,2,3,5

Magnolia yoroconte Dandy

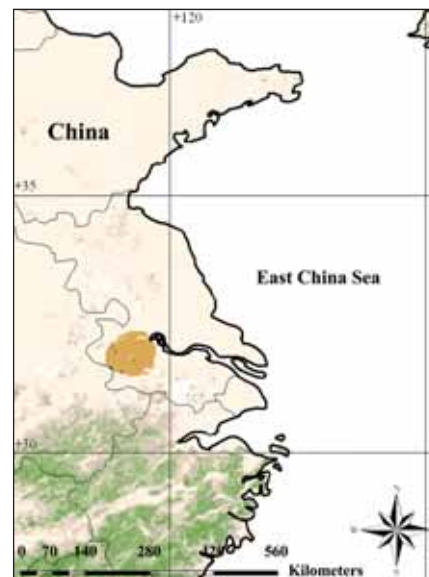
VU B1ab(i,iii)

Belize, Guatemala, Honduras, Mexico (Chiapas, Veracruz)

The species is mainly known from the critically endangered population in Honduras, which occurs in medium to high elevation mixed forest at 1000-2100 m. It is considered Endangered in Guatemala, where its distribution is very fragmented. The potential forest distribution for the species is 9264 km².

Assessor: Global Tree Specialist Group

Refs: 1,2,3,8,16

Magnolia zenii W.C. Cheng

CR D

China (Jiangsu)

Apparently only a single population exists containing 18 individuals at the type locality on the north slopes of Mount Baohua in mixed forest at an altitude of 220 m. The area is a provincial reserve but no specific protection is given to these trees. No natural regeneration has been observed.

Assessor: China Expert Workshop

Refs: 1,2,4

Magnolia xanthantha (C.Y. Wu ex. Y.W. Law) Figlar

DD

China (Yunnan)

Endemic to Xishuangbanna, known only from the type specimen. The species was described as *Michelia xanthantha* C.Y. Wu ex. Y.W. Law and there is some ongoing uncertainty about its taxonomic status.

Assessor: Global Tree Specialist Group

Refs: 1,2,28

MAGNOLIACEAE EVALUATED AS LEAST CONCERN

Liriodendron tulipifera L.

Canada, USA

This species is given a ranking of G5 by NatureServe.

Refs: 2,25

Magnolia acuminata (L.) L. var. ***acuminata***

Canada, USA

This species is given a ranking of G5 by NatureServe.

Refs: 2,25

Magnolia campbellii Hook.f. and Thomson

Nepal, Bhutan, India (Sikkim, Assam), Myanmar, China (Sichuan, Tibet, Yunnan)

Ref: 2

Magnolia carsonii Dandy ex. Noot.

var. ***carsonii***

Malaysia (Sabah)

Medium-sized to large tree occurring on hill crests in lower montane forests sometimes on ultramafic substrates at elevations of 1200-1800 m. The potential forest distribution for this species is 10,017 km² but there is currently no evidence of fragmentation or decline. The taxon is locally rather common, especially in Sosopodan Forest Reserve. Populations are found within the national park network.

Assessor: Sugau, J.

Refs: 2,3,14,26,36

Magnolia carsonii var. ***drymifolia*** Noot.

Malaysia (Sabah)

Medium-sized to large tree occurring on hill crests in primary and secondary lower montane forests sometimes on ultramafic substrates at elevations of 1400-2900 m. The potential forest distribution for this species is 3778 km² but there is currently no evidence of fragmentation or decline.

Assessor: Sugau, J.

Refs: 2,3,14,26,36

Magnolia dolichogyna (Dandy ex. Noot.) Figlar and Noot.

LC

Malaysia (Sabah)

Tree found in hill and lower montane forest at elevations of 500-1700 m. The potential forest distribution for the species is 6624 km² but there is currently no evidence of fragmentation or decline. Populations are found within the national park network.

Assessor: Sugau, J.

Refs: 3,14,17,36

Magnolia fraseri Walter var. ***fraseri***

USA

This species is given a global ranking of G5 by NatureServe.

Refs: 2,25

Magnolia fraseri Walter var. ***pyramidata*** (Bartram) Pamp.

USA

This species is given a global ranking of G4 by NatureServe, where it is listed as ***Magnolia pyramidata***.

Refs: 2,25

Magnolia globosa Hook.f. and Thomson

Nepal, Bhutan, India (Assam), Myanmar, China (Sichuan, Tibet, Yunnan)

Ref: 2

Magnolia grandiflora L.

USA

This species is abundant across a wide area of south east coastal and Gulf coastal USA. The potential forest distribution is 6185 km². It is given a global ranking of G5 by NatureServe.

Refs: 2,25

Magnolia insignis (Wall.) Blume

Nepal, India (Assam), Myanmar, Viet Nam, China (Yunnan, Sichuan, Tibet, Guizhou, Hunan, Hubei)

Ref: 2

Magnolia liliifera (L.) Baill. var. ***liliifera***

India (Sikkim, Assam,) Thailand, Cambodia, Viet Nam, China (Hainan), Indonesia, Papua New Guinea

Occurs in a wide variety of forest with different soil types.

Refs: 2,26

Magnolia liliifera (L.) Baill. var. ***obovata*** (Korth.) Govaerts

Nepal, India (Sikkim, Assam), Bhutan, Thailand, Malaysia, Indonesia (Kalimantan), China (Tibet)

Also known as ***Magnolia hodgsonii***, this taxon occurs in primary and secondary forest.

Refs: 2,26

Magnolia macrophylla Michx. subsp. ***macrophylla***

USA

Fairly abundant in parts of Mississippi, Alabama and Kentucky, less so in South Carolina. This species is given a global ranking of G5 by NatureServe.

Refs: 23,25

Magnolia persuaveolens Dandy subsp. ***persuaveolens***

Malaysia (Sabah)

A small evergreen tree native to forests at about 1524 m in Keppel province, Malaysia. Populations occur within the Kinabalu National Park.

Assessor: Sugau, J.

Refs: 2,3,14,26,36

Magnolia persuaveolens Dandy subsp. ***pubescens*** Noot.

Malaysia (Sabah)

Populations occur within the Kinabalu National Park.

Assessor: Sugau, J.

Refs: 2,3,14,36

Magnolia persuaveolens Dandy subsp. ***rigida*** Noot.

Malaysia (Sabah)

A shrub or small tree found in lower montane forest at elevations of 1200-1300 m on extreme ultramafic substrate. The potential forest distribution is 4927 km² but there is no evidence of decline or fragmentation. Populations occur within the Kinabalu National Park.

Assessor: Sugau, J.

Refs: 3,14,36

Magnolia sabahensis (Dandy ex. Noot.) Figlar and Noot.

Malaysia (Sabah)

Known only from Mt. Kinabalu, which is a National Park, this tree is found in hill forest especially on ultramafic substrate at elevations of 1100-2100 m. The potential forest distribution for this rare species is 9539 km².

Assessor: Sugau, J.

Refs: 3,14,17,36

Magnolia tripetala (L.) L.

USA

This species is given a global ranking of G5 by NatureServe.

Refs: 2,25

Magnolia virginiana L.

USA

This species is given a global ranking of G5 by NatureServe.

Refs: 2,25

MAGNOLIACEAE NOT YET EVALUATED

Magnolia acuminata (L.) L. var. ***ozarkensis*** Ashe

USA (Arkansas, Missouri, Oklahoma)

Ref: 2

Magnolia acuminata (L.) L. var. ***subcordata*** (Spach) Dandy

USA (North Carolina, Georgia, Alabama)

Refs: 2

Magnolia amazonica (Ducke) Govaerts

Brazil (Pará, Amazonas), Peru (Junin), Bolivia

Ref: 2

Magnolia ashtonii Dandy ex Noot.

Malaysia (Sarawak, Sabah) Indonesia (Sumatra, Kalimantan), Brunei

Considered to be very rare.

Refs: 2,26

Magnolia baillonii Pierre

India (Assam), Myanmar, Thailand, Cambodia, Viet Nam, China (Yunnan)

Refs: 2,28

Magnolia balansae A. DC.

Viet Nam, China (Hainan, Yunnan, Gungxi, Fujian)

Refs: 2,28

Magnolia bintulensis (A. Agostini) Noot.

Malaysia, (Peninsular Malaysia, Sarawak, Sabah), Indonesia (Sumatra, Kalimantan)

A rare species recorded in swamp and kerangas vegetation and, in East Kalimantan, in *Agathis* forest on sandy waterlogged soil.

Refs: 2,26

Magnolia blumei Prantl var. ***blumei***

Indonesia (Sumatra, Java, Lesser Sunda Islands, Sulawesi)

Refs: 2,17

Magnolia blumei Prantl. var. ***sumatrana*** (Miq.) Figlar and Noot.

W. Sumatra

Refs: 2,17

Magnolia borneensis Noot.

Malaysia (Sarawak, Sabah), Indonesia (Kalimantan), Philippines (Palawan)

A rare species recorded in primary forest. There is one collection from Palawan.

Refs: 2,26

Magnolia braianensis (Gagnep.) Figlar

Viet Nam

Refs: 2,28

Magnolia cathcartii (Hook.f. and Thomson) Noot.

India (Sikkim, Assam), China (Tibet), Myanmar, Viet Nam

Also known as ***Alcimandra cathcartii***, which is considered Endangered in China.

Refs: 2,32

Magnolia cavaleriei (Finet and Gagnep.) Figlar

China (Yunnan, Sichuan, Hubei, Hunan, Guizhou, Guangxi, Guangdong, Fujian)

Refs: 2,28

Magnolia caveana (Hook.f. and Thomson) D.C.S. Raju and M.P. Nayer

India (Assam), Myanmar

Ref: 2

Magnolia championii Benth.

Viet Nam, China (Hainan, Yunnan, Guangdong, Hong Kong, Guangxi, Guizhou, Taiwan)

Listed as Endangered in the *China Species Red List*.

Refs: 2,27

Magnolia chapensis (Dandy) Sima

Viet Nam, China (Yunnan, Hunan, Guizhou, Guangxi, Guangdong, Jiangxi)

Ref: 2

Magnolia clemensiorum Dandy

Viet Nam

Ref: 2

Magnolia chevalieri (Dandy) V.S. Kumar

Laos, Viet Nam

Refs: 2, 22

Magnolia coco (Lour.) DC.

Viet Nam, China (Guangdong, Guangxi, Guizhou, Fukien, Fujian, Zhejiang, Taiwan)

Listed as Vulnerable in the *China Species Red List*.

Refs: 2,27

Magnolia compressa Maxim.

Japan, China (Yunnan, Taiwan), Philippines

Refs: 2,28

Magnolia conifera (Dandy) V.S. Kumar

Viet Nam, China

Refs: 2,22

Magnolia conifera (Dandy) V.S. Kumar var. ***chingii***

N. Viet Nam, S. China

Ref: 22

Magnolia dandyi Gagnep.

Laos, Viet Nam, China (Yunnan, Guangdong, Guangxi)

Ref: 2

Magnolia dianica Sima and Figlar

China (Yunnan, Sichuan, Guizhou)

Ref: 2

Magnolia doltsopa (Buch.-Ham. ex D) Figlar

Nepal, Bhutan, India (Assam), Myanmar, China (Tibet, Yunnan)

Refs: 2,28

Magnolia duclouxii (Finet and Gagnep.) Hu

Viet Nam, China (Yunnan, Sichuan, Guangxi)

Ref: 2

Magnolia duperreana Pierre

China, Viet Nam, Cambodia, Thailand

This species is also widely known as ***Kmeria duperreana*** (Pierre) Dandy

Refs: 17,23

Magnolia elegans (Blume) H. Keng

Malaysia (Peninsular Malaysia), Indonesia (Sumatra, Java)

Common mostly in lowland rainforest.

Ref: 2

Magnolia elliptilimba (B.L. Chen and Noot.) Figlar

China (Yunnan)

Refs: 2,28

Magnolia figlarii V.S. Kumar

China

Refs: 2, 22

Magnolia flaviflora (Y.W. Law and Y.F. Wu) Figlar

Viet Nam, China (Yunnan)

Refs: 2,28

- Magnolia floribunda*** (Finet and Gagnep.) Figlar
Thailand, Laos, Viet Nam, China (Yunnan, Sicuani, Guizhou, Guangxi, Guangdong, Jiangxi)
Refs: 2,28
- Magnolia fordiana*** (Oliv.) Hu var. ***calcarea*** (X.H. Song) V.S. Kumar
China (Guizhou)
Refs: 2,22
- Magnolia fordiana*** (Oliv.) Hu var. ***kwangtungensis*** (Merr.) V.S. Kumar
China (Guangdong, Guizhou)
Refs: 2,22
- Magnolia foveolata*** (Merr. ex Dandy) Figlar
Viet Nam, China
Refs: 2,28
- Magnolia fujianensis*** (Q.F. Zheng) Figlar
China (Fujian)
Refs: 2,28
- Magnolia fulva*** (Hung T. Chang and B.L. Chen) Figlar
China (Yunnan)
Refs: 2,28
- Magnolia garrettii*** (Craib) V.S. Kumar
Thailand, Viet Nam, China (Yunnan)
Refs: 2,22
- Magnolia gigantifolia*** (Miq.) Noot.
Malaysia (Sarawak, Sabah), Indonesia (Sumatra, Kalimantan)
Occurs in lowland primary forest on sandy soil.
Refs: 2,26
- Magnolia gloriensis*** (Pittier) Govaerts
Costa Rica, Nicaragua, Panama
Ref: 2
- Magnolia hongheensis*** (Y.M. Shui and W.H. Chen) V.S. Kumar
China (SE Yunnan)
Ref: 22
- Magnolia hookeri*** (Cubitt and W.W. Smith) D.C.S. Raju and M.P. Nayar
Myanmar, China (Yunnan, Guizhou)
Refs: 2,23
- Magnolia jiangxiensis*** (Hung T. Chang and B.L. Chen) Figlar
China (Jiangxi)
Refs: 2,28
- Magnolia kingii*** (Dandy) Figlar
India (Sikkim, Assam), Bangladesh
Refs: 2,28
- Magnolia kisopa*** (Buch.-Ham. ex DC) Figlar
Nepal, Bhutan, India (Sikkim), China (Tibet), Viet Nam
Refs: 2,28
- Magnolia kobus*** DC.
Japan, South Korea
Ref: 2
- Magnolia kwangsiensis*** Figlar and Noot.
China
Synonyms in wide usage for this species are ***Kmeria septentrionalis*** Dandy and ***Woonyoungia septentrionalis*** (Dandy) Law
Ref: 17
- Magnolia lanuginosoides*** Figlar and Noot.
Indonesia (Sumatra)
Refs: 2,17
- Magnolia lasia*** Noot.
Malaysia (Sarawak, Sabah), Indonesia (Kalimantan)
Occurs in primary and secondary rainforest and riparian forest and also in kerangas vegetation.
Refs: 2,26
- Magnolia leveillana*** (Dandy) Figlar
China (Yunnan, Sichuan, Hubei, Guizhou)
Refs: 2,28
- Magnolia liliifera*** (L.) Baill. var. ***angatensis*** (Blanco) Govaerts
Philippines, Indonesia (Moluccas)
Rarely recorded in low altitude primary forest, this taxon is used locally for canoe building and construction.
Refs: 2,26
- Magnolia liliifera*** (L.) Baill. var. ***beccarii*** (Ridl.) Govaerts
Malaysia (Sarawak, Sabah), Indonesia (Kalimantan)
Ref: 2
- Magnolia liliifera*** (L.) Baill. var. ***singaporensis*** (Ridl.) Govaerts
Malaysia (Peninsular Malaysia, Sarawak, Sabah) Singapore, Indonesia (Sumatra, Kalimantan)
Refs: 2,26
- Magnolia lucida*** (B.L. Chen and S.C. Yang) V.S. Kumar
China (Yunnan)
Refs: 2,26
- Magnolia macclurei*** (Dandy) Figlar
Viet Nam, China (Hainan, Yunnan, Guangdong, Guangxi)
Refs: 2,28
- Magnolia macklottii*** (Korth.) Dandy var. ***macklottii***
Indonesia (Sumatra, Java), Malaysia (Sabah)
Very rare in primary vegetation from 80 m to 1500 m.
Refs: 2,26
- Magnolia macklottii*** (Korth.) Dandy var. ***beccariana*** (A.Agostini) Noot.
Indonesia (Sumatra), Malaysia (Peninsular Malaysia, Sabah, Sarawak), Singapore
Refs: 2,26,32
- Magnolia mariusjacobsia*** Noot.
Malaysia (Sarawak)
A species described in 1987 from primary forest on low sandstone hills.
Refs: 2,26
- Magnolia martinii*** H. Lévl
Viet Nam, China (Yunnan, Sichuan, Guangdong, Guizhou, Guangxi)
Refs: 2,28
- Magnolia masticata*** (Dandy) Figlar
Laos, Viet Nam, China (Yunnan)
Refs: 2,28
- Magnolia maudiae*** (Dunn) Figlar
China (Hainan, Guangdong, Guangxi, Guizhou, Jiangxi, Zhejiang)
Refs: 2,28
- Magnolia mediocris*** (Dandy) Figlar
Cambodia, Viet Nam, China (Guangdong, Guangxi, Guizhou, Hainan)
Refs: 2,28
- Magnolia mexicana*** DC.
Mexico, Guatemala, Honduras
Ref: 2
- Magnolia microtricha*** (Hand.-Mazz.) Figlar
China (Yunnan)
Refs: 2,28

Magnolia moto (Dandy) V.S. Kumar
China (Guangdong, Guangxi, Hunan)
Refs: 2,22

Magnolia nilagirica (Zenker) Figlar var. *nilgarica*
India, Sri Lanka
Refs: 2,28

Magnolia nilagirica (Zenker) Figlar var. *walkeri* Hook.f. and Thomson
Sri Lanka
Endemic to mountains of Sri Lanka, this species produces a fine timber.
Ref: 40

Magnolia oblonga (Wall. ex Hook.f. and Thomson) Figlar
India (Assam)
Refs: 2,28

Magnolia obovata Thunb.
Japan
Ref: 2

Magnolia ovata (A. St.-Hil.)
Brazil (Goiás, Distrito Federal, Minas Gerais)
Ref: 2

Magnolia pahangensis Noot.
Malaysia (Peninsular Malaysia)
A species first described in 1987, only known from the type.
Refs: 2,26

Magnolia phaulanta Dandy ex Noot.
Indonesia (Sulawesi)
This species occurs in montane forest between 1250 m and 2200 m altitude.
Refs: 2, 26

Magnolia platyphylla (Merr.) Figlar and Noot.
Philippines
Refs: 17,28

Magnolia poasana (Pittier) Dandy
Costa Rica, Panama
Ref: 2

Magnolia poilanei Dandy ex Gagnep.
Viet Nam
Ref: 2

Magnolia praecalva (Dandy) Figlar and Noot.
Viet Nam, Malaysia (Peninsular Malaysia), Indonesia (Sumatra)
Ref: 18

Magnolia ptaritepuiana Steyerem.
Venezuela
Ref: 2

Magnolia pterocarpa Roxb.
Nepal, Bhutan, India (Assam), Myanmar?, Thailand?
Ref: 2

Magnolia pubescens (Merr.) Figlar and Noot.
Philippines (Mindanao)
Refs: 17,28

Magnolia rimachii (Lozano) Govaerts
Ecuador (Napo), Peru
Ref: 2

Magnolia rufibarbata (Dandy) V.S. Kumar
Viet Nam
Refs: 2,22

Magnolia salicifolia (Siebold and Zucc.) Maxim.
Japan (Honshu, Shikoku, Kyushu)
Ref: 2

Magnolia sarawakensis (A. Agostini) Noot.
Malaysia (Sarawak, Sabah), Indonesia (Kalimantan)
This species occurs in dipterocarp forest on ultramafic soil.
Refs: 2,26

Magnolia sellowiana (A. St.-Hil.) Govaerts
Brazil (Minas Gerais, São Paulo, Rio de Janeiro)
Ref: 2

Magnolia sieboldii K. Koch subsp. *sieboldii*
Korea, China
Listed as Vulnerable in the *China Species Red List*.
Refs: 2,27

Magnolia sieboldii K. Koch subsp. *japonica* K. Ueda
Japan, China
Ref: 2

Magnolia tibetica V.S. Kumar
China (Tibet)
Refs: 2,22

Magnolia tsiampacca (L.) Figlar and Noot.
C. and N. Sulawesi, Moluccas, New Guinea, Bismarck Archipelago
Refs: 2,17,29

Magnolia utilis (Dandy) V.S. Kumar
Myanmar
Refs: 2,22

Magnolia uvariifolia Dandy ex Noot.
Malaysia (Sarawak), Indonesia (Kalimantan)
Occurs in primary or secondary forest at altitudes of 180 m-1800 m.
Refs: 2,26

Magnolia venezuelensis (Lozano) Govaerts
Venezuela
Ref: 2

Magnolia villosa (Miq.) H. Keng
Malaysia (Peninsular Malaysia, Sabah), Indonesia (Sumatra)
Ref: 2

Magnolia vrieseana (Miq.) Baill.
Indonesia (Sulawesi, Moluccas)
Refs: 2,17

Magnolia yuyuanensis (Y.W. Law) V.S. Kumar
SW China (Yunnan, Sichuan, Guizhou)
Ref: 22

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Annex I

IUCN RED LIST CATEGORIES AND CRITERIA

Extinct (EX)

A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

Extinct in the Wild (EW)

A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

Critically Endangered (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered (EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

Near Threatened (NT)

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

Least Concern (LC)

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

Data Deficient (DD)

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category

may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. DD is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

Not Evaluated (NE)

A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

THE CRITERIA FOR CRITICALLY ENDANGERED, ENDANGERED AND VULNERABLE

Critically Endangered (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing an extremely high risk of extinction in the wild:

- A. Reduction in population size based on any of the following:
1. An observed, estimated, inferred or suspected population size reduction of 90 per cent over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:
 - (a) direct observation
 - (b) an index of abundance appropriate to the taxon
 - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - (d) actual or potential levels of exploitation
 - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
 2. An observed, estimated, inferred or suspected population size reduction of 80 per cent over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.
 3. A population size reduction of 80 per cent, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of 80 per cent over any 10-year or three-generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.
- B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:
1. Extent of occurrence estimated to be less than 100 km², and estimates indicating at least two of a-c:
 - (a) Severely fragmented or known to exist at only a single location.
 - (b) Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
 - (c) Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.
 2. Area of occupancy estimated to be less than 10 km², and estimates indicating at least two of a-c:
 - (a) Severely fragmented or known to exist at only a single location.
 - (b) Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
 - (c) Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.
- C. Population size estimated to number fewer than 250 mature individuals and either:
1. An estimated continuing decline of at least 25 per cent within three years or one generation, whichever is longer, (up to a maximum of 100 years in the future) OR
 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b):
 - (a) Population structure in the form of one of the following:
 - (i) no subpopulation estimated to contain more than 50 mature individuals, OR
 - (ii) at least 90 per cent of mature individuals in one subpopulation.
 - (b) Extreme fluctuations in number of mature individuals.
- D. Population size estimated to number fewer than 50 mature individuals.
- E. Quantitative analysis showing the probability of extinction in the wild is at least 50 per cent within 10 years or three generations, whichever is the longer (up to a maximum of 100 years).
- Endangered (EN)**
- A taxon is Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a very high risk of extinction in the wild:
- A. Reduction in population size based on any of the following:
1. An observed, estimated, inferred or suspected population size reduction of 70 per cent over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:
 - (a) direct observation
 - (b) an index of abundance appropriate to the taxon
 - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - (d) actual or potential levels of exploitation
 - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
 2. An observed, estimated, inferred or suspected population size reduction of 50 per cent over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.
 3. A population size reduction of 50 per cent, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.
 4. An observed, estimated, inferred, projected or suspected population size reduction of 50 per cent over any 10-year or three-generation period, whichever is longer (up to a

maximum of 100 years in the future), where the time period must include both the past and the future, AND where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

1. Extent of occurrence estimated to be less than 5000 km², and estimates indicating at least two of a-c:

- (a) Severely fragmented or known to exist at no more than five locations.
- (b) Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
- (c) Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.

2. Area of occupancy estimated to be less than 500 km², and estimates indicating at least two of a-c:

- (a) Severely fragmented or known to exist at no more than five locations.
- (b) Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
- (c) Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.

C. Population size estimated to number fewer than 2500 mature individuals and either:

- 1. An estimated continuing decline of at least 20 per cent within five years or two generations, whichever is longer, (up to a maximum of 100 years in the future) OR
- 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b):

- (a) Population structure in the form of one of the following:
 - (i) no subpopulation estimated to contain more than 250 mature individuals, OR
 - (ii) at least 95 per cent of mature individuals in one subpopulation.
- (b) Extreme fluctuations in number of mature individuals.

D. Population size estimated to number fewer than 250 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 20 per cent within 20 years or five generations, whichever is the longer (up to a maximum of 100 years).

Vulnerable (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a high risk of extinction in the wild:

A. Reduction in population size based on any of the following:

- 1. An observed, estimated, inferred or suspected population size reduction of 50 per cent over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are: clearly reversible AND understood AND ceased, based on (and specifying) any of the following:
 - (a) direct observation
 - (b) an index of abundance appropriate to the taxon
 - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - (d) actual or potential levels of exploitation
 - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
- 2. An observed, estimated, inferred or suspected population size reduction of 30 per cent over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.
- 3. A population size reduction of 30 per cent, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.
- 4. An observed, estimated, inferred, projected or suspected population size reduction of 30 per cent over any 10-year or three-generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, AND where the

reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

1. Extent of occurrence estimated to be less than 20,000 km², and estimates indicating at least two of a-c:
 - (a) Severely fragmented or known to exist at no more than 10 locations.
 - (b) Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
 - (c) Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.
2. Area of occupancy estimated to be less than 2000 km², and estimates indicating at least two of a-c:
 - (a) Severely fragmented or known to exist at no more than 10 locations.
 - (b) Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
 - (c) Extreme fluctuations in any of the following:

- (i) extent of occurrence
- (ii) area of occupancy
- (iii) number of locations or subpopulations
- (iv) number of mature individuals.

C. Population size estimated to number fewer than 10,000 mature individuals and either:

1. An estimated continuing decline of at least 10 per cent within 10 years or three generations, whichever is longer, (up to a maximum of 100 years in the future) OR
2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b):
 - (a) Population structure in the form of one of the following:
 - (i) no subpopulation estimated to contain more than 1000 mature individuals, OR
 - (ii) all mature individuals are in one subpopulation.
 - (b) Extreme fluctuations in number of mature individuals.

D. Population very small or restricted in the form of either of the following:

1. Population size estimated to number fewer than 1000 mature individuals.
2. Population with a very restricted area of occupancy (typically less than 20 km²) or number of locations (typically five or fewer) such that it is prone to the effects of human activities or stochastic events within a very short time period in an uncertain future, and is thus capable of becoming Critically Endangered or even Extinct in a very short time period.

E. Quantitative analysis showing the probability of extinction in the wild is at least 10 per cent within 100 years.

Source: IUCN (2001)

The Red List of Magnoliaceae

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