Chinese Magnoliaceae — priorities for action

In early June 2004 the Global Tree Specialist Group of the IUCN Species Survival Commission held a workshop in Kunming, Yunnan Province of China to assess the Red List status of, and conservation priorities for, Chinese Magnoliaceae. The workshop, which was attended by experts from various institutions in China and representatives from the Fauna & Flora International China office, focused on the collection of information and discussion of the threat categories for Chinese Magnoliaceae according to the latest IUCN Red List Categories and Criteria (version 3.1).

Globally, the family Magnoliaceae has *c*. 300 species distributed in East and South-east Asia, south-east North America, and Central and South America. The generic limitation of Magnoliaceae has long been debated, and a 16 genera system (Y.W. Law, 2004, *Magnolias of China*. Beijing Sciences & Technology Press, Beijing, China), a two genera system (R.B. Figlar & H.P. Nooteboom, 2004, *Blumea*, 49, 87–100) and a three genera system (W.B. Sun & J. Zhou, 2004, *Acta Botanica Yunnanica*, 26, 139–147) have all been proposed. However, the workshop followed Chen & Nooteboom's 1993 classification (*Annals of the Missouri Botanical Garden*, 80, 999–1104), under which 160 species in five genera are found in China, largely in tropical and subtropical rain forests in the south-east to south-west of the country. Yunnan Province is one of the richest areas, hosting more than half China's Magnoliaceae, with south-east Yunnan and the border area with Vietnam boasting a particularly diverse array of species.

Chinese Magnoliaceae have been seriously affected by the loss and fragmentation of forest. Many species are also exploited for their medicinal properties or for horticulture. Twenty five species (including subspecies and varieties) were described in the *China Plant Red Data Book* (L.G. Fu, 1992. Science Press, Beijing, China, pp. 408–455), and *c*. 23 species were included on the list of the national key protection plants of China in 1999 (National Forestry Bureau & National Agricultural Ministry of China, 1999). The Kunming workshop assessed 42 species from four genera and identified 34 that qualified for inclusion on the IUCN Red List. Of these, six were determined to be Critically Endangered, 15 Endangered, seven Vulnerable, five Near Threatened, and one Data Deficient.

The workshop also discussed priorities for further work. Among the 21 Critically Endangered and Endangered species, 14 were identified as being significant priorities, some because of their critically small numbers, others because of widespread use, and some due to a lack of information. Of these 14 priorities, five in particular were flagged by the participants as urgently requiring conservation action. *Manglietia sinica* is a Critically Endangered evergreen species from Yunnan that is thought to number <10 individuals in the wild. Survey work is needed in Vietnam to gauge accurately the threats to *Manglietia grandis*, an Endangered evergreen species found in south-east Yunnan on the border with Vietnam, and to initiate cross-border conservation work. *Magnolia sargentiana*, a horticulturally important deciduous species from Sichuan and north-east Yunnan, has been identified as a priority for field study by Weibang Sun and The Magnolia Society. Surveys in its range have identified just a few remaining large trees. Further survey work is required to accurately assess the size of the remaining population of *Magnolia phanerophlebia*, a Critically Endangered species known only from one locality, and to identify the threats to the species. *Michelia coriacea*, an Endangered evergreen species from south-east Yunnan on the border with Vietnam, was thought by the workshop to number <200 individuals. However, further study would be likely to identify additional Vietnamese populations and the species would be another good candidate for cross-border project development.

China has already made efforts to conserve its species of Magnoliaceae. Some of the sites where they occur have been included in National or Provincial Nature Reserves, some Critically Endangered species have been conserved *ex situ* in botanical gardens and arboreta, and use of some ornamentally valuable species as indigenous landscaping trees is encouraged. However, studies and conservation action for threatened Chinese Magnoliaceae are still urgently needed. Particular priorities are to verify the status of natural populations, initiate effective *in situ* conservation, and develop reintroduction programmes. Fauna & Flora International and the Kunming Institute of Botany are working together through the Global Trees Campaign to develop conservation activities to address these priorities.

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© 2005 FFI, *Oryx*, **39**(1), 12–16 DOI: 10.1017/S0030605305000037 Printed in the United Kingdom

Mining in the Eastern Arc Mountains: the situation in early October 2004

Oryx, 38, p. 254 reported the 'gold rush' seen to the East Usambara Mountains of north-eastern Tanzania from April 2003 and into 2004. However, gold mining has not only affected the East Usambaras, it is also occurring in other forests across the Eastern Arc Mountains ecoregion. Information gathered between January to early October 2004, through visits to all 14 Districts containing Eastern Arc mountains in Tanzania, shows that gold mining is occurring in the Uluguru, Nguu, West Usambara and East Usambara Mountains. However, only in the last three of these has it involved significant numbers of people and caused substantial environmental damage.

The Eastern Arc Mountains ecoregion, especially the forests, are of global importance for biodiversity conservation. These values extend from birds and amphibians that may be affected by stream mining, to an almost unknown aquatic invertebrate fauna. For example, there are two species of dragonflies (with wholly aquatic larvae) that are endemic to the forested mountain streams of the East Usambaras. Such species are likely to be intolerant of major aquatic disturbances such as that caused by gold mining. The swampy habitats within the East Usambaras, the target of much of the mining, are also habitat for the Critically Endangered long-billed apalis *Orthotomus moreaui*. These mountains are also the sources of water supply for the largest city in Tanzania, Dar es Salaam, as well as the large regional centres of Morogoro, Tanga and Iringa.

In early 2004 the gold mining in the East Usambaras was affecting Amani Nature Reserve and the forest reserves of Semdoe, Nilo and Longuza, and the Derema proposed forest reserve. There were also large numbers of miners outside these reserves, in particular in the swamp areas at Sakale, Nelusanga and Mlesa, with perhaps 40,000 miners found in these areas (for details see *Oryx*, 38, p. 254). In addition a peak of 40,000 people was recorded gold mining in the Balangai West forest reserve in the West Usambaras in early 2004. Prospecting teams were also found in other parts of the West Usambaras, for example in Baga I, Baga II and Ndelemai forest reserves. Early in 2004 there were also *c*. 3,000 gold miners in farmlands and forests in the North Nguru (Nguu) mountains, including Pumula, Derema and Kilindi forest reserves. In the Ulugurus small numbers of miners were found panning for gold in the the rivers and streams of Kimboza, Ruvu and Mvuha/Chamanyani Forest reserves.

Over the past 6 months the Tanzanian government has tried to bring the situation under control, and the number of miners now present in the East and West Usambaras is considerably reduced. A combination of interventions by international agencies, the president Benjamin Mkapa (Daily News article of 1 April 2004: Water is more precious than gold), Regional and District Commissioners, and the Forestry and Water authorities made it more difficult for the miners to operate illegally within reserves or openly outside them. The number of miners present at the Sakale mine site in the East Usambaras by mid September 2004 had fallen dramatically to a few hundred people and most of the temporary housing had gone. In the West Usambaras mining has generally been stopped in Balangai West, and the activities of the prospecting parties have been much reduced. In the Nguu mountains *c*. 2,000 miners were still present, with some of these having moved from the East and West Usambaras, despite actions to remove the miners by the local catchment forest officers.

However the gold mining in the East Usambaras continues in a different form. Smaller groups of several hundred miners are prospecting the smaller streams and swampy areas within the Amani Nature Reserve, Semdoe Forest Reserve and in secluded areas outside these reserves. When areas rich in gold are found then a few hundred miners descend on a stream bed or small swamp and, working mainly at night, excavate the area and either process the sediment on site or remove it for processing outside the Reserves. A cat and mouse process has developed between the staff of the Amani Nature Reserve and the illegal miners, with the Reserve staff forcing miners from one area, only to see them reappearing in another part of the Reserve or elsewhere in the same mountains. The number of people involved is not known, but hundreds have been captured by the Reserve team and many others still continue to mine. About 30% of the streams within the Nature Reserve have already been excavated and halting of mining in the remaining areas is a serious challenge. The Reserve is incurring significant additional costs in trying to address this issue, supported only through funds from its own ventures and those from the Ministry of Natural Resources and Tourism. This has posed a strain on the Reserve finances and cuts have been made to the normal operations to finance the increased patrolling required. Tanga Catchment Forest Project Office is also incurring additional costs in paying for guards to patrol the West Usambara mountains and keep people out of the Balangai Forest Reserve.

Other forms of mining also pose a threat to the forests of the Eastern Arc. Gemstones such as rubies, sapphires, tourmaline and rhodolite (garnet) are found in the region. Mining for these gems is artisanal, but the large number of people involved can cause significant damage to forests, generally close to water courses where the gems have become concentrated in alluvial deposits.

Gem stone mining is occurring in the forest reserves of Ruvu in the lowland Ulugurus (considerable damage), Mafwomero (little damage), Mangalisa in the Rubehos (considerable damage), and Nguru South (considerable damage). In Mpwapwa the proposed Kiboriani forest is also being mined heavily for gem stones. Kimboza and Wota forest reserves have also been mined for marble and limestone. One issue is that the Ministry of Mines issues licences for mining without knowing where the mining will actually take place. There is also no proper monitoring of the impact of the mining.

In conclusion, the pressure from illegal gold mining on the forests of the East Usambaras has been reduced over the past 6 months, as it has on other parts of the Eastern Arc where it was occurring. However, the situation, particularly within Amani Nature Reserve, remains serious. Other forms of mining are still occurring in many forests across the Eastern Arc and pose a threat to forests and aquatic biodiversity. Where increased protection has controlled the gold mining, the situation still requires monitoring and financing, as prospective gold miners are still living in the mountains, waiting for the vigilance of the government to decline so that they can resume their activities. To date no funding has been received from the international community to assist the government of Tanzania to address this issue, and tackling it is presenting a significant financial challenge to an already stretched budget within the Amani Nature Reserve and the Tanga Catchment Forest project. There is also a need for a government statement to prevent mining within the biologically globally important forests of the Eastern Arc Mountains, which form the water supplies for millions of urban Tanzanians.

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New highways threaten four wildlife reserves in Southern India

In southern India a proposal to upgrade roads passing through Nagarahole, Kudremukh, Anshi and Dandeli wildlife reserves to national highways is threatening key wildlife habitats. All these reserves lie in the Western Ghats, identified as one of the world's 25 biodiversity hotspots and also forming part of the Level-I Tiger Conservation Unit.

In Nagarahole National Park (642 km^2), the road to be upgraded is the present Mysore-Manandavadi road that passes through the southern part of the Park. Nagarahole is contiguous with Bandipur Tiger Reserve (874 km^2) and forms a part of the recently notified Mysore Elephant Reserve. These areas are also part of India's famed project tiger reserve network, and are a part of the ecologically important Nilgiri Biosphere Reserve and are contiguous with two other protected areas, Mudhumalai and Waynaad Wildlife Sanctuaries. Nagarahole and Bandipur together support one of the largest contiguous habitats of over 1,500 km^2 for tigers *Panthera tigris*, Asian elephants *Elephas maximus*, wild dogs *Cuon alpinus*, gaur *Bos gaurus* and other wildlife of global significance.

The Anthrasanthe and Doddabyrenakuppe ranges of Nagarahole, through which the highway would pass, support what is possibly the highest congregation of Asian elephants in the world. Over the last few decades, speeding vehicles have killed tigers and leopards, and innumerable smaller animals, on the existing road. Trucks carrying cattle to the neighboring state of Kerala are known to throw dead carcasses into the forest, and this is suspected to be one of the causes of the spread of anthrax among wildlife in this area. The Wildlife Conservation Society has proposed an alternate route for the road, to minimize damage to wildlife.

Kudremukh National Park supports the largest population of the Critically Endangered lion-tailed macaque *Macaca silenus*, endemic to the Western Ghats. The area also supports tiger, leopard, Indian wild dog, great hornbill *Buceros bicornis*, king cobra *Ohphiophagus hannah*, Malabar civet *Viverra megaspila*, and possibly the Nilgiri marten *Martes gwatkinsi*. The road to be upgraded is the Karkala-Sringeri road passing through Kudremukh. The NGO Wildlife First has proposed an alternate route that is not only 1 km shorter but will also link up with the major coffee exporting town of Chikmagalur. This optional route also passes through reserved forests, but the alignment is outside the Park and the forest is already fragmented by highways, pipelines and a railway line.

In the Anshi and Dandeli reserves the upgrading of an existing road to a national highway poses a threat to rich evergreen forests. All of the proposals to upgrade existing roads will further fragment these forests and their wildlife populations, and increase the volume and speed of traffic, leading to higher wildlife mortalities. There will also be considerable disturbance during the construction phase.

The upgrading of highways passing through Nagarahole and the Ashi and Dandeli reserves are being implemented by a Karnataka State Highway Improvement Project, supported by the World Bank through a $360 million loan. Of this, a major portion is in the form of a technical consultancy to a UK firm. However, the World Bank operational manual clearly states that 'the Bank does not support projects that. . . involve the

significant conversion or degradation of critical natural habitats'.

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Eastern black-crested gibbon numbers grow

Surveys carried out in 2002 by Vietnamese scientists supported by Fauna & Flora International (FFI) led to the discovery of a tiny remnant population of just 26 Eastern black-crested gibbons *Nomascus nasutus*. The world's rarest ape, known from just one other site in China where 13 gibbons have been counted, was thought to have been extinct in Vietnam since the 1960s. The most recent survey of the Eastern black-crested gibbon, carried out in September 2004 by Trinh Dinh Hoang of FFI Vietnam, has now counted 37 individual animals, including five infants, in the Ngo Khe-Phong Nam forest in Cao Bang Province of Vietnam, near the Chinese border. This result increased the known population of this Critically Endangered ape by a third. Three new groups were located for the first time, bringing the total number of groups to eight.

This population of eastern black-crested gibbon lives on an isolated limestone mountain in northern Vietnam. Known locally as Cao Vit, and renowned for their beautiful dawn calls, the gibbons are rarely seen by local people. This gibbon is threatened not only by hunting and forest degradation, but also by its very small total population, which makes the species vulnerable to disease or catastrophic events. The FFI Vietnam Primate Programme has developed a community conservation project, in partnership with local authorities, to protect the species and its habitat. This discovery of additional groups provides information of a welcome and significant increase in their global population.

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Occurrence of American mink on the Chonos Archipelago of southern Chile

The American mink *Mustela vison* has been found in Chile only since about 1967. This was a result of the release of individuals by pelt farmers in the vicinity of Aysén, region XI, and the immigration of the species from Argentina into regions X and XI (Pagoni 1986). Today, mink are frequently found between the IX and XII regions. Of all the introduced species in Chile, mink is one of most detrimental to native fauna because it is a highly effective predator of species such as mice, terrestrial and aquatic birds, crustaceans and insects. However, it had been thought that mink were restricted to continental Chile, with no records of its occurrence in the southern archipelagos. However, in January and February 2004 an inventory of rodent populations was carried out on four islands of the Chonos Archipelago, region XI (Guamblin, Ipún, Stokes Island and Kent Island), during which evidence of invasion by the American mink was obtained.

For the survey we used cereal-baited Sherman traps both on the ground and in vegetation. No rodents were trapped on Ipún and Kent Island and few on Stokes Island, whereas rodents were readily trapped on Guamblin. The differences in trapping success could not be explained by methodology or any abiotic factor. On Guamblin, however, no signs of minks were detected whereas on the other islands droppings and tracks of mink were found and individuals were seen on several occasions. We believe that the absence or low numbers of rodents on the three islands are due to the impact of mink. Reports by fisherman on Ipún and Stokes Island indicate that rodents were abundant before the occurrence of mink.

Given the ability of mink to enter burrows of nesting birds and kill chicks and even adults, we are concerned that the population of diving petrels, shearwaters and other burrow-nesting bird species on the islands of the Chilean Archipelago could be severely affected by the mink. In addition, it is known that the mink is present on the Guaitecas Archipelago to the north of the Chonos Archipelago and close to Chiloé's Island. This is of great concern as the Vulnerable marsupials *Dromiciops gliroides* and *Rhyncholestes raphanurus* and the endemic Darwin's fox *Pseudalopex fulvipes*, with whom the mink could compete for food, occur on Chiloé's Island.

The detrimental effects of mink on these Islands indicates the need for further research and monitoring of the fauna of the Patagonian Islands of Austral Chile to develop an inventory of species that may be threatened by introduction of the American mink.

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The Darwin Field Station, The Gambia

The Gambia, in West Africa, is the smallest country in continental Africa. Although most of its large mammals

were lost to overhunting in the last century it still has a rich biodiversity. Unfortunately, unlike other African countries in the east and south, its wildlife is poorly studied. The only taxonomic groups that have been investigated in any detail are its birds (it is a well known location for European birdwatchers), amphibians, reptiles, dragonflies and butterflies.

The University of Warwick, in partnership with a local charitable NGO, Makasutu Wildlife Trust, is working to change this state of affairs by implementing a Darwin Initiative funded project. The project, which is in its second year, has already seen its first phase completed with the construction of the Darwin Field Station for biodiversity research, education and training. The field station is situated in a wonderful patch of gallery forest overlooking the crocodile pools of Abuko Nature Reserve, the first area to be protected in The Gambia, in 1968. As well as providing the headquarters for the Trust, the field station also has a large well-equipped training room, a resource centre and a laboratory. The land for the field station was generously donated to the Trust for 40 years by the government of The Gambia, who are also donating land in the buffer zone of the nature reserve, as the location for researchers accommodation. The accommodation will be simple and comfortable and should be completed within the next few months. The project is hoping to attract undergraduate and postgraduate students from overseas and within The Gambia to undertake badly needed research on the country's biodiversity. In addition to the combination of affordable accommodation, research facilities and the nature reserve itself, Makasutu Wildlife Trust has a small but dedicated team who can facilitate the process of obtaining government research licences and provide advice and local knowledge.

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New and improved internet resources

Wolves in the United States have suffered from extermination efforts, habitat loss and, perhaps most significantly, a bad reputation. The *Timber Wolf Information Network* (http://www.timberwolfinformation.org/) is working to reverse this by increasing public awareness and acceptance of the wolf in its natural habitat and knowledge of its ecological role in the environment. The website contains links to numerous references; news stories, information about global conservation efforts, a section for children, and population updates for wolves across the country.

Missouri Botanical Garden: Andean Bryophyte Project: Mosses of the Tropical Andes (http://mobot.mobot.org/W3T/Search/andes/andesintro.htm) provides a collection of information and resource links on the mosses of the Andean region. The area's scope encompasses Venezuela, Colombia, Ecuador, Peru, Bolivia, and the northwest portion of Argentina (Jujuy, Salta and Tucumán provinces). Regional diversity is one of the highest in the world for mosses, with over 2,000 species recorded, in 362 genera and 76 families. The website provides an overview of the project as well as an identification Key to Andean Moss Families, an Index to Generic Family Placement, an Index to Author Abbreviations, literature references, and the Andes Moss Species Database.

The *Institute of Applied Ecology: African Mammals Databank* (http://www.gisbau.uniroma1.it/amd/) focuses on the conservation and distribution of African mammals. It was developed collaboratively by the Geographic Information Systems Laboratory of the Animal and Human Biology Department at the University of Rome La Sapienza and the Institute of Applied Ecology. The database covers the entire African continent, except Madagascar, and includes a total of 281 species, in 12 orders and 28 families.

University of Bern: KORA-Eurasian Lynx Online Information System for Europe (http://www.kora.unibe.ch/en/proj/elois/online/index.html) provides information concerning the status of the Eurasian lynx in Europe. It serves as an update for the conservation Action Plan that was published in 2000, using data collected up until 2001 and information from lynx experts across Europe. Its site includes a section on Species Information with entries on description and morphology, phylogenetic history and subspecies, biology and life history, and Eurasian lynx captivity in Europe. The Countries section provides information by nation, with each country page presenting data on Distribution, Populations, Depredation, Management and Conservation.