

# Conservation news

## Conservation of the giant tree rhododendron on Gaoligong Mountain, Yunnan, China

The giant tree rhododendron *Rhododendron protistum* var. *giganteum* is the largest species of rhododendron, reaching up to 30 m in height and 1 m in basal diameter. It appears to be restricted to the southern part of Gaoligong Mountain in Yunnan, China, and is categorized as Critically Endangered on the 2004 China Species Red List (but has not yet been assessed for the global Red List). Lack of knowledge of the species, however, has hindered a full evaluation of the species' conservation status. A joint project was therefore launched via Fauna & Flora International, involving scientists and staff of Gaoligongshan National Nature Reserve, through the Global Trees Campaign, to improve our understanding of this species. We combined data from field surveys and information obtained from interviews with local people, especially nature reserve rangers, to elucidate the main threats to this species.

Field surveys were carried out at Hecaodi (at 2,320–2,730 m altitude) and Cizhuhe (2,410–2,550 m), in the Gaoligong Mountain range, Tengchong County, Yunnan Province, where the giant tree rhododendron has previously been recorded by staff of Gaoligongshan National Nature Reserve. Ten people surveyed for a total of c. 20 days on three occasions from February 2010 to March 2012. In total, we recorded 1,439 individuals: 1,325 at Hecaodi, of which 1,115 were adult and 210 juvenile trees, and 114 at Cizhuhe, of which 44 were adult and 70 juvenile trees. The area of occupancy of the species on Gaoligong Mountain is 2,458 km<sup>2</sup>.

Hecaodi and Cizhuhe are located at the edge of the core area of Gaoligongshan Nature Reserve. Our surveys and information from interviews with local people and nature reserve rangers indicated there are some potential threats to this tree: (1) it is rare to find seedlings, potentially indicating high seedling mortality (those found were all growing on rotten wood), (2) thunder and lightning destroy large branches, probably because of its height, and large branches sometimes break under the weight of heavy snowfall, (3) it always grows on slopes, where soil is easily lost following rainfall, and (4) lack of conservation awareness amongst tourists, increasing numbers of tourists and road construction within the species' range pose threats to this rhododendron and its habitat.

Some conservation activities for the giant tree rhododendron have started and a monitoring plan has been launched, and publicity materials to raise the conservation awareness of tourists and local people are in preparation. Information on seed germination, seedling establishment and the reproductive biology of the species is required, and

it could be beneficial to install lightning rods on the largest individuals. Propagation for conservation has already started, both within the species area of distribution and in Kunming Botanical Garden. To elucidate the species' conservation status fully, further surveys are required in other areas of its potential range (i.e. the northern part of Gaoligong Mountain and Motuo in Tibet), as indicated by specimens from the herbarium of the Kunming Institute of Botany, Chinese Academy of Sciences (KUN) and by information from rhododendron experts.

YONGPENG MA, CHANGGIN ZHANG and WEIBANG SUN Kunming Botanical Garden, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, Yunnan, China  
E-mail wbsun@mail.kib.ac.cn

XINGFENG ZHAO and XIAOYA LI Fauna & Flora International China Programme, Beijing, China

WEI ZHAO and TIANCAN WANG Gaoligongshan National Nature Reserve Management Bureau, Baoshan, Yunnan Province, China

## Helping (Japanese) Dormice to cross the road

The construction of roads obstructs dispersal by small mammals, especially arboreal species that avoid activity on the ground, but the effectiveness of bridges that enable animals to cross roads is often questioned. Experiments in Japan, however, suggest that the barrier effect of roads may be mitigated by the construction of arboreal animal pathways. At least four species of arboreal mammals will make special use of these artificial structures rather than cross at ground level, even across a narrow and little-used road.

The Japanese dormouse *Glirulus japonicus*, known as *yamane*, is a rare and Near Threatened species that is only found in the mountain forests of Japan. It was designated a protected species in 1975, committing the national and local government to conservation measures. It is active at night in trees, feeding on flowers, fruits and insects, and rarely comes to the ground except to hibernate. The construction of roads and railways through forests could pose a significant threat by fragmenting the species' habitat and obstructing free movement of individuals, compromising metapopulation functionality and isolating vital feeding areas. Dormice and other arboreal animals play a vital role in pollinating the forest trees of Japan and dispersing their seeds. These species are an essential part of the forest community but are vulnerable to habitat change and negatively affected by barriers to their dispersal and free movement.

In 1998 a special bridge was constructed to help dormice to cross a new road being built through a key area of forest in Yamanashi Prefecture. It consists of a large gantry of the type normally used to support overhead road signboards, with space allowed for branches, nest boxes and ropes to be installed in a passageway 8.9 m above the road. This is enclosed in steel mesh to prevent debris falling on the traffic below and also to protect small mammals from attack by owls. Ropes and creepers link the bridge to roadside trees and shrubs. Within 4 weeks dormice built breeding nests on the bridge and Japanese wood mice *Apodemus argentatus* were living up there the following year. Both species produced young in the nest boxes, with traffic flowing underneath. Camera surveillance suggests that these small mammals also regularly used the bridge as an alternative to making a risky dash across the road at ground level.

Such bridges are expensive but arboreal species are small and therefore bridges for their benefit can be small too, substantially reducing costs. Subsequent experiments focused on smaller suspended bridges to enable arboreal animals to cross above roads without descending to the ground. In 2007 the first arboreal animal pathway was built, effectively creating an animal footbridge for species living in the treetops. It consists of three thin cables linked by a series of triangular supports along their length. The base of the triangle forms the floor of the pathway, made of metal mesh that does not trap snow or form icicles in the winter (which could fall and damage cars below). The apex of the triangle has a rope along which dormice can travel, hanging below it in the manner characteristic of *yamane*. At intervals along the bridge small metal shelters offer protection from owls and bad weather. Ropes and creepers link the pathway to the forest canopy either side of the road.

Despite its highly artificial nature, being all-metal and nothing like the normal surfaces to which arboreal animals are accustomed, video cameras showed that the pathway was used over 800 times in 3 months by four mammal species (dormouse, wood mouse, marten and squirrel). They could easily have run across the road (it is 13 m wide) yet chose to travel some distance to the bridge and use it rather than chance coming to the ground. In October 2011 another animal pathway was constructed. The first dormouse used it within 7 hours.

Clearly these arboreal animal pathways are welcomed and used by the animals they are intended to benefit. Their construction was also a major success in terms of public involvement, with cooperation also from local governments, a communications company and construction company engineers. The bridges also highlighted important issues regarding forest animals, wildlife conservation and the need for a sensitive approach to road building. The project has won several major awards

from the Japanese Government and the construction industry.

SHUSAKU MINATO, MANAMI IWABUCHI and HARUKA AIBA *Dormouse Museum, 3545 Kiyosato, Takane, Hokuto, Yamanashi Prefecture, Japan*

KOUICHI OHTAKE *Taisei Corporation, 1-25-1, Nishishinjyuku, Tokyo, Japan*

PAT MORRIS *West Mains, London Road, Ascot, SL5 7DG, UK*  
E-mail [p.morris5@btinternet.com](mailto:p.morris5@btinternet.com)

## Twenty years of Defra's Darwin Initiative

The Darwin Initiative, run by the UK Department for Environment, Food and Rural Affairs (Defra), recently celebrated its 20th anniversary. Launched at the Earth Summit in Rio in 1992, the Darwin Initiative funded its first projects in 1993. Since that time the Initiative has provided over GBP 87 million in funding to projects seeking to support biodiversity conservation, and is one of the few bilateral programmes to focus specifically on biodiversity. The original remit of the Darwin Initiative was to support developing countries to achieve their commitments under the newly signed Convention on Biological Diversity (CBD).

The Darwin Initiative is a demand-led fund reliant on applications to shape its impact. The Initiative's agenda has gone through various reviews and evaluations to ensure that it is shadowing Defra's emerging priorities and is capable of supporting key policy areas. As an example, in 2008 the Initiative was expanded to include CITES and the Convention on Migratory Species (CMS), in recognition of the policy importance of these conventions for achieving sustainable use of biodiversity and because the Initiative is one of the few funding opportunities open to projects supporting these conventions. The Initiative's remit was further expanded in 2009 to include a specific focus on the UK's Overseas Territories, coincident with the launch of the government's Overseas Territories Biodiversity Strategy. This move ear-marked GBP 1.5 million from the Initiative's funds for work in the UK's Overseas territories, 'recognising the unique problems faced by these remote territories in preserving their biodiversity and ecosystems' (Defra, 2009, *Darwin Initiative 12th Annual Report*).

Although significantly smaller than other funding mechanisms supporting the CBD, the Darwin Initiative has made substantial progress towards the sustainable use of biodiversity and the fair and equitable sharing of benefits arising from genetic resources. An evaluation, commissioned by the Initiative in 2010, reviewed the Initiative's contribution to the CBD's 2010 target. The conclusions of the review highlighted that 'in its eighteen years, the Darwin Initiative has funded a remarkable range of projects