

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 km².

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.

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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.