Conservation news

Conserving *Firmiana major*, a tree species endemic to China

Firmiana major is a deciduous tree endemic to the hot arid valley of the Jinsha River in Yunnan and Sichuan Provinces, China, where the climate supports few trees species and environmental degradation is severe. Of the seven *Firmiana* species in China five are endemic, and *F. major* was recognized as a class II protected species in the first edition of the National Key Protected Wild Plants List of China (1984). The China Plant Red Data Book (1991) reported that as a result of habitat destruction caused by development, wild individuals of *F. major* were difficult to find, although c. 30 individuals were conserved at Kunming Botanical Garden, Kunming Black Dragon Pond Park, and two temples around Kunming in Yunnan province. In 1998 the IUCN Red List categorized *F. major* as Extinct in the Wild. The species was omitted in the second, current edition of the National Key Protected Wild Plants List of China (1999).

In 2004, however, 200 individuals were found in the National Nature Reserve of *Cycas panzhihuaensis* in Sichuan Province. Zhixiang Yu managed to grow *F. major* seedlings, and expanded the natural population by reintroduction. In 2012 China launched an emergency rescue plan for 120 Plant Species with Extremely Small Populations, including *Firmiana kwangsiensis* and *Firmiana danxiaensis*, and Yunnan and Sichuan provinces introduced provincial lists of Species with Extremely Small Populations, but *F. major* was not included on these lists.

In July 2017, funded by the National Key Programme Survey and Germplasm Conservation of Plant Species with Extremely Small Populations in South-west China (grant number 2017FY100100), we found two fruiting populations of *F. major* in Yunnan province, growing on the cliffs of the Jinsha River valley. We found c. 1,000 individuals in Lijiang City and < 50 individuals in Yuanmou County. The cliffs have protected these populations from logging, farming, and grazing but there is still human disturbance, including the construction of a rural road through the Lijiang population and frequent use of the seeds from the Yuanmou population, for edible oil.

The rediscovery of these populations is significant because this species has potential for use in restoration projects of arid river valleys. Shortly after the rediscovery the story was picked up by Chinese media outlets (including China Central Television), leading to the resurveying of the population by the Forestry Department of Yunnan Province and local forestry bureaus, who discussed protection plans. We recommend that this species should now be included in the national and provincial level lists of Plant Species with Extremely Small Populations, to help promote conservation of the species. We continue our investigation of *F. major* and have successfully cultured the seed embryos in Kunming Botanical Garden.

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Urgent action required to conserve the Critically Endangered Asiatic cheetah *Acinonyx jubatus venaticus*

The Critically Endangered Asiatic cheetah *Acinonyx jubatus venaticus* is now restricted to Iran, where fewer than 50 remain (*Proceedings of the National Academy of Sciences of the United States of America*, 2017, 114, 528–533). This could be the next felid to go extinct (*Cat News*, 2017, 66, 3). Since 2001 efforts to conserve the Asiatic cheetah have been spearheaded by the Conservation of the Asiatic Cheetah Project, managed by Iran's Department of the Environment in conjunction with the United Nations Development Programme (UNDP) and other organizations. The future of this project is now, however, in doubt.

The UNDP recently indicated it was withdrawing from the Conservation of the Asiatic Cheetah Project, leaving it with the Department of the Environment (*Nature*, 2017, 552, 31). The new head of the Department, however, announced in his first press conference that the Asiatic cheetah is doomed to extinction because of its declining population, and that cheetah conservation is no longer a priority for the Department. This does not bode well for this subspecies, and it is extraordinary that the agency entrusted with its protection appears to have accepted the likelihood of its demise so readily.

A new issue that could contribute to further decline of the Asiatic cheetah is trafficking. On 25 December 2017, in a joint operation between the Iranian Police and the Department of the Environment, an 8-month old female Asiatic cheetah cub was discovered in a house in Tehran (https://www.mehrnews.com/news/4182638/; in Farsi). To prevent future trafficking of the Asiatic cheetah we suggest the Department takes the following steps to improve the security of the protected areas inhabited by cheetahs: (1) increase the number of wildlife rangers (http://www.icana.ir/Fa/News/309266/; in Farsi); (2) establish ranger stations in each of the districts inhabited by the Asiatic cheetah; (3) ensure that rangers have the equipment, fuel and training they need to work effectively (http://www.donya-e-eqtesad.com/

fa/tiny/news-3277503; in Farsi); (4) grant rangers permits to defend themselves in the event of attack by criminals (https://www.mehrnews.com/news/3694931/; in Farsi); and (5) where necessary, restrict access to important areas of cheetah habitat within protected areas, to hinder access for wildlife traffickers.

In addition, it is critical that other threats to Asiatic cheetahs are ameliorated. The most serious is collisions between cheetahs and vehicles (*Diversity and Distributions,* 2017, 23, 592–603), with 1–2 cheetahs killed on the roads annually (*Cat News*, 2007, 46, 8–11). To mitigate this threat we hope that the Department of the Environment will work with the Ministry of Roads and Urban Development to reduce roadkill rates, particularly at roadkill hotspots (*bioRxiv*, 2017, https://doi.org/10.1101/230581). We suggest a strategic shift in mitigation efforts away from the warning signs currently in use, as there is little evidence they are effective (*PLoS One*, 2016, 11, e0166941). Mitigation should instead focus on installing fencing in combination with wildlife crossing structures, as this approach is more effective at reducing roadkill rates (*PLoS One*, 2016, 11, e0166941), and crossing structures are frequently used by large carnivores (*Frontiers in Ecology and Evolution*, 2017, 5, 122; *Wildlife Society Bulletin*, 2017, 41, 712–719). We believe this strategy will be more successful in reducing collisions but it would require the full support of the Department of the Environment. To prevent the extinction of the Asiatic cheetah it is therefore critical that the Department makes cheetah conservation a top priority.

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An action plan for marine turtle conservation in the Kingdom of Cambodia

Sea turtles are flagship species for coastal and marine habitats in Cambodia and are categorized as Endangered Species under Cambodian Law. Among the sea turtle species found in Cambodia, the hawksbill turtle *Eretmochelys imbricata* is categorized as Critically Endangered on the IUCN Red List of Threatened Species and the green turtle *Chelonia mydas* as Endangered. Sea turtles are also listed on Appendix I of CITES, which bans international trade of these animals. In 2015 a Cambodian provincial consultation of coastal community members identified fishing, habitat degradation, coastal and island development, and pollution from solid waste and ghost nets as the main threats to sea turtles in Cambodia.

Because of their threatened status in Cambodia both national and international frameworks are now addressing the need to manage and conserve these species. Following consultation and review led by Fauna & Flora International, Cambodia, and the Fisheries Administration of the Ministry of Agriculture, Forestry and Fisheries, the nation's first action plan for sea turtles was approved by the Director of General of the Fisheries Administration in October 2017.

This Sea Turtle National Action Plan for Cambodia (2016–2026) is a landmark step towards managing and conserving these threatened species. Protecting sea turtles and their threatened habitats in Cambodia will be achieved through the following complementary objectives: (1) reducing anthropogenic threats that cause mortality of sea turtles and their eggs, (2) protecting and rehabilitating sea turtle foraging and nesting grounds, (3) strengthening research and monitoring of sea turtle populations, foraging and nesting habitats, and bycatch reduction methods, (4) increasing public awareness of the threats to sea turtles and their habitats, and enhancing public participation in conservation activities, and (5) strengthening national and transboundary collaboration, and regional and international information sharing on sea turtles.

Fauna & Flora International will take a leading role in supporting Cambodia's Fisheries Administration to deliver this action plan while coordinating Cambodia's Sea Turtle Network—a unique collective of private, public, community and NGO partners with a joint commitment to protect these charismatic marine species.

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