Applied Conservation Questions in Threatened Tree Conservation for Researchers 2017-18

To support and inform the practical implementation of our field projects the Global Trees Campaign work in collaboration with universities, other research institutions and students to address key knowledge gaps and research questions related to the conservation of threatened tree species.

Our research questions for the year 2017-18 are listed below. Post-graduate students are recommended to contact us to discuss any of the following questions in more detail, and are invited to submit a CV and covering letter (outlining the research question they would like to study and why they are interested in studying it) to globaltrees@fauna-flora.org.

For all of these projects a working knowledge of the national language is preferred but not essential. The deadline for expressions of interest for all of these projects is **Sunday 10th December 2017.**

- **How can the genetic diversity of the Araucaria forest's rarest trees be adequately captured by restoration projects?**

In southern Brazil, more than 99% of Araucaria forest's primary forest habitat has been lost and at least 72 tree species are threatened or extremely rare. Restoration planting offers some hope for these species, but little information exists on the current genetic structure of the remaining populations. Knowing such information would help to inform where seed collections should be prioritised to maximise genetic diversity, and where and how seedlings should be planted out to ensure future populations are as diverse as possible. An MSc project could focus on at least one of the rarest tree species in the Araucaria forest.

For more info on this project see our project page.

- **What conditions best support the natural regeneration of *Dalbergia stevensonii?***

Increased international demand for timber led to a rapid increase in logging in Belize of Honduran rosewood (*Dalbergia stevensonii*) between 2010 and 2012. Although a countrywide moratorium is currently in place, there is a need to understand what levels of harvest are sustainable, should the moratorium be lifted in the future. In order for the Government of Belize to institute biologically sound regulations, research into natural regeneration, especially under harvest pressure, is needed. MSc research would help to understand the natural regeneration (i.e. seed viability and seedling emergence and survival) in both harvested and unharvested populations. For more info see a profile for this species.

- **What are the optimal methods for propagation of the Critically Endangered pencil juniper (*Juniperus barbadensis var. barbadensis)*?**

As a result of deforestation in lowland areas, the pencil juniper is now confined to a rocky peak on Petit Piton mountain in south-west Saint Lucia, where only 60-70 individuals remain. The small size and limited recruitment of the remaining population suggest it is unlikely to be viable in the future. There is thus an urgent need to reintroduce the species to secure suitable habitat in the lowlands, where the trees used to occur. Research is needed to better understand how best to propagate the species in order to grow it in sufficient numbers to supply future restoration projects in Saint Lucia.

For more info on this project see this blog

- **What are the barriers, risks and opportunities to developing a sustainable market for (*Juniperus barbadensis var. barbadensi)* as Christmas trees on the island of Saint Lucia?**

As part of an ambitious project to save the Critically Endangered pencil juniper from extinction, the Saint Lucia Forest Department is developing a strategy to grow and sell the species as Christmas trees. Consumers would be encouraged to plant the trees out into public lands after Christmas, helping to create a backup ex situ population, and also raising public awareness of the plight of the species. Research is needed to better understand current consumer demand and preference for Christmas trees in general (currently fulfilled mainly by exotic Acacias) and what the feasibility and potential risks would be for developing a market for native Junipers trees.

For more info on this project see this blog

- **What are the priority tree species for conservation action on the island of Príncipe?**

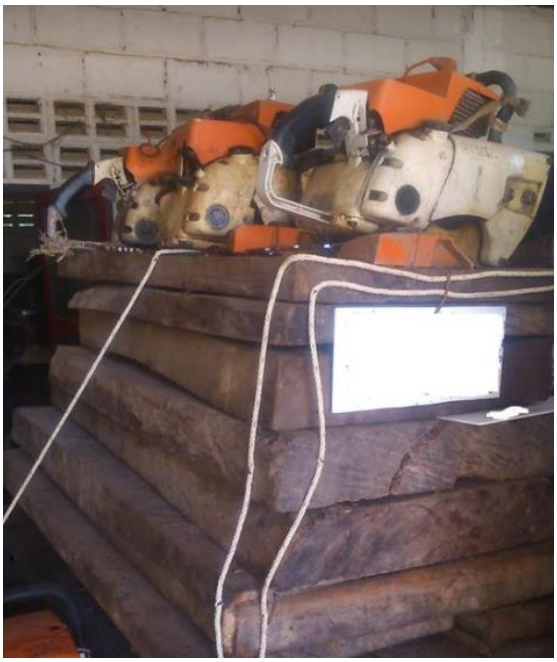
The island of Príncipe, located off the coast of west Africa, is part of a centre of plant diversity and endemism. Field surveys led by a range of local partners and international experts in 2016-17 have so far identified more than 100 tree species, many of which are endemic, including six which may be species new to science. However information on tree species on the island is still limited and, to date, no ef-

forts have been to identify priority species and sites, the threats to them, and the conservation measures required. MSc research would help to identify priority tree species and areas on Principe for conservation based on results collected from field surveys to date. *For more info on this project see this blog*

- **What are the drivers, human behaviours and influencers for rosewood species consumption in Cambodia?**

Rosewood is the world's most trafficked wild product – it is more widely traded than ivory or tiger skins. The Mekong basin has long been a primary source region for south-east Asian rosewoods including two species of high-value rosewood which are listed on CITES Appendix II, and are severely threatened; *Dalbergia cochinchinensis* and *D. oliveri*. Legal protections have proven to be mostly ineffective against illegal logging activities and little is known about social factors underlying on-going demand for rosewood within Cambodia.

For more information on rosewood trade see this report by the Environmental Investigation Agency and a GTC photo blog exploring the poaching crisis in Thailand.

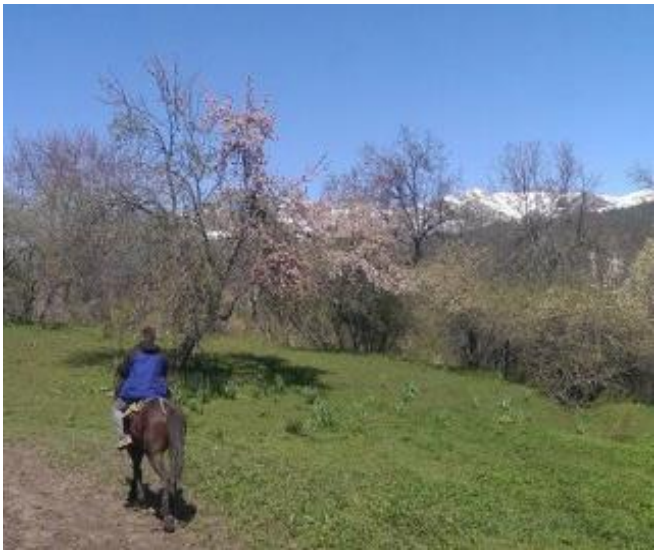


- **How prevalent is hybridisation in four wild *Malus niedzwetzkyana* populations in Kyrgyzstan and what does this mean for species management?**

Malus niedzwetzkyana is an Endangered tree endemic to Central Asia where trees are often isolated and as a result suffers from poor regeneration. But, it's unclear to what extent they are breeding with other wild apple species in their habitat and whether this is a help or a hindrance to regeneration of the species in the wild. We want to know the role of hybridisation and if we can harness this knowledge to inform conservation actions.

For more information on this project see our project page and recent photo blog.

- **What is the impact of opportunistic fuelwood harvest on rare tree species in Central Asia?**



Central Asia is home to many endemic and threatened wild apples and pear species; trees are often sporadically disbursed in the forest but their habitat is also significantly impacted by fuelwood collection. We know that local forests are significantly affected by fuelwood collection and apple tree timber is preferred for some purposes, but it's unknown how this impacts rare tree populations, and how serious a threat it is in relation to other issues. Such knowledge would inform the management of an Endangered species and, be the first study to address this issue from a species perspective.

For more information on this project see our project page and past blog.

- **Does the Tajik pear (*Pyrus buharica*) exist?**

In Tajikistan the species *Pyrus buharica* is an accepted name by botanists, but in western literature the name remains unresolved. The aim of this project is to identify whether *P. buharica*, is a species in its own right, or simply a sub-species of the Critically Endangered *P. korshinskyi*. If the genetics of these two morphologically different species do turn out to be genetically different, *P. buharica* is likely to be in need of urgent conservation action.

For more information on this project see our project page and Bukharan pear species page.

- **What drives seedling survival for threatened magnolia species in northern Vietnam?**

Despite their beauty, half of the world's magnolia species are threatened with extinction. FFI is supporting magnolia conservation in Tung Vai Watershed Protection Area in the north of Vietnam, a forest containing at least eight magnolia species, including the world's largest population of the Critically Endangered *Magnolia grandis*. High levels of degradation and logging mean that only 57 *M. grandis* remain in this site with limited regeneration. Research is needed to understand factors affecting natural regeneration as well as growth and survival of magnolia seedlings planted in the forest. Results would help to guide the long-term population recovery of *M. grandis* and other magnolias. *For more info on this project see a recent news article.*

- **How do people in northern Vietnam use and value magnolias and their forest habitat?**

Tung Vai Watershed Protection Area in the north of Vietnam contains eight magnolia species including the Critically Endangered *Magnolia grandis*. Magnolias are threatened by logging and cardamom cultivation in the forest understorey. These species are also valued by local communities (as timber for traditional houses and as a source of shade to provide cover for cardamom crops). Research is needed to understand how local livelihoods of women and men affect and benefit from wild magnolia populations. This includes the extent to which magnolias currently play a role in livelihoods and culture and whether the restoration of magnolias could be compatible within cardamom plantations or within local community managed forests. *For more info on this project see a recent news article.*