

ranging from Portugal in the west, through to Romania in Eastern Europe and Georgia in the Caucasus, all the way east to the Central Asian states of Kyrgyzstan and Tajikistan, the Eurasia programme represents an extremely diverse and sweeping body of work. Not surprisingly, as it seeks to strengthen the conservation of the regions biodiversity, it interacts with an equally diverse array of partners, government agencies and local stakeholders.

The Caucasus ecoregion hosts a rich biological and cultural diversity and contains unusually high levels of species endemism. It incorporates, in their entirety, the territories of Georgia, Armenia and Azerbaijan and, in-part, those of Turkey and Iran as well as the southern reaches of the Russian Federation. It has been recognized as one of the world's 34 most biologically rich and threatened terrestrial ecosystems, is one of the Global 200 Ecoregions and one of three Endemic Bird Areas in Europe. It is also considered to be a world centre for agro-biodiversity and the origin of many of today's domestic plants and animals (and the purported birthplace of wine). FFI recently made the decision to formalize more than a decade's worth of projects and actions in the region with a specific and dedicated programme of work focusing on the Southern Caucasus.

Since the collapse of the Soviet Union in the 1990s many parts of the region have experienced relatively rapid modernization in industrial, economic and legislative fields. However, the significant social and economic changes that resulted have led to widespread unemployment and an increase in dependence on natural resources in rural areas. Furthermore, poorly regulated and unsustainable hunting, an unstable legislative framework, and a growing but unregulated farming industry combine to increase the pressure on the region's natural landscape.

The decision to set up a regional office in Tbilisi, Georgia's capital, will allow the small in-country team to expand its programme of work both geographically and thematically. In keeping with FFI's partnership approach, the office will continue to favour working in close partnership with local groups across the region whilst, where required and requested, supporting and building their capacity to deliver conservation in the long term. This process has already begun, with the expansion of human–carnivore conflict work, pioneered in Georgia, into Armenia, and an exploratory study of the extent and potential impact of wild-life trade in the region.

Based on the work that has been implemented to date, the programme has identified five initial priority areas with which to engage over the coming years: human–carnivore conflict, wildlife trade, protected area development, marine and coastal issues and threatened tree species (the latter with the Global Trees Campaign). One of the first actions of the Caucasus programme will be to carry out further scoping studies that will encompass Georgia, Armenia and Azerbaijan. In this way the team will develop a more

detailed picture of biodiversity conservation in each country while emphasizing these five priorities. Ultimately, we hope that the presence of FFI in this emerging frontier of biodiversity conservation will act as a catalyst for enhanced global recognition of the region's value and increased international support for its conservation.

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Collaborative conservation for horseshoe crabs

The archaic horseshoe crabs originated 475 million years ago. Of the four extant species, two (the Chinese horseshoe crab *Tachypleus tridentatus* and mangrove horseshoe crab *Carcinoscorpius rotundicauda*) exist in southern China. Although categorized as Data Deficient on the IUCN Red List, populations of horseshoe crabs in Asia are declining as a result of loss of spawning/nursery areas from coastal reclamation, habitat destruction and pollution, bycatch from trawling, and overexploitation for biomedical uses. A slow growth rate and long maturity make horseshoe crabs vulnerable to disturbance. In China and other Asian countries an additional threat to the Chinese horseshoe crab is over-harvesting of adults for food. Horseshoe crabs are not, however, legally protected at the national level in China (although in some provinces the Chinese horseshoe crab is listed as a provincial protected animal) and many other Asian countries.

During 7–8 June 2014 the Guangxi Mangrove Research Centre, Fauna & Flora International (FFI) China Programme, Biodiversity Research Centre Academia Sinica (Taiwan) and Mangrove Ecological Research Group of the China Ecological Society organized a workshop (Nearshore Resources and Environment of Beibu Gulf—Conservation and Wise Use of Horseshoe Crabs) in Beihai, Guangxi Province, China, with financial support from the Guangxi Mangrove Research Centre, National Geographic Air and Water Conservation Fund, and the China Exploration & Research Society. Over 40 scientists, conservationists and stakeholders from mainland China, Taiwan and Hong Kong gathered to share research findings and formulate collaborative action for the conservation of horseshoe crabs in southern China.

The workshop reviewed the current status of horseshoe crabs in China. In Taiwan and Hong Kong the number of adult horseshoe crabs is particularly low. The most abundant population of Chinese horseshoe crabs in Beibu Gulf, Guangxi Province, has decreased by > 90% and c. 10% of the adults are harvested annually. The local biomedical industry has estimated that > 80% of the harvested Chinese horseshoe crabs are consumed as food and 20% are bled to produce limulus amebocyte lysate, which is used to detect bacterial contamination in medical devices

and the manufacture of drugs. Various approaches are being adopted to conserve horseshoe crabs. The Ocean Park Conservation Foundation and City University of Hong Kong have been running a juvenile horseshoe crab rearing programme in Hong Kong since 2010, to promote the importance of horseshoe crab conservation among secondary school students and the public. Scientists and conservationists in Taiwan have been promoting an integrated conservation strategy, encompassing research, artificial breeding and field release, public education and establishment of a protected area for horseshoe crabs. In mainland China, artificial breeding and field release of juvenile horseshoe crabs have been carried out to enhance wild populations. In 2013 the FFI China Programme initiated a project to promote participatory monitoring of juvenile horseshoe crabs in Beibu Gulf and strengthen the conservation network within China, of which the workshop was part.

With support from all attendees, from 22 institutions and organizations, a regional Horseshoe Crab Conservation Consortium was born. The Consortium has a mission to (1) promote the conservation status of horseshoe crabs, (2) reduce illegal utilization and trade of horseshoe crabs and promote their sustainable use, (3) promote the establishment of protected areas for horseshoe crabs and enhance effective management and habitat restoration, (4) develop research and conservation capacity and strengthen sharing of information, and (5) raise the awareness of the government, public and other stakeholders regarding the conservation of horseshoe crabs. The Consortium set up four working groups to promote efforts for population monitoring and Red List assessment, artificial breeding and field release to enhance wild populations, public education, and wise use of horseshoe crabs for societal needs. The aims of the Consortium are intended to extend beyond China and to facilitate collaboration among scientists and conservation practitioners from other Asian countries that host horseshoe crab populations.

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Bogus captive breeding of oriental rat snakes

In March 2014 the Indonesian Ministry of Forestry announced they had given permission to two East Javan companies to export captive-bred rat snakes specifically as pets, with an annual quota of 1,850 *Ptyas mucosa* allocated to the Kediri-based UD Bina Usaha Mandiri and 125,000

Ptyas korros and 50,000 *P. mucosa* allocated to the Sidoarjo-based CV Karya Albadi Reptil Mulia. These quotas are considerably larger than previous quotas of up to 3,000 for *P. mucosa* and 1,000 for *P. korros*. Both companies are large-scale exporters of dried geckos and snakes to East Asia, and there are no indications that either of them have ever been involved in the trade of live animals or that they are experienced in breeding reptiles. Auliya (2010, *Conservation Status and Impact of Trade in the Oriental Rat Snake in Java*, TRAFFIC, Petaling Jaya) gives a detailed account of the trade in rat snakes in Central and East Java, confirming the absence of their trade for pets in or from Java, and including data on reproduction, growth rates, and prices. These data allow us to evaluate whether captive breeding of rat snakes is economical.

Rat snakes are predominantly terrestrial and on Java can be found in a range of habitats, and are abundant in agricultural areas such as rice fields. The snakes are collected in large numbers either opportunistically by farm workers or by professional harvesters, and passed on to middlemen who sell them to large-scale traders. International trade in *P. mucosa* is regulated through CITES, with > 90% of the trade comprising skins and meat. After having been banned from exporting *P. mucosa* for 12 years, Indonesia now sets an annual export quota of 90,000 wild-caught individuals for *P. mucosa* (89,500 to be exported for their skins, 500 as pets) and 4,500 wild-caught individuals for *P. korros* (1,800 skins, 2,700 pets) but captive-bred individuals can be traded above and beyond this quota.

A rat snake's value increases with size, with the maximum values attached to skins of 140 cm length and live snakes of 800 g or more; at these sizes rat snakes have retail values for Indonesian exporters of USD 2.85–2.96 when sold alive and USD 3.03 when the skin and meat are sold separately.

Oriental rat snake females become sexually mature in 9 months, gestation and incubation last 5 months, and mean clutch size on Java is 15 eggs. Males and females have slightly different growth rates but they reach their economically optimal size in 15–20 months. If under optimal conditions females can produce two clutches per year, all 30 eggs hatch and there is no mortality of the young, then to produce 176,850 rat snakes per year one has to maintain a breeding stock of almost 4,000 adult females.

Given the low price rat snakes command and their apparent abundance, especially in Central and East Java, it cannot be economical to breed rat snakes for commercial purposes. Maintaining breeding stock, taking care of eggs and feeding young for over a year, only to be able to sell them on for < USD 4, suggests that wild-caught individuals are probably being exported as captive-bred to circumvent the quota system for wild-caught individuals. I urge the Indonesian CITES Scientific Authority, which sets these quotas, to reconsider its decisions and for importers to