Securing the web of life

Title
The source of our food, medicines and clean water, as well the livelihoods of millions of people may be at risk with the rapid decline of the world's animal and plant species. The latest update of the IUCN Red List of Threatened Species™, released today on the eve of the UN Conference on Sustainable Development in Rio de Janeiro, Brazil, shows that of the 63,837 species assessed, 19,817 are threatened with extinction, including 41% of amphibians, 33% of reef building corals, 25% of mammals, 13% of birds, and 30% of conifers. The IUCN Red List is a critical indicator of the health of the world's biodiversity.

"Sustainability is a matter of life and death for people on the planet", says Julia Marton-Lefèvre, Director General, IUCN. "A sustainable future cannot be achieved without conserving biological diversity—animal and plant species, their habitats and their genes—not only for nature itself, but also for all 7 billion people who depend on it. The latest IUCN Red List is a clarion call to world leaders gathering in Rio to secure the web of life on this planet." While most people in wealthy countries depend primarily on domesticated species for their dietary needs, millions of other people are dependent on wild species.

Freshwater ecosystems are under substantial pressure from expanding human populations and exploitation of water resources. An important food source, freshwater fish are facing threats from unsustainable fishing practices and habitat destruction caused by pollution and the construction of dams. A quarter of the world's inland fisheries are located on the African continent, yet 27% of freshwater fish in Africa are threatened including the Oreochromis karongae, an extremely important source of food in the Lake Malawi region that has been severely overfished. Further studies are being carried out in other regions and in the latest IUCN Red List update Mekong Herring *Tenualosa thibaudeaui*, an important commercial fish endemic to the lower Mekong River in the Indo-Burma region, has been listed as Vulnerable as a result of overfishing and habitat degradation.

Giant Australian Cuttlefish (Sepia apama) Near Threatened. An example of one of more than 1,900 species newly recorded on the 2012.1 IUCN Red List (Roger Hanlon)

In some parts of the world up to 90% of coastal populations obtain much of their food and earn their primary income through fishing; yet over-fishing has reduced some commercial fish stocks by over 90%. Thirty six per cent of skates and rays are threatened with extinction including the commercially valuable Leopard Ray *Himantura leoparda*, which is listed as Vulnerable due to extensive habitat degradation and heavy fishing pressures.

More than 275 million people are dependent on coral reefs for food, coastal protection and livelihoods. Globally, coral reef fisheries are worth US$ 6.8 billion annually. Overfishing affects 55% of the world's reefs and according to The IUCN Red List, 18% of groupers, an economically important family of large reef fish, are threatened. Coral reefs must be managed sustainably to ensure they continue to provide the essential food that millions of people rely on as a source of protein. "The services and economic value that species provide are irreplaceable and essential to our well-being", says Jon Paul Rodríguez, Deputy Chair, IUCN Species Survival Commission (SSC). "Unless we live within the limits set by nature, and manage our natural resources sustainably, more and more species will be driven towards extinction. If we ignore our responsibility we will compromise our own survival."

Crop wild relatives, such as the Critically Endangered Beta patula, a primary wild relative of cultivated beets, are of vital importance for food security and agriculture as they can be used to produce new crop varieties. It is estimated that crop wild relatives contribute more than US$100 billion worldwide towards increased crop yields. Production of at least one third of the world's food, including 87 of the 113 leading food crops, depends on pollination carried out by insects, bats and birds. This ecosystem service is worth over US$ 200 billion per year.

According to the IUCN Red List 16% of Europe's endemic butterflies are threatened. Bats, which are also important pollinators, are also at risk with 18% threatened globally. Earlier this month BirdLife released the 2012 IUCN Red List for Birds. This update shows that four members of the hummingbird family, which is known for its pollination services, are now at greater risk of extinction with the Pink-throated Brilliant *Heliodoxa gularis* listed as Vulnerable. In addition to their important pollination roles, bats and birds also aid in controlling insect populations that may otherwise destroy economically important agricultural plants.

Pink-throated Brilliant, a member of the Hummingbird family which is known for its pollination services (Chris Sloan)

“With the spotlight shining on Brazil at the Rio+20 conference, it is worrying that almost 100 bird species from the Amazon have been moved to higher categories of threat in the 2012 IUCN Red List following an analysis by BirdLife International on the impacts of projected Amazonian deforestation”, says Dr Stuart Butchart, Global Research Coordinator, BirdLife International.

Invasive alien species are one of the leading and most rapidly growing threats to food security, human and animal health and biodiversity. A recent analysis of IUCN Red List data highlighted invasive alien species as the fifth most severe threat to amphibians, and the third most severe threat to birds and mammals. Together with climate change, they have become one of the most difficult threats to reverse. For example, Water Hyacinth *Eichnornia crassipes* is an aquatic plant native to the Amazon basin, but in Africa its rapid spread poses a significant threat to water supplies and the use of inland waters for fishing or transportation. The economic impacts may be as much as US$ 100 million annually across all of Africa.

Solutions incorporating awareness and prevention measures, as well as early warning and rapid response systems that include containment, control and eradication programmes, need to be implemented on both a regional and global scale in order to reduce the negative effects of alien species. Moving to a ‘green economy’ demands recognition of the role that biodiversity and ecosystems play in economic affairs”, says Dr Jane Smart, Global Director, IUCN Biodiversity Conservation Group. “Biodiversity is the foundation of ‘green’ in green economy. A truly sustainable future will only be possible if the leaders in Rio seek solutions that conserve biodiversity whilst supporting livelihoods and providing investment opportunities for business.”

The latest IUCN Red List shows that 10% of snakes endemic to China and South-East Asia are threatened with extinction. Snakes are used in traditional medicines and anti-venom serum, as food, and as a source of income from the sale of skins. Nearly 43% of the endemic snake species in South East Asia in the Endangered and Vulnerable categories are threatened by unsustainable use. The world’s largest venomous snake, King Cobra *Ophiophagus hannah*, is listed as Vulnerable due to loss of habitat and over-exploitation for medicinal purposes. Burmese Python *Python bivittatus*, best-known in the West as an invasive species in the Florida Everglades, is also listed as Vulnerable in its native range, with trade and over-exploitation for food and skins, especially in China and Vietnam, being the main threats to the species. Despite its designation as a protected species in China, populations there show no evidence of recovery, and illegal harvesting continues.

In some countries, medicinal plants and animals form the basis of most of the medicinal drugs people use, and even in technologically-advanced countries like the USA, half of the 100 most-prescribed drugs originate from wild species. Amphibians play a vital role in the search for new medicines as important chemical compounds can be found on the skin of many frogs. Yet 41% of amphibian species are threatened with extinction, including the recently described

frog, *Anodonthyla hutchisoni*, from Madagascar, which is now considered Endangered. More than 70,000 different plant species are used in traditional and modern medicine. Today's IUCN Red List update includes a number of South East Asian plants which are used for food and medicine. Tsao-ko Cardamom *Amomum tsao-ko* is listed as Near Threatened because its edible fruits have been over-harvested for trading. In several cases the over-exploitation combined with loss of habitat due to deforestation and other threats has resulted in species being listed in a threatened category. Two relatives of turmeric – *Curcuma candida* and *Curcuma rhabdota* (Candy Cane Ginger) are both listed as Vulnerable, and the Zingiber monophyllum, a wild species of ginger is listed as Endangered.

Other important services supplied by species include improvement and control of air quality by plants and trees. A mature leafy tree produces as much oxygen in a season as 10 people inhale in a year. They clean the soil, act as carbon sinks, and clean the air. Bivalve molluscs and many wetland plants carry out water filtration services to provide clean water, whilst snails help control algae. In Africa 42% of all freshwater molluscs are globally threatened and in Europe 68% of endemic freshwater molluscs are globally threatened by habitat loss, pollution and the development of dams. "Most of the drivers of biodiversity loss, including species extinctions, are economic in nature", says Dr Simon Stuart, Chair, IUCN Species Survival Commission. "An economy can only be described as 'green' if it promotes the achievement of the 20 Aichi Biodiversity Targets that governments agreed on in 2010."