

Bamboo, rattan and biodiversity

Bamboo and rattan play a vital role in biodiversity conservation, forest management and land restoration, and a staggering range of life forms depend on these plants for survival.

Food source

Bamboo and rattan are important sources of food for a number of endangered wildlife species. Bamboo shoots and leaves comprise over 99% of the diet of the giant panda. Additionally, red pandas, mountain gorillas, apes, Asian elephants, South American spectacled bears, bamboo lemurs and more all rely on bamboo as a food source. Rattan fruits also provide nutrition to a number of birds, bats, monkeys and the Asian sun bear. Habitat loss and poaching now threaten the survival of many of these astonishing creatures. Bamboo fodder can also be an affordable year-round feed source for livestock, including cows, goats, chickens and fish.

Shelter

Bamboo and rattan offer shelter to flora, fauna and fungi. The endangered ploughshare tortoise in Madagascar and the South American bamboo rat both live in bamboo thickets. Some birds live exclusively in bamboo stands. Research shows at least 5% of bird species in the Amazon rainforest are dependent on bamboo. The African mountain bongo feeds on bamboo and depends on it for shelter during the dry season. Poisonous frogs deposit their tadpoles inside broken bamboo sections. And, mushrooms that glow in the dark have recently been found growing in a mutualistic relationship with bamboo.

Bamboo culms are also an important habitat for numerous invertebrates. Water-filled internodes can be punctured by large insects. Once open, they form an aquatic environment for specifically adapted macrofauna, with the culm cavity providing protection from predators. One tarantula species has been discovered living inside bamboo stems in Thailand, weaving a silken retreat tube to ease its passage inside the stem. Some butterflies use bamboo as their caterpillar host plant. Several ant species inhabit the ocrea of rattan palms, and will even defend the plant against herbivores.

Regulating Services

Bamboo is an important plant for conserving soil and protecting watersheds, capable of growing across sloping and degraded lands. Its extensive root and rhizome systems tightly bind soils and regulate streamflow, helping to safeguard watersheds from natural disasters like landslides. In India, one bamboo-based landscape project successfully increased the groundwater table by 10 meters in 20 years. Bamboo's renewable nature means it does not require re-planting after harvesting, and if the aboveground biomass suffers from fire, flooding or drought, the plant is able to naturally regenerate. For these reasons and more, bamboo plays a critical role in landscape restoration, catchment rehabilitation and soil erosion control.

Poverty Alleviation

Today, bamboo and rattan are among the world's most valuable non-timber forest products, capable of being transformed into a diverse range of marketable goods. Unlike most monoculture plantations, natural bamboo forests harbor biodiverse ecosystems. With appropriate training and awareness-raising, farmers and rural communities can secure a sustainable source of income while contributing to biodiversity protection.

Bamboo and rattan are excellent plants for aligning community practices with biodiversity conservation and management. Bamboo and rattan provide on- and off-farm jobs and income. Farmers integrating bamboo with agroforestry or intercropping derive many economic and ecological benefits from the plant's multifunctional uses. Rural and forest-dependent communities can process bamboo into many different products and applications, increasing its value. One downstream benefit of this is reduced pressure to unsustainably exploit less renewable forests.

Conserving Bamboo and Rattan

Unfortunately, in some places, the importance of bamboo and rattan products in local economies has led to overexploitation and a decline in the supply of these plants. Largely growing in forests, they are highly vulnerable to deforestation caused by agricultural encroachment and settlement expansion. Hence, the sustainable management of bamboo forests is at the heart of INBAR's work.

As an Observer to the UN Convention on Biological Diversity, INBAR is part of the Kunming-Montreal Global Biodiversity Framework. Included in that framework is the "30-by-30" target, referring to the goal of protecting 30% of the world's land and seas by 2030. Currently, bamboo covers an estimated 50 million hectares of land. INBAR Member States have pledged to use bamboo to restore 5.7 million hectares by 2030, constituting a significant effort to foster biodiverse landscapes in the tropics and subtropics to achieve that crucial target.

IN PROFILE...

In coastal Ecuador, over 90% of forest cover has been lost since the 1990s due to intensive cattle ranching, industrial agriculture and aquaculture activities. It is estimated only 1% of the original forest habitat remains for arboreal wildlife like primates. The Ecuadorian mantled howler (*Alouatta palliata aequatorialis*) and Ecuadorian white-fronted capuchin (*Cebus aequatorialis*) are two endangered primate species currently on the IUCN Red List. Howler monkeys and capuchins both rely on dense bamboo habitats as a substrate for safe forest passage, vocalization behavior and foraging. In Latin America and elsewhere, INBAR aims to strategically protect forests and leverage bamboo and rattan to regenerate degraded ecosystems.

August 2024



The International Bamboo and Rattan Organization (INBAR) promotes the use of bamboo and rattan for sustainable development.

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