

of Karnataka. This biodiverse area harbours sizeable populations of threatened species such as the tiger and Asian elephant, and endemic species such as the lion-tailed macaque, Ceylon frogmouth and Travancore flying squirrel. The forests of the Western Ghats are one of the main water catchments in India, feeding perennial rivers that sustain a human population of 350–400 million in the south of the country.

Run-of-the-river power generation is presumed to be environmentally friendly but the impacts of these projects in ecologically sensitive areas are yet to be assessed. Studies of individual projects have documented a number of negative effects on terrestrial and aquatic ecosystems. Although these projects are relatively small their cumulative impact can be considerable, especially if there are numerous projects, such as in the Western Ghats of Karnataka where 72 such projects have been permitted.

Run-of-the-river projects with a power generation capacity capped at 25 MW are eligible for government subsidies. Only above 25 MW is there a compulsory public hearing and an Environmental Impact Assessment prior to construction. To bypass these legal requirements some large single projects have masqueraded as multiple smaller projects. There is also evidence of failures to document the presence of rare, threatened or unique species of flora and fauna where the projects have been implemented, even when species under various schedules of the Wildlife Protection Act 1972 were present.

To halt the detrimental effects of some of these projects Prashant Yavagal, a wildlife enthusiast, and the Western Ghats Environment Forum filed a Public Interest Litigation in the High Court of Karnataka on 3 January 2011. In February 2013, based on ecological evidence presented by the petitioners, such as the location of projects in important wildlife habitats and elephant migratory corridors, the occurrence of threatened species, felling of old-growth trees and cutting of roads on steep slopes (which results in severe soil erosion), the state government withdrew permission formerly given to 10 projects. Later, in April 2013, the existing leases of two projects were cancelled. The government indicated in the court that mini-hydel projects would no longer be permitted within the forests of the Western Ghats of Karnataka. This is a landmark case in a country where there is great pressure for development and enhanced energy generation.

Scientific and technical inputs for the litigation were provided by the Nature Conservation Foundation and Panthera, and several conservation enthusiasts worked collectively to highlight the impacts of these projects on the local wildlife.

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Photographic evidence of the swamp deer in Manas National Park

The swamp deer (or barasingha) *Rucervus duvaucelii* is categorized as Vulnerable on the IUCN Red List but the conservation status of its three subspecies, including *R. duvaucelii ranjitsinhi* of Assam, India, has not been assessed separately. *R. duvaucelii ranjitsinhi* was once common in the Brahmaputra valley in Assam but its populations declined as a result of habitat loss, over-hunting, poaching and disease transmitted from cattle. It is now confined to Kaziranga and Manas National Parks. The 500 km² Manas National Park is the core area of Manas Tiger Reserve and is also a UNESCO World Heritage Site. There is a viable population of the swamp deer in Kaziranga and there were healthy populations of swamp deer in Manas prior to civil unrest in the 1990s, with a population of > 500 individuals in 1987. During the civil unrest of 1989–1990, however, poachers almost wiped out the population of swamp deer in Manas.

There have since been indirect reports of the presence of the swamp deer in Manas but no sightings. However, during a joint tiger and prey monitoring exercise carried out by WWF India, Aaranyak, ATREE and the Forest Department, swamp deer were photo-captured twice, on 14 and 23 January 2013, in the Kanchanbari area of the Bhuyanpara range. This proof of the continued existence of the swamp deer in Manas is heartening news. However, a systematic survey is required to determine the status of the population. The UNESCO World Heritage Site committee has advised that a Species Recovery Plan is required, and the Forest Department at the State and Central levels has initiated plans to work for the recovery of this subspecies, in association with other stakeholders.

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Declaration of a new sanctuary creates largest protected area network in India

A new protected area, the 906 km² Sri Malai Mahadeswara Swamy Wildlife Sanctuary, was declared in May 2013 in Karnataka, southern India. This Sanctuary is part of the Eastern Ghats, where conservation-dependent species such as the tiger, wild dog, Asian elephant and four-horned antelope can be found. The new wildlife sanctuary lies between the 539 km² Biligirirangaswamy Temple Tiger Reserve and 1,027 km² Cauvery Wildlife Sanctuary, and the Guttialattur, and North and South Baragur multiple-use forests in the state of Tamil Nadu lie adjacent to the

Sanctuary. With a total area of c. 9,600 km² this contiguous landscape of protected areas and multiple-use forests is now the largest protected area network in India. The forests in the new Sanctuary are also an important catchment area for the Cauvery and Palar rivers. Being contiguous with Tiger Conservation Landscape-67 in the states of Karnataka and Tamil Nadu, this area is classified as a Tiger Survey Landscape (an area where the status of tigers is unknown but there is some reason to believe that tigers may still be present) for which data are insufficient, thus making it a priority area for tiger conservation. The area has potential to become a source of tigers in the future if suitable protection is accorded. The notification of the Sri Malai Mahadeswara Swamy Wildlife Sanctuary came about through the support of political leaders and the efforts of B.K. Singh, Dipak Sarmah and R. Sridharan, representing the government, and Sanjay Gubbi and Poornesha H.C. representing civil society.

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Cultural values protect forest in Liberia

In November 2011, with a small grant from the Arcus Foundation, Fauna & Flora International undertook a mission to the newly gazetted Lake Piso Multiple Use Reserve in Liberia to investigate cultural connections between people and nature that support the Reserve's conservation objectives. During four intensive days visiting the villages of Vai and Gola, the team, accompanied by the Reserve's Chief Warden, heard numerous descriptions of often profound connections between the people, their place and species and habitats. The stories included magical ponds full of treasures that could never be found, forest areas protected for cultural training, and trees that protect the villages and the Sambolah clan's special relationship with the Nile crocodile. When an all-woman group learned

that one of our party was the Chief Warden they told him 'We need you to help us protect our crocodiles. People are killing them and they are our friends'.

In August 2012 Fauna & Flora International assessed cultural connections to nature in 20 communities in the Reserve, using participatory methods. Communities reported that they protect forests, the banks of rivers and creeks, and certain animals and plants. Perhaps the most significant finding was that communities are protecting numerous forests—not to protect natural resources in a material sense but for cultural reasons. Every village surveyed protects at least one forest as a graveyard. A third of villages protect forests for rituals and ceremonies or because they are associated with historical or mythological events. Twenty per cent of villages have set aside forest to supply materials required for the continuation of cultural practices, such as collecting certain plants for cooking their highly valued traditional dishes or to make rattan seats for the elders. Every village protected one or more forest as 'bush schools'. The training of young people in the ways of their society and culture must be done in secret and must be done in the forest.

Extrapolated across the Reserve, these results suggest that culturally conserved forests account for c. 36% of remaining forest cover. The clear mutual interest in protecting these forests presents opportunities for collaborations between communities and the Reserve authorities. Other synergies identified between cultural needs and conservation objectives create further opportunities for collaboration. These are formally recognised in the Reserve's new management plan. In addition, the Forestry Development Authority has requested that guidance on integrating cultural values into protected area planning is included in the draft Liberian Protected Area Framework.

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