



India

Healthy forests, healthy people, healthy climate: An initiative for biodiversity conservation and sustainable livelihoods in the North Western Ghats

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Applied Environmental Research Foundation (AERF)*
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* This project was carried out by the Applied Environmental Research Foundation (AERF), an Indian NGO

Developing mechanisms for social and ecological sustainability of conservation agreements

AERF has carried out many studies focusing on understanding the biodiversity of the community forests under conservation agreements over the years. Besides revealing the significance of these forests in saving rare and endangered species, these studies also throw light on the status of economically important medicinal, timber, and non-timber forest produce, and the community's preferred species for harvesting. In last few years, the studies have noted a significant increase in the harvesting of *Acacia catechu* trees for the sale of their heartwood from the community forests in the northern Western Ghats. The heartwood of *Acacia catechu* has been used in herbal medicine and the food industry in India for generations. Recently, however, it is primarily being promoted in herbal tooth pastes and this has caused demand and wholesale prices in the rural market to go up substantially in the last five years (from INR 30 /Kg to INR 70/Kg). In retail online sales, the price of the *Acacia catechu* heartwood extract has gone up to INR 1500/kg.

In the context of the Daikin project, in the village of Kalambaste in the last quarter, the AERF's survey team counted and marked some 2,122 trees of *Acacia catechu* in various growth stages in the community forest under conservation agreement. The goal of this survey is to promote sustainable (long rotation harvesting) of the *Acacia catechu* trees in order to realize the true economic potential of this resource and to avoid destructive harvesting practices such as uprooting of the trees to extract the active ingredient from the roots, a practice carried out for quick money since the roots are where catechin is most highly concentrated. Uprooting trees harms biodiversity at the micro level while at the same time it decreases the canopy cover and results in an increase in soil temperature.

Table 1: Classification of Khair (*Acacia catechu*) trees by GBH

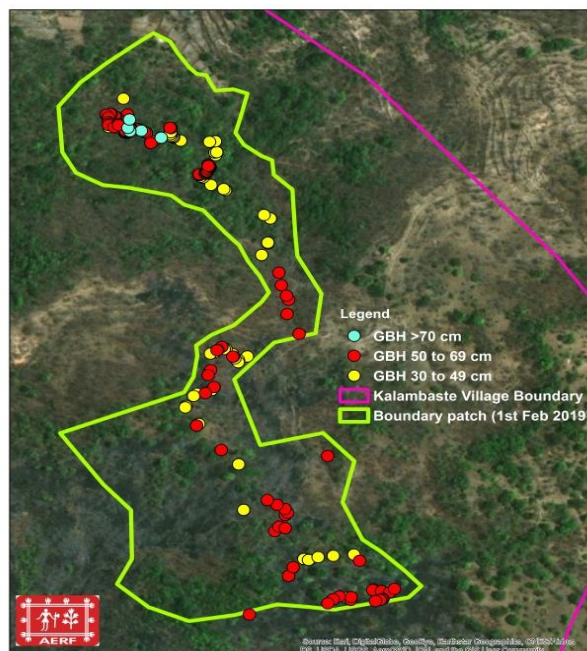
GBH (girth at breast height)	Class A (0 to 34cm)	Class B (35 to 49cm)	Class C (50 to 100 cm)
Number of Trees	734	1064	324

The survey helped understand the total number of 1,234 trees harvested for heartwood while still immature (having a GBH, girth at breast height, of 40 cm or less). Based on current wholesale prices for heartwood in the local market, the total value that could be obtained by harvesting and selling these trees would be \$30,000. This is negligible compared to the amount the villagers could earn if they wait five years for the trees to reach the maximum 75-cm diameter.

The aim is to use the value chain approach, achieve certification, and provide market access to increase the economic value of these trees, thus helping attract private investment in the forests. If the required investments are made now, local communities could be further compensated for not harvesting immature trees.



The AERF field team surveying *Acacia catechu* in Kalambaste



Distribution of Khair trees surveyed on February 1, 2019

Bio-stove demonstrations and distribution

The AERF field team conducted demonstrations of bio-stoves in the villages of Kalambaste, Dingni, Katawali, and Kulye in the Sangameshwar block in the last quarter. The most encouraging responses came from Kalambaste and Dingni, where the team distributed 35 and 15 bio-stoves, respectively. Two stoves were distributed in Katawali and one in Kulye.



Conservation agreement

The AERF field team worked with local communities to bring more forests under conservation agreement in the Devade valley. The team convinced local communities to renew conservation agreement covering 286 acres of valley forest in the village of Devade. Similarly, meetings were held in Chinchwalkarwadi in the village Devade to sign agreements covering 61 acres of community forest. Both of these agreements will be signed in the next quarter.

Pollinator diversity and conservation—indicators of healthy forests

The AERF field team has been trying to understand the diversity of pollinators influencing the production of cashew and mango orchards, both economically important horticulture crops, in the Sangameshwar block. The survey also helped the team locate colonies of an important species of bees, *Apis cerena*, in the conservation forests under agreement. The next challenge was to set up a monitoring the population of these bees. AERF and insect field researcher specialist along with field assistant Rajesh successfully set up two bee villages of Wadi Adhishti and Kosumb.



Interestingly, during the study to determine the diversity of pollinators in Mango orchards, field researchers found that stingless bees play a critical role in the pollination of mango flowers and cashew flowers. It was also discovered that the use of biological control and organic manure increases the presence of pollinators in these orchards as compared with the orchards where chemical pesticides are used.



Endangered flower species photographed

While working in a mango orchard in the village Ujgaon, AERF field researchers had the opportunity to photograph an amazing orchid species, *Dendrobium ovatu*. According to a 2010 study on wild orchids of the Northern Western Ghats, this species is listed as 'vulnerable'. It is also endemic to the Western Ghats.



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