Putting an invasive alien species to good use

Enhancing the Livelihood of Forest Dwelling Communities in the Western Ghats, India

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Harboring more than 25 per cent of the country's plant species and rich in wildlife, the Western Ghats is one of three biodiversity hotspots in India. Notwithstanding this apparent richness, numerous factors threaten the conservation of the unique biodiversity of the Western Ghats. One of the threats comes from the invasive alien species that have successfully encroached into the native ecosystems of the Western Ghats, displacing on their way, scores of plants and jeopardizing the native habitats of the wildlife. The most widespread invasive species is *Lantana camara* (Verbenanceae).

Against this backdrop, Ashoka Trust for Research in Ecology and the Environment (ATREE) in Bangalore, India, recently developed a unique programme in some parts of the Western Ghats. ATREE encouraged indigenous communities, such as Soligas and Palliyars, to use the locally available and abundant invasive weed *Lantana camara,* as a substitute for the scarce bamboo and rattan resource in the Western Ghats.

Innovative approach

Originally from South America, the British introduced the *Lantana camara* in India as an ornamental plant in the National Botanical Garden in 1807. Since then, this shrub has completely invaded the native biota of all possible habitats, so much so that it has earned the title of being one of the ten worst weeds in the world. In an environment where the natural population of most native species is in decline, both in numbers as well as in diversity, this noxious weed seems to be flourishing and displacing native species. With this decline in natural populations the livelihoods of people dependent on these resources have also been threatened.

In order to address the issue of conservation of natural resources and enhance the livelihood of the communities dependent on these resources, at ATREE, Bangalore, we developed a novel and innovative approach that encourages the use of the invasive with an aim to a) manage the weed through its use in alleviating rural livelihoods and b) to restore native biological diversity by passive and active recruitment of native flora.

The objectives of this initiative is to extend the training on the use of *Lantana* to forest dwelling communities in and around wild life parks, including tiger reserves, in the Western Ghats. Encouraging the local community to actively engage in restoring native biological diversity in the area from where *Lantana* is used and removed and monitoring the short and medium term management scenario of *Lantana* in the wild life parks and tiger reserves.

The Periyar Tiger Reserve (PTR) is a pristine forest area in the Western Ghats which harbors 62 species of mammals, 320 species of birds, 45 species of reptiles and 27 species of amphibians. The tiger (*Panthera tigris*) is a keystone species in the PTR, with an estimated population of around 35-40. Another charismatic species is the elephant. Its estimated population is around 900-1000. Sambar *(Cervus unicolor*) and Gaur (*Bos gaurus)* distributed throughout the sanctuary constitute the principal prey base of the tiger. *Lantana* invasion is found everywhere in the sanctuary but the density of *Lantana* growth is much less in the evergreen forest areas. Nevertheless, a scientific study has been proposed to assess the lantana invasion in the core and buffer zone of the sanctuary.

Palani Hills is located northeast of PTR and the forest type is moist deciduous and Shola forests. The Moyar Reserve Forest is an epicenter which connects Western Ghats and Eastern Ghats. Moyar Reserve Forest is located adjacent to Bandipur Tiger Reserve. The Moyar River forms the southern boundary between Bandipur Reserve and Madhumalai Wildlife Sanctuary. Major fauna found in this reserve are tiger, leopard, elephant, *Gaur*, *Sambar*, spotted deer, sloth bear, mouse deer, and wild dogs. The MM hills range is located in the southeast of Moyar Range. *Lantana* invasion is high in all these sites.

Soligas and Palliyars, the predominant tribal communities of these four sites, are heavily dependent upon Non-Timber Forest Produces (NTFPs) and fuel wood. As our previous experience has shown, encouraging the use of the abundantly available invasive weed, *Lantana* can significantly enhance the livelihoods of the poor tribal communities. Besides, it can help reduce the pressure on wild rattan and bamboo resources and encourage the restoration of the native biological diversity.

ATREE has chosen a village from each site based on their socio economic condition and forest dependency. They are *Kumuli* in PTR, *Vadakaraiparai* in *Palani Hills*, *Chikel Chetti* in *Moyar Reserve Forest* and *Ponnachi* in *MM hills*. All these villages are close to the forest and the people are dependent on forest produce. For instance the *Soligas* average monthly income was around INR.900 to INR.1500 from bamboo basket weaving. After the forest department ban on bamboo extraction these artisans were restricted from accessing the resource and were left to manage household expenses with the meager income from seasonal agriculture and out-migration. Now *Lantana* craft has provided an opportunity for these artisan groups and many have taken to *Lantana* craft as an alternative. Around 199 women and 57 men participated in *Lantana* craft training programs in the last three years.

Lantana craft has enabled tribal artisans to earn a livelihood from a widely available weed. Prior to this activity the forest dependent communities consider this weed as a menace of little or no use. Further, the forest departments in these four sites allot a huge budget for weed removal. Nevertheless, these efforts at removal have been futile. Now the Forest department is strongly encouraging the forest dependent communities in these four sites to collect *Lantana* from the forest. Removal has an impact on native species restoration although a scientific study is necessary to establish the significance of this impact. There is great opportunity for the scientific community to assess the impact of removal on native species regeneration and recruitment. The impact of the *Lantana* craft

has been three-fold. One, it has enabled tribal artisans, especially women, to earn a livelihood from a widely available weed. Two, income levels have been increased. Further, the number of work days has increased by 50 to 60% (days in which they earn an income). Finally, use of a problematic invasive has had positive impact on restoration of biodiversity.

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