

CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	MES Asmabi College
Project Title:	Involving local ethnic communities in monitoring key biodiversity information and important forest resources they depend on in the Dandeli and Anamalai part of Western Ghats, India.
Date of Report:	March 2013
Report Author and Contact Information	Dr. K.H. Amitha Bachan & Anitha K.T.

CEPF Region: Western Ghats (Malnad-Kodagu Corridor)

Strategic Direction:

CEPF Strategic Direction 1 - Enable action by diverse communities and partnerships to ensure conservation of key biodiversity areas and enhance connectivity in the corridors.

Grant Amount: \$ 8000.00

Project Dates: November 2011 to October 2012

Implementation Partners for this Project (please explain the level of involvement for each partner):

The project was materialized by MES Asmabi College through the **Western Ghats Hornbill Foundation Center**(<http://www.hornbillfoundation.org/>) at MES Asmabi College. The PI along with other Members of the WGHF played a major role.

The **tribal members**, their community organizations and VSS of 16 tribal settlements across Kerala part of Anamalais (Kadar 13, Malaya 2, Muthuvan 1) and two Kadar settlements from Tamil Nadu part were involved. This includes Vazhachal, Chalakkudy, Malayattur and Nenmara Forest Divisions and Parambikulam Tiger Reserve in the Kerala part and Erumapara and Villuni tribal settlement from the Tamil Nadu Part. The Kerala Forest Department provided the logistic support and necessary permission with the beginning of the project.

The **Kerala Forest Department** (<http://www.forest.kerala.gov.in/>), **Vazhachal Forest Division** supported 10 Hornbill Monitoring Guards for Hornbill Monitoring last year (2011-12), five hornbill monitoring guards this year (2012-13) as a continuous involvement. Apart from this six Kadar tribal youth, working along with Western Ghats Hornbill Foundation volunteered for the hornbill nest tree monitoring in the Vazhachal Forest Division.

The World Wide Fund for Nature (WWF) India provided a partial support for resource monitoring in the Vazhachal forest area as part of their FRA implementation project.

Conservation Impacts

Please explain/describe how your project has contributed to the implementation of the CEPF ecosystem profile.

The project contributed towards developing partnerships with tribal community organizations, forest department, WGHF and MES for the conservation of important species and resources on which tribal people depend on, including globally threatened species in key biodiversity area of the Anamalai region. It also provided interaction among the tribal communities in resource survey and monitoring in the CEPF critical link 10: 'Kodassery Reserve Forests' Tribal people from around 18 settlements including Kadar, Malayan and Muthuvan were empowered for scientific monitoring of resources / species and conducted a baseline survey around their traditional resource use areas. (Map 1. Appendix1).

Hence the project served the aims of the CEPF-ATREE Western Ghats Ecosystem Profile particularly Strategic directions 1. To enable action by diverse communities and partnerships to

ensure conservation of key biodiversity areas and enhance connectivity in the corridors. and 2. To improve the conservation of globally threatened species of the Western Ghats through systematic conservation planning and action.

Please summarize the overall results/impact of your project against the expected results detailed in the approved proposal.

Rationale & Summary

The forests in the Anamalai part of the Western Ghats have undergone series of exploitation begun with the tea plantations in the Valparai, Nelliampathy and Anamalai, clearing of forests for Teak plantations in the Parambikulam by the British, plantations raised by us as part of forest management after 1950s, about 10-12 major river valley projects and selection felling of climax vegetation for various purposes (Bachan 2011). All these resulted in fragmentation and depletion of the primary forest cover in the area. During this time, the primary forests in the area reduced to 52% but this still represents the most spread primary forests of the Western Ghats till to date (Ramesh *et al.* 2007, Bachan 2011). There has been continuous reduction in the dense evergreen forests, effect of climate change added with effect of fragmentation, increased tourism and subsequent human interference to the fragile forest biome is an important matter of concern. Most of the tribal people in the area, especially non agrarian and primitive 'Kadar' tribe endemic to Anamalai depend mostly on the Non Timber Forest Produce (NTFP) resources such as Honey, Black Dammar (*Canarium strictum*), wild nutmeg (*Myristica beddomei*) etc and fish resources from the river. Intensity of resource dependence to available forest patches is increasing and tribal involvement and care for the resources are also necessary for the conservation. It is obvious that we need to empower the tribal community for looking at the status of the resources in which they depend on. That only can create a sustainable measure and protocol within the resource dependant people and assure sustainable management of resources. The dependence of the tribal people on Hornbill squabs for food had been identified as important concern for conservation of hornbills and it was addressed in the landscape (Kannan *et al* 1998, Bachan 2006 and Bachan *et al* 2011). A community based conservation and monitoring of Hornbill nest trees was developed with support from Kerala Forest Department at Vazhachal Forest Division during 2004-05 (Bachan 2006). It is being continued till today as a successful participatory conservation and monitoring programme of the flagship bird and their important nesting trees. The program strengthened its scientific base and was spread to adjacent forest areas with the support from CEPF-ATREE Western Ghats Small Grants program 2009 (Bachan 2010). This project was an effort to widen the scope of previous conservation efforts by evolving community based initiatives for conservation and monitoring of important NTFP resources and endangered species they depend on. The project succeeded in its objective for capacity development of the tribal community, to conduct scientific surveys of resources to have a baseline data and development of community level protocol for continuous resource monitoring. The project succeeded in its effort to leverage financial supports from various government and other organizations during the project period. This includes support for Hornbill Monitoring from Kerala Forest Department, Vazhachal Forest Division and support from WWF India for 'Ecological Monitoring' for Kadars in the Vazhachal Area. All of these efforts at community village/settlement level have become an important platform to discuss and activate the recognition of tribal rights under FRA 2006, especially for the community rights and CFRs. As measure of sustainability we were able to leverage support to 21 tribal settlements in the central forest circle areas (Malayattur, Chalakkudy and Vazhachal forest divisions) for resource monitoring, education activities and CFR recognitions and formation of CFR management Committees from the Tribal and Forest Department. As a measure of sustainability all these community based resource monitoring activities will become a part of the CFR management plans of these tribal settlements this year.

Project Activities

1. Interaction with forest officials and local communities, awareness creation, identification of local community groups for resource monitoring

a. **Permission letter** from the Kerala Forest Department received during the initial stage of the project which covers most of the targeted area like Parambikulam Tiger Reserve, Vazhachal, Malayattur, Nenmara and Chalakkudy Forest Division.

b. Identification of local ethnic community groups under each forest administrative units

As a total eight forest administration units had been identified, five in Kerala (Parambikulam Tiger Reserve, Vazhachal Forest Division, Chalakkudy Forest Division, Nenmara Forest Division and Malayattur forest Division, two in Tamil Nadu (Topslip and Valparai) and one in Karnataka (Dandeli area). Activities in Karnataka part did not happened yet because of unavailability of the committed local partner (FCBCRD Joida), but later awareness on hornbill conservation has been planned with support from Balachandra Hegde. Activities in 18 tribal hamlets out of the 20 envisaged (2 from Dandeli – Karnataka) were successfully implemented around important evergreen forest habitat of Anamalai landscape (see Appendix-1, Table 1).

c. Awareness programs, regional planning and selection of tribesmen for resource monitoring

Total 23 awareness programs were conducted at village level, 20 integrated levels including forest division level during this time. Different strategies were opted for different forest administrative units in consultation with the community, forest department and other interested groups. Activities were planned and implemented depending on the nature of the community, resource use and their exposure to previous conservation and monitoring initiatives.

i. Vazhachal forest Division: Community based monitoring of Hornbill Nest trees involving 'Kadar' primitive tribes were started in this forest division since 2004-05 by Western Ghats Hornbill Foundation (Bachan 2006, Bachan *et al* 2011). Serious discussions at community level happened in this division involving hornbill monitoring guards from the eight 'Kadar' tribal settlements. As a result systematic sampling and survey of major NTFP trees were planned in the resource use areas of all the eight 'Kadar' tribal settlement regions apart from continuation of the Hornbill Nest tree monitoring. Actually this covered almost all the forest administrative units of the Vazhachal forest division except lower regions of the Athirapilly range. Support for engaging tribesmen to conduct resource monitoring ('Ecological Monitoring') of resources they depend on and endangered species was leveraged from WWF-India. Fund support for the hornbill nest tree monitoring was provided by Kerala Forest Department, Vazhachal Division under the Fragile Ecosystem Management Fund. Community based nursery for the NTFP and endangered species were also initiated with the end of the project at one location –Malakkapara. Nearly 40 people directly involved in the overall activity.

ii. Malayattur Forest Division: Two forest settlements ((Adichilithotty and Kappayam Muthuvan tribal) based on the location of important forest habitat contiguous with the main forest area in the landscape were selected from this division. We were able to conduct activities at one tribal settlement (Muthuvan) during the project period. These include awareness programs, hornbill nest tree monitoring, initial surveys for NTFP and endangered trees and community based nursery for endangered and important NTFP species with the end of the project. About 14 people were directly involved in the activity.

iii. Nelliampathy area of Nenmara Forest Division: There are two tribal settlements 1. The Pullukad Malaya settlement and the Cherunelly Kadar settlement. We planned for survey for hornbill nest trees and community based nursery. Succeeded only for the hornbill nest tree surveys and the nursery were initiated but the community were not able to continue the process because of unavailability of support from any other agency like Forest Department or the Grama Panchayath. The location and area of the hamlet has not been recognised by the government so far.

iv. Chalakkudy Forest Division: Only one Kadar tribal hamlet (Anpanatham hamlet) is close to the important forest area of the landscape. We were able conduct awareness programs, discussed the need of such community based resource monitoring and surveys for hornbill nest trees this year

v. Parambikulam Tiger Reserve: A major part of the newly constituted tiger reserve comes under Malakkapara part of the Vazhachal forest division, Nelliampathy part of Nenmara forest Division and Kavala – Anapanatham part of Chalakkudy forest divisions. We have already covered these areas through the involvement of Kadar tribal settlement at Malakkapara, Nelliampathy and Anapanatham. Hornbill nest tree monitoring, survey for NTFP and endangered species were

conducted for this region. Hornbill nest monitoring for other four hamlets resource areas were also conducted during the last season. A plan was developed for the entire Parambikulam Tiger Reserve for community based monitoring of NTFP resources and the Forest Department has agreed to take it up as part of their regular research and survey.

vi. Topslip and Valparai part of Tamil Nadu: Awareness programs and discussion with the community were done at Villuni Settlement with the support from the community. A draft plan about their area of resource use and possibilities for monitoring were discussed. It was not progressed further because the Forest department not turned up for such initiative. A partnership program with Nature Conservation Foundation (NCF), forest department for the community is under discussion.

Major hornbill and evergreen forest habitat in the Topslip area is the Karian shola region and is shared by Parambikulam Tiger Reserve Kerala and the Anamalai Tiger Reserve Tamil Nadu. Survey for hornbill nest trees were done in this area with the support from tribal people from Erumapara settlement in Tamil Nadu.

2. An outline of the regional level community based plan for involving local communities in monitoring of resources in which they depend.

a. Selection of villages/ tribal settlements: The tribal settlements were selected based on the proximity to the contiguous important rainforest habitat in the Anamalai landscape and their resource use dependence in the area. This involves mainly Kadar, Muthuvan and Malaya tribes in the Kerala and Tamil Nadu part of Anamalai Landscape unit.

b. Selection Areas for Survey and Monitoring: The areas were selected based on the traditional forest dwelling areas of each selected tribal settlement under different forest administrative divisions. Appendix 1 (Table – 1). A team of eight experienced tribal guards were selected as tribal trainees and they were used for training other tribal people along with the project team. Eight tribesmen were selected as coordinator for each region and the activities were coordinated (Appendix 1 --Table 6).

3. Overall result and impact of the community based survey and monitoring of resources

The basic concept of the project was to involve local ethnic communities in monitoring of resources they depend on and other endangered flora and fauna in their traditional resource use area through proper capacity development in order to develop a community owned resource survey and long term monitoring. Since the fund support in this project was limited, development of proper partnership with other organisations and govt department with local tribal community and leveraging proper fund supports were envisaged. Following are the major activities and its results of the implementation of the project.

i. Awareness programs, Sensitisation and Field level training

Awareness programs including visual presentations on need of resource conservation and involvement of local communities, Screening of documentary "The Fragile World of Great Hornbills" on the participatory hornbill conservation program involving Kadar tribal settlement in the Vazhachal forest division, awareness on FRA 2006 emphasising on Community Forest Area (CFR), were conducted facilitating Oorukoottams or Grama Sabhas in all the villages or meetings at VSS /EDC level. Education and training programs for the women and kids were also conducted to sensitise the people. Group discussions of the interested people at GS or VSS/EDC level were conducted first and they were taken into the field for initial trainings. Experienced eight tribal trainers were selected and they along with project team lead training sessions.

Selection of the Resource Monitoring Guards was based on three aspects 1. Area of their domain i.e. people who familiar with resource use area of a particular settlement. 2. Experience in forest dwelling, knowledge of the terrain, landmarks and resources 3. Their attitude towards contributing for the conservation and sustainable use of resources. Also their ability to learn the methods, continuous involvement and commitment to work as a team were the factors for the final selection. The tribesmen were grouped based on their forest dwelling area within the resource use area of their hamlets. The involvement of Hornbill Monitoring Team developed by Western Ghats Hornbill Foundation (WGHF) in each team supported smooth rendering of the survey and they helped to train other people. Their traditional forest dwelling routes were GPS recorded first. From this they were trained to locate the grid points/survey locations based on their

traditional landmarks and the GPS location. They were trained in the field to establish transect, use GPS etc. and did survey for the NTFP species such as *Canarium* and *Myristica*.

ii. Survey for Hornbill Nest Trees & Hornbill Nest Tree Monitoring

Methodology adopted: Simple transect walks were conducted through resource use area to understand the presence of hornbills, NTFP and endangered trees and important fauna. Methods by Bachan *et al* (2011), including monitoring of Old Growth trees, traditionally known nests and looking for movement of lone males during nesting season were followed and data sheets in local languages were used for community based monitoring of Great Hornbill nests.

Results

A total of 116 nests have been identified in the Anamalai landscape 101 in Kerala part and 16 in Tamil Nadu region around resource use areas of the selected tribal villages / settlements

Of which 109 nests were monitored during this period and the results were summarised in Table 5, Fig. 1 and Map 2 of Appendix 1.

iii. NTFP resource Survey

Initial surveys for major NTFP trees were conducted in four forest divisions Vazhachal, Chalakkudy, Malayattur and Parambikulam, involving Kadar, Malayan and Muthuvan tribal community around their resource use area. These helped in sensitizing the people, develop a base plan for systematic resource monitoring for each village, resource use area and the forest division. Systematic survey for baseline data collection and development of community based protocol was done at Vazhachal Forest Division involving eight tribal hamlets.

Methodology adopted

Simple transect walks through the resource use area and recording of the important NTFP tree and other endangered species encounters were used as simple methodology for reconnaissance and training the tribal people for such surveys. Systematic sampling grids (2 x 2 km) were established across the forest resource use areas of each hamlet using GIS. It was very important to strategically link the traditional landscape knowledge with the grid positions or sampling locations. The following steps were taken for the implementation. i. Simple transect walk through the resource use area of the tribal settlements for sensitization and reconnaissance. ii. Train the tribal people in scientific surveys, use of GPS, locating grids etc integrating the Hornbill monitoring team and other selected people. iii. Select systematic sampling locations using GIS / or toposheets over the resource use areas. iv. Identify and GPS record forest dwelling trails traditionally used by the tribes for resource collection and management. v. Develop permanent transects (500m x 5m x 3 long transect, 0.75 ha) along the selected grids for long term monitoring. vi. Survey for major NTFP trees such as *Canarium*, *Myristica* and old growth honey comb trees along the transects.

Results

Major NTFPs used by the tribal communities in the region are

SL .NO	PRODUCT	LOCAL NAME	SOURCE
1	Honey large	Vanthain	Honey bee large
2	Honey small	Cheruthein	Honey bee small
3	Black Dammar	Thelly	<i>Canarium strictum</i>
4	White Dammar	Vella thelly	<i>Vateria indica</i>
5	Nut Meg	Pathripoo	<i>Myristica beddomei</i>
6	Kakkumkai	Kakkumkai	<i>Entada rheedei</i>
7	Shikakai	Cheevakai	<i>Acacia sinuata</i>
8	Kasthurimanjal	Kasthurimanjal	<i>Curcuma aromatica</i>
7	Bee Wax	Mezhuku	Bee Comb
8	Marottikkaya	Marottikkaya	<i>Hydnocarpus spp</i>

9	Incha	Incha	<i>Acacia caesia</i>
10	Cardamom	Elam	<i>Elettaria cardamomum</i>
11	Fish		

Identified Traditional Resource Monitoring Trails

About 52 different traditional forest dwelling trails have been identified in the landscape as Traditional Resource Monitoring Trails useful for regular perambulation of the different resource use areas of each hamlet. We selected these trails from their traditional forest dwelling routes based on criteria such as i. Non overlapping, ii. Cover important areas of each settlements resource use area, iii. Connects important landmarks and regions in the area, iv. Can be perambulated within 2-4 days of period and v. That includes traditional camping locations (See Appendix1 table – 7, Map 2.).

Major NTFP resources Survey

The selected NTFP trees for survey are *Canarium strictum*, *Myristica beddomei* and other old growth trees. All the three 500m transects in the selected grids were sampled as belt transect of 500x5m (2500sq m = 0.25 ha) of the area. Total of 0.75 ha of area were sampled from each grids. All the mature trees were measured for Girth at Breast Height (GBH) and Height class. Flowering and fruiting phenology, details of extraction of NTFP products such as resin (*Canarium*) fruits and seeds (*Myristica*) and status of trees were also noted. Occupancy, density and rate of extraction were analyzed for each of the of the NTFP trees.

Occurrence of Wild nutmeg (*Myristica beddomei*)

The Wild Nut Meg tree (*Myristica beddomei*) is distributed in all the traditional resource use area where natural forests are present. Frequent occurrence of wild nutmeg was found in the resource use areas of Malakkapara and Sholayar region of Vazhachal Forests and adjacent Adichilithotty settlement area in the Malayattur forest division. It was present in every 0.75 ha (100%) samples of resource use areas of Malakkapara and Adichilithotty, followed by 89% in Sholayar region and 57% in traditional resource use areas of Vazhachal settlement. The least frequency was observed in the traditional resource use areas of Vachumaram (28.6%) and Pokalappara (33.3) (Fig.2, Table 8 of Appendix 1)

Density of Wild Nutmeg in the Traditional Resource use areas

Maximum density was observed in the traditional resource use areas of Malakkapara Kadar settlement of Vazhachal Forest Division (16.1 trees / ha). This was followed by Sholayar (10.4 trees / ha), Adichilithotty (7 trees/ha), Vazhachal (3.4 trees/ha) and the least represented by Pokalappara (0.7 trees/ha) and Vachumaram (2.3 trees / ha).

Occurrence of Black Dammar tree (*Canarium strictum*)

The frequency of black dammar was high in the traditional resource use areas of Malakkapara Kadar settlement of Vazhachal forest Divisions (80%) followed by Sholayar (55.6%) and Adichilithotty (50%) area of Malayattur forest Division. Least frequency was observed in resource use areas of Pokalappara Kadar settlement area (16.7) and Vazhachal and Vachumaram shoed the similar trend (28.6%).

Density of Black Dammar in the Traditional Resource use areas

Density of Black Dammar tree (*Canarium strictum*) showed similar trend and maximum density was observed in traditional resource use areas of Malakkapara Kadar settlement (2.7 trees per ha), followed by Vachumaram 1.3/ha, Sholayar 1.2/ha and Adichilithotty 0.7 trees per ha. Least density was observed in Vazhachal and Pokalappara region (0.4 tree per ha). (Fig.3, Table 9 of Appendix 1)

Density of Extraction of Black Dammar and Wild nutmeg in the traditional resource use areas

Density of extraction of Wild Nutmeg in the Traditional resource use areas

Density of extraction of Wild Nutmeg trees was high in Adichilithotty area (2 tree/ha) followed by Sholayar region (1.8 trees/ha), Vazhachal region (1.1 tree/ha), Vachumaram (0.4 trees/ha), Pokalappara and Malakkapara region (0.4 trees per ha. Each). (Fig.4, Table 10 of Appendix 1)

Black Dammar

Maximum extraction rate has been observed in the Adichilithotty area of Malayattur forest division (0.7 tree/ha), followed by Malakkapara region (0.4 tree/ha) and Vazhachal (0.2 trees / ha) and Sholayar (0.1 trees/ ha). Presences of mature trees werealso very poor in most of the areas. (Fig.4, 5, Table 11 of Appendix 1)

vi. Community owned Nurseries for important NTFP and endangered species.

The basic concept was to develop community owned nurseries in one or two locations within the vicinity of tribal settlements with support from the project and later widen its scope integrating schemes from Panchayath or forest department including MNREGS. We have initiated the process in three locations, one each in three different forest administrative units and three different tribal communities. 1. Pullukad Malayan settlement of Nelliampathy in the Nenmara Forest Division. 2. Malakkapara Kadar settlement of Vazhachal Forest Division and Adichilithotty Muthuva Settlement of Malayattur Forest Division.

i. Nelliampathy area (Pullukad Settlement)

The attempt was initiated with the beginning of the project (November – January 2011) and it was not succeeded because of following reasons.

a. The rights of the settlement including their individual land rights have not been settled and there is a conflict happening between the community and the Forest and Revenue Department regarding the ownership of the area. Hence it was difficult to leverage any kind of support from either Panchayath or Forest Department. e. A group of people deliberately wanted to demonstrate their willingness for conservation programs and they initiated making seed beds etc, but shortage of water in the stream they depend was another problem. C. Three families who took initiates had resistance from the officials (as community said) they have to abandon the process.

ii. Adichilithotty Muthuva Settlement of Malayattur Forest Division

The community has become ready to own up such an initiative very recently to develop a nursery of 5000 seedlings as model of community owned nursery. A collective of seven families living together took the initiative and they established a seed bed of about 2500 seedlings first. The families include families of the village chief Mr. Perumal (Sivakumar), Nangalappan, Chilamban, Thangaraj, Chinnaiah, Sundaripatti and Chellamma. They have set up the nursery near a stream flowing near to their settlement suitable for watering. The resource monitoring team made the seed bed, developed a fencing around it using reeds in their traditional way. Now Chellamma is taking the daily care. They are collecting seeds of rare NTFP resources such as Wild Nutmeg, Black Dammar, rare and endangered old growth trees such as *Palaquium ellipticum*, *Dysoxylum malabaricum*, *Vateria indica*, *Cullenia exerillata* etc.

They have a plan to develop this nursery as a model and submit as report to the Grama Panchayath to include it into the MNREGS project.

iii. Malakkapara Kadar tribal settlement of Vazhachal Forest Division

We have started developing a nursery of about 5000 seedlings of NTFP and Endangered species with support from Malakkapara Settlement of Vazhachal Forest Division. Trials were last year with the onset of the project and major problem was facilities to water the plants and long term availability of the families in the settlement. But recently during the end of this season around seed bed for nearly 5000 seedlings were made. Three families were collectively involved in the programme. Seed collection has been made by hornbill monitoring guards of the area. They established the nursery near to the Field station of the Western Ghats Hornbill Foundation adjacent to the Tribal Settlement in order to have daily care and facilities to water properly. This

will be treated as model and planning to submit to MNREGS project of the Athirapilly Grama Panchayath this year.

Please provide the following information where relevant:

Hectares Protected: 52315.4 ha in seven administrative divisions of the Anamalai landscape

Species Conserved: Great Hornbill, Malabar Pied Hornbill, Malabar Grey Hornbill, Hornbill nest trees (18 species), NTFP trees such as *Canarium strictum*, *Myristica malabarica* & *Myristica beddomei*

Corridors Created: NA, provided protection and conservation of forest resources and species in priority corridor Kodassery Reserve.

Describe the success or challenges of the project toward achieving its short-term and long-term impact objectives.

i. Capacity building of the people in resource monitoring and developing into systematic and scientific monitoring of resources.

We were able initiate an interaction with 18 settlements or hamlets of three different indigenous communities in seven different forest administrative units in the Anamalai landscape. Of which successful partnerships for capacity building for monitoring of Hornbills and other endangered resources were established in 14 settlements. Continuous monitoring of resources was succeeded in settlements where successful partnership was established with other agencies or forest departments for fund support. Community based resource monitoring was initiated in all the settlements in the Kerala part and assured its continuity through leveraging fund support for the next season.

ii. Developing methodology bridging traditional knowledge and the scientific methods suitable for the community to adopt

Apart from the traditional skills, the previous exposure to scientific monitoring of Hornbill nest trees, use of GPS and regular surveys helped the community to adopt to community based scientific surveys of resources in which they depend on. The following methods were used to bridge the scientific and traditional knowledge for resource monitoring. i. All the traditional forest dwelling and resource collection trails were GPS recorded and non overlapping trails were selected. ii. Survey along these trails were conducted to train use of GPS and also to record all the traditional landmarks in the area. iii. Systematic grids were selected for establishing long-term sampling locations in the forest areas or the traditional resource use areas. iv. All the traditional landmarks were superimposed in the sampling areas, and suitable trails were established to reach sampling units or transects. v. All the sampling areas were named according to their traditional land mark name.

This approach helped to conduct systematic monitoring of resources.

iii. Leveraging fund support from various schemes and integration of activities of various tribal settlements, forest department and the project team

The project fund support was utilized for initial awareness programs, locating hornbill nesting trees, and also to provide support resource monitoring team when enough fund support is not available. Systematic resource surveys were conducted with leveraging support from various agencies. WWF India provided support for 'Ecological Monitoring' in Vazhachal forest division as part of facilitation of FRA implementation. The Kerala Forest Department, Vazhachal forest division supported the community for Hornbill Nest tree monitoring under 'Fragile Ecosystem Management Program'.

Ensuring the sustainability and continuity of the community based resource monitoring program, we were able to leverage fund support from Forest and Tribal Department beneficial to 21 forest dependant indigenous community hamlets in three forest administrative units (Vazhachal, Chalakkudy and Malayattur forest divisions). This include supporting a team of 'Community based Resource Monitoring' in each settlement, including fund support for resource survey, equipments and developing a community based plan for long-term monitoring of resources as part of their CFR management plan.

Were there any unexpected impacts (positive or negative)?

Some of the unexpected negative impacts were

We were not able to initiate the process in the Dandeli area of Karnataka since the local community organization(s) didn't respond when engaged with follow-up of their initial request for collaboration.

Successful partnership or fund support for developing community based nurseries was not succeeded within the project period and we managed to initiate activities at three locations by the end of the project.

Contiguous surveys in the Tamil Nadu part did not happen because of non-availability of permissions and proper partnership.

Some of the unexpected positive impacts

The project team and the resource monitoring team of the Vazhachal Forest Division played crucial role in CFR implementation including supporting the Kadar tribal communities in the Vazhachal Forest Divisions.

We were able to develop successful integrated platform for the community based conservation and succeeded in leveraging fund support from the State Government in CFR implementation including community based resource monitoring beneficial to 21 settlements of Vazhachal, Chalakkudy and Malayattur Forest Divisions.

Lessons Learned

Describe any lessons learned during the design and implementation of the project, as well as any related to organizational development and capacity building. Consider lessons that would inform projects designed or implemented by your organization or others, as well as lessons that might be considered by the global conservation community.

Project Design Process: (aspects of the project design that contributed to its success/shortcomings)

The Basic concept of the project helped:

- i. to involve community, their perception and vision in monitoring of resources in which they depend.
- ii. Integration of scientific methodology with the traditional knowledge.
- iii. Identification of the resources and species to monitor from the perceptions of the community.

Project Implementation: (aspects of the project execution that contributed to its success/shortcomings)

- i. Good relationship with the community since the last decade.
- ii. Involving Oorukoottam or Grama Sabha in decision making process.
- iii. Engaging experienced tribal members as facilitators of the program in other settlements.
- iv. Bridging the gap between the community and the Govt. departments including Forest, Tribal and Local Self Governments.

Other lessons learned relevant to conservation community:

- i. Traditional practices of the ethnic community have got lot of aspects contributing to conservation and sustainability of nature and natural resources even if that is related to hunting and consumption. We have learned from the communities that, those who consume or depend directly will have great value of conservation and sustainability.
- ii. Reestablishing direct link of the people with nature and its resources is one key to bring back nature consciousness. There are lot of such traditional practices of conservation and

sustainability among communities, some we have lost and the remaining are on the way to 'extinction'. Such practices and knowledge are highly area, region or community specific and can vary within community in a given landscape. It is very difficult to bring them all under the purview of existing conservation laws of the country. But we need to bring back such values or practices as 'community protocols' in the modern context.

iii. The new legislation Forest Right Act 2006 and its provisions such as CFR, CFR Management plans decided by the Community Grama Sabhas can hold such 'community protocols' as regional legislation and that can go beyond the limitation of existing centrally decided acts such as Forest Conservation Act, Wildlife Protection Act, Environmental Protection Act etc.

v. We together with community have kept data of monitoring of hornbill nest trees (23) different climax old growth tree species of the evergreen forests of the landscape since 2004. It is one of the simple activities by the community supported by local forest division and facilitated by hornbill foundation. Now this has yielded nearly nine years of data on the dynamics of more than 100 individual trees across the landscape. Such long-term can contribute to monitoring of species as well as ecosystem dynamics in the context of 'Climate Change'

vi. Such community conservation initiatives need at least 3-5 years of activity to bring into action and establishment and such supports are necessary.

ADDITIONAL FUNDING

Provide details of any additional donors who supported this project and any funding secured for the project as a result of the CEPF grant or success of the project.

Donor	Type of Funding*	Amount	Notes
Kerala Forest Department	Direct Wages to tribe -C	~Rs. 1,00,000	Engaging tribesmen in hornbill monitoring in Vazhachal Forest Division- 10 persons 30 days during Nesting season
WWF	Ecological monitoring- B	~Rs. 3,00,000	Monitoring of NTFP Trees and endangered animals

****Additional funding should be reported using the following categories:***

- A** *Project co-financing (Other donors contribute to the direct costs of this CEPF project)*
- B** *Grantee and Partner leveraging (Other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF project.)*
- C** *Regional/Portfolio leveraging (Other donors make large investments in a region because of CEPF investment or successes related to this project.)*

Sustainability/Replicability

Summarize the success or challenge in achieving planned sustainability or replicability of project components or results.

The project succeeded in developing models for community based resource monitoring at resource use area level in each tribal settlements in targeted forest areas of Anamalais. This include

1. Hornbill nest tree monitoring,

2. NTFP tree monitoring and

3. Monitoring and conservation of other endangered flora and fauna.

As a result these models were tested and base surveys were conducted at six forest areas (settlements) of the targeted eight forest areas (settlements). The Kerala forest Department supported the continuity of the project at Vazhachal forest division. This has become a model for implementation of FRA 2006 and CFR in the area. We were able to leverage enough fund (95.6 lakhs) for FRA implementation in 21 settlements in the central Kerala region, this include 23 lakhs amount for resource survey and monitoring. The fund support was leveraged from Tribal Department through Chalakkudy Forest Development Agency (FDA) for the year 2013-14.

Summarize any unplanned sustainability or replicability achieved.

The new integrated project for FRA implementation in the area integrating 21 tribal settlements, Forest, Tribal departments and Local Self Governments and Western Ghats Hornbill Foundation was evolved as result of continuous CEPF-ATREE Western Ghats Small Grants support in this area during the previous and this grant period. All the results of the community based monitoring of Hornbill nesting trees, identification of resource traditional resource use areas and resource monitoring will become a part of the community based Resource Management and Monitoring Protocol or the CFR Management Plan this year.

Safeguard Policy Assessment

Provide a summary of the implementation of any required action toward the environmental and social safeguard policies within the project.

The project and its methodologies helped to document and ensure traditional use of resources in each settlement of the indigenous communities involved. As a measure prior pre informed discussions were conducted in Village Oorukootams / Grama Sabah's before initiating the process and also for selection of the team for resource monitoring. The results were presented in the Oorukootams and such interactions helped to evolve conservation measure as well as establishing their traditional rights based on FRA 2006.

Performance Tracking Report Addendum

CEPF Global Targets

(November 2011 to October 2012)

**Provide a numerical amount and brief description of the results achieved by your grant.
Please respond to only those questions that are relevant to your project.**

Project Results	Is this question relevant?	If yes, provide your numerical response for results achieved during the annual period.	Provide your numerical response for project from inception of CEPF support to date.	Describe the principal results achieved from July 1, 2007 to June 30, 2008. (Attach annexes if necessary)
1. Did your project strengthen management of a protected area guided by a sustainable management plan? Please indicate number of hectares improved.	Y			Helped to develop community based resource monitoring in the newly established 6000 ha of Parambikulam Tiger Reserve
2. How many hectares of new and/or expanded protected areas did your project help establish through a legal declaration or community agreement?	Nil			Please also include name of the protected area. If more than one, please include the number of hectares strengthened for each one.
3. Did your project strengthen biodiversity conservation and/or natural resources management inside a key biodiversity area identified in the CEPF ecosystem profile? If so, please indicate how many hectares.	Yes	52315 ha	52315 ha	Seven administrative divisions of the Anamalai landscape
4. Did your project effectively introduce or strengthen biodiversity conservation in management practices outside protected areas? If so, please indicate how many hectares.	Yes	4400 ha	4400 ha	Project helped to initiate community based resource monitoring in four forest administrative areas adjacent to Parambikulam Tiger Reserve.
5. If your project promotes the sustainable use of natural resources, how many local communities accrued tangible socioeconomic benefits? Please complete Table 1 below.				

If you answered yes to question 5, please complete the following table.

Additional Comments/Recommendations

Comments/Recommendations for CEPF

Conservation of natural habitat of every species is the key to conservation, apart from species focused studies we need to bring more attention to community and ecosystem based studies. Developing benchmark data on different forest ecosystems and development of long-term monitoring tools, protocols and its monitoring are necessary to understand the dynamics of species, communities and forests. 'Community based' initiatives can act as grassroots level conservation and monitoring of long-term intervention if they are provided with support from both the scientific community and the state or Govt. mechanism. Participatory approach to identification of such regional and site specific units should be given priority. Dynamics various plant, animal, fish communities within ecosystem has to be correlated with changes interventions (positive and negative) interventions in each major and minor ecosystems. Priorities should be given for such integrated approaches in future.

Comments/Recommendations for ATREE

Interim meetings and sharing of thoughts on various aspects during the implementation period are really great. Initiatives to ensure its continuity through sharing partial responsibility with the partner organisation or grantees can give really decentralized establishment, growth, spread and strengthening of conservation efforts.

Comments /Recommendations for other proponents of community conservation

Already provided one of the above sessions in detail

Comments/Recommendations for future conservation in Vazhachal Forest Division / Parambikulam TR

Complexity with respect to human and forest relationship are less in these two forest areas when compared to other parts of Western Ghats. On the other hand the complexity and richness of the forest and biodiversity, its high extent and conservation value are high. More site specific conservation efforts are necessary in this landscape and involvement of communities in a participatory manner is a necessity. Both the Vazhachal and Parambikulam area has set many pioneering such examples so far. It is crucial to address ecological damage happened to the forests river basins and its component biota with involvement of ethnic communities. More site/watershed specific, species/ecosystem specific and right based approaches are necessary along with proper long-term tools to measure the ecosystem/species/community dynamics as measure of interventions.

Vazhachal Forest Division:

Measures to address rights of the ethnic communities have already been initiated at various levels ranging from ecotourism, resource monitoring to forest right act implementation in the division. Incorporation of the traditional knowledge and practices of the ethnic community 'Kadars' supported with scientific measures into local resource/forest (CFR) management plans is the present necessity. Measures to increase the involvement of all the population of the communities in such conservation and sustainable measures and development of integrated platform of communities, conservationists and Govt. mechanisms is the present challenge.

Parambikulam Tiger Reserve:

As mentioned earlier the ecological damage happened to the forestscape and the waterscape of the landscape are tragic. Almost all the rivulets are dead, riparian stretches have gone and major rivers are not flowing downstream to the dams. Monoculture teak plantations and its impact on microclimate are affecting almost all the ecosystems including evergreen forest patches in the hillocks such as Karianchola, Vengoli, Karimala etc and most of the 'Vayals' in the valleys (freshwater marshy hill valley wetlands). Immediate attention are necessary to address these

ecological damage happened to the forests due to various management activities of the past. Rights of the ethnic communities in the Tiger Reserve have not been addressed seriously apart from the ecotourism activities. Addressing these issues under the purview of forest right act can give another dimension for the conservation and management of the Tiger Reserve. Addressing the rights of the ethnic communities in the remaining fringe areas with initiatives from conservation organizations and forest department especially Nelliampathy, Mangalam, Chalakkudy areas can bring voluntary involvement of ethnic communities in conservation.

Information Sharing and CEPF Policy

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned, and results. Final project completion reports are made available on our Web site, www.cepf.net, and publicized in our newsletter and other communications.

Please include your full contact details below:

Name: Dr. K.H. Amitha Bachan

Organization name: Western Ghats Hornbill Foundation, Centre MES Asmabi College

Mailing address: P.Vemballur P.O, 680671, Thrissur Dt. Kerala – India.

Tel:09497627870

Fax:

E-mail:amithab@poetic.com

Appendix 1: Detailed project completion report with tables photographs and Figures

Table 1. Project Activities at A glance against work plan and deliverable of the project proposal

Table 2. Awareness programs, planning and selection of tribesmen

Table 3. Meeting of the Hornbill / Resource Monitoring Guards & Training

Table 4. important meetings with Forest staff and officials

Table 5. Hornbill Nest Tree Monitoring involving local ethnic community groups - Anamalai landscape

Table 6. Selected Tribal Filed coordinators /trainees/ Volunteers

Table 7. Traditional Resource Monitoring Trails identified in the Area

Table 8. Density & frequency of Wild nutmeg

Table 9. Density & frequency of Black Dammar

Table 10. Resource extraction of Wild Nutmeg

Table 11. Resource extraction of Black Dammar

Map-1. Physical Map of the Anamalai Landscape with Tribal settlements

Map-2. Traditional Resource Monitoring Trails around Hamlets

Map-3. Hornbill Nest Distribution in the Landscape

Map-4. Sampling locations for NTFP Resources

Appendix 2. Publications

Bibliography

Amitha Bachan K.H. 2012. Resource monitoring through empowerment of ethnic communities: a gateway to the community based resource management on the background of Forest Right Act (FRA) and community Forest resource area (CFR) Second Indian Biodiversity congress (IBC 2012, p-1)

Amitha Bachan K.H. 2011 Riparian Flora of the Chalakkudy River Basin, Ph. D. Thesis, Dept. of Botany, University of Calicut, Kerala.

Appendix 1- CEPF SMALL GRANT FINAL DETAILED PROJECT REPORT

Involving local ethnic communities in monitoring key biodiversity information and important forest resources they depend on in the Dandeli and Anamalai part of Western Ghats, India.

Dr. K.H. Amitha Bachan & Anitha K.T.

Support: CEPF-ATREE Western Ghats Small Grants 2011

Duration: One year, Amount: \$8000

Rationale & Summary

The forests in the Anamalai part of the Western Ghats have undergone series of exploitation begun with the tea plantations in the Valparai, Nelliampathy and Anamalai, clearing of forests for Teak plantations in the Parambikulam by the British, plantations raised by us as part of forest management after 1950s, about 10-12 major river valley projects and selection felling of climax vegetation for various purposes (Bachan 2011). All these resulted in fragmentation and depletion of the primary forest cover in the area. During this time, the primary forests in the area reduced to 52% but this still represents the most spread primary forests of the Western Ghats till to date (Ramesh *et al.* 2007, Bachan 2011). There has been continuous reduction in the dense evergreen forests, effect of climate change added with effect of fragmentation, increased tourism and subsequent human interference to the fragile forest biome is an important matter of concern. Most of the tribal people in the area, especially non agrarian and primitive 'Kadar' tribe endemic to Anamalai depend mostly on the Non Timber Forest Produce (NTFP) resources such as Honey, Black Dammar (*Canarium strictum*), wild nutmeg (*Myristica beddomei*) etc and fish resources from the river. Intensity of resource dependence to available forest patches is increasing and tribal involvement and care for the resources are also necessary for the conservation. It is obvious that we need to empower the tribal community for looking at the status of the resources in which they depend on. That only can create a sustainable measure and protocol within the resource dependant people and assure sustainable management of resources. The dependence of the tribal people on Hornbill squabs for food had been identified as important concern for conservation of hornbills and it was addressed in the landscape (Kannan *et al* 1998, Bachan 2006 and Bachan *et al* 2011). A community based conservation and monitoring of Hornbill nest trees was developed with support from Kerala Forest Department at Vazhachal Forest Division during 2004-05 (Bachan 2006). It is being continued till today as a successful participatory conservation and monitoring programme of the flagship bird and their important nesting trees. The program strengthened its scientific base and was spread to adjacent forest areas with the support from CEPF-ATREE Western Ghats Small Grants program 2009 (Bachan 2010).

This project was an effort to widen the scope of previous conservation efforts by evolving community based initiatives for conservation and monitoring of important NTFP resources and endangered species they depend on. The project succeeded in its objective for capacity development of the tribal community, to conduct scientific surveys of resources to have a baseline data and development of community level protocol for continuous resource monitoring. The project succeeded in its effort to leverage financial supports from various government and other organizations during the project period. This includes support for Hornbill Monitoring from Kerala Forest Department, Vazhachal Forest Division and support from WWF India for 'Ecological Monitoring' for Kadars in the Vazhachal Area. All of these efforts at community village/settlement level have become an important platform to discuss and activate the recognition of tribal rights under FRA 2006, especially for the community rights and CFRs. As measure of sustainability we were able to leverage support to 21 tribal settlements in the central forest circle areas (Malayattur, Chalakkudy and Vazhachal forest divisions)for resource monitoring, education activities and CFR recognitions and formation of CFR management Committees from the Tribal and Forest Department. As a measure of sustainability all these community based resource monitoring activities will become a part of the CFR management plans of these tribal settlements this year.

Objectives

1. Community based conservation and monitoring of key biodiversity information / resources including nest trees of Great Hornbill and Malabar Pied Hornbill, NTFPs and RET sps. in the Malayattur, Nenmara, Chalakkudy and Parambikulam forest divisions of Kerala and Topslip (Tamil Nadu).
2. Ensure sustainability of the monitoring and conservation programme (at least in the Kerala part of Anamalais)
3. Empower local ethnic communities and Kerala Forest Department to make ongoing participatory nurseries/planting activities towards a better habitat enhancement activity while incorporating endangered and endemic hornbill nest trees, RET & endemic species, species of important resources etc..

Implementation Partners for this Project (please explain the level of involvement for each partner):

The project was materialized by MES Asmabi College through the **Western Ghats Hornbill Foundation Center** (<http://www.hornbillfoundation.org/>) at MES Asmabi College. The PI along with other Members of the WGHF played a major role.

The **tribal members**, their community organizations and VSS of 16 tribal settlements across Kerala part of Anamalais (Kadar 13, Malayar 2, Muthuvan 1) and two Kadar settlements from Tamil Nadu part were involved. This includes Vazhachal, Chalakkudy, Malayattur and Nenmara Forest Divisions and Parambikulam Tiger Reserve in the Kerala part and Erumapara and Villuni tribal settlement from the Tamil Nadu Part. The Kerala Forest Department provided the logistic support and necessary permission with the beginning of the project.

The **Kerala Forest Department** (<http://www.forest.kerala.gov.in/>), **Vazhachal Forest Division** supported 10 Hornbill Monitoring Guards for Hornbill Monitoring last year (2011-12), five hornbill monitoring guards this year (2012-13) as a continuous involvement. Apart from this another six Kadar tribal youth, working along with Western Ghats Hornbill Foundation volunteered for the hornbill nest tree monitoring in the Vazhachal Forest Division.

The World Wide Fund for Nature (WWF) India provided a partial support for resource monitoring in the Vazhachal forest area as part of their FRA implementation project

Contribution to the implementation of the CEPF ecosystem profile

The project contributed towards developing partnerships with tribal community organizations, forest department, WGHF and MES for the conservation of important species and resources on which tribal people depend on, including globally threatened species in key biodiversity area of the Anmamalai region. It also provided interaction among the tribal communities in resource survey and monitoring in the CEPF critical link 10: 'Kodassery Reserve Forests' Tribal people from around 18 settlements including Kadar, Malayan and Muthuvan were empowered for scientific monitoring of resources / species and conducted a baseline survey around their traditional resource use areas.

Hence the project served the aims of the CEPF-ATREE Western Ghats Ecosystem Profile particularly Strategic directions 1. To enable action by diverse communities and partnerships to ensure conservation of key biodiversity areas and enhance connectivity in the corridors. and 2. To improve the conservation of globally threatened species of the Western Ghats through systematic conservation planning and action.

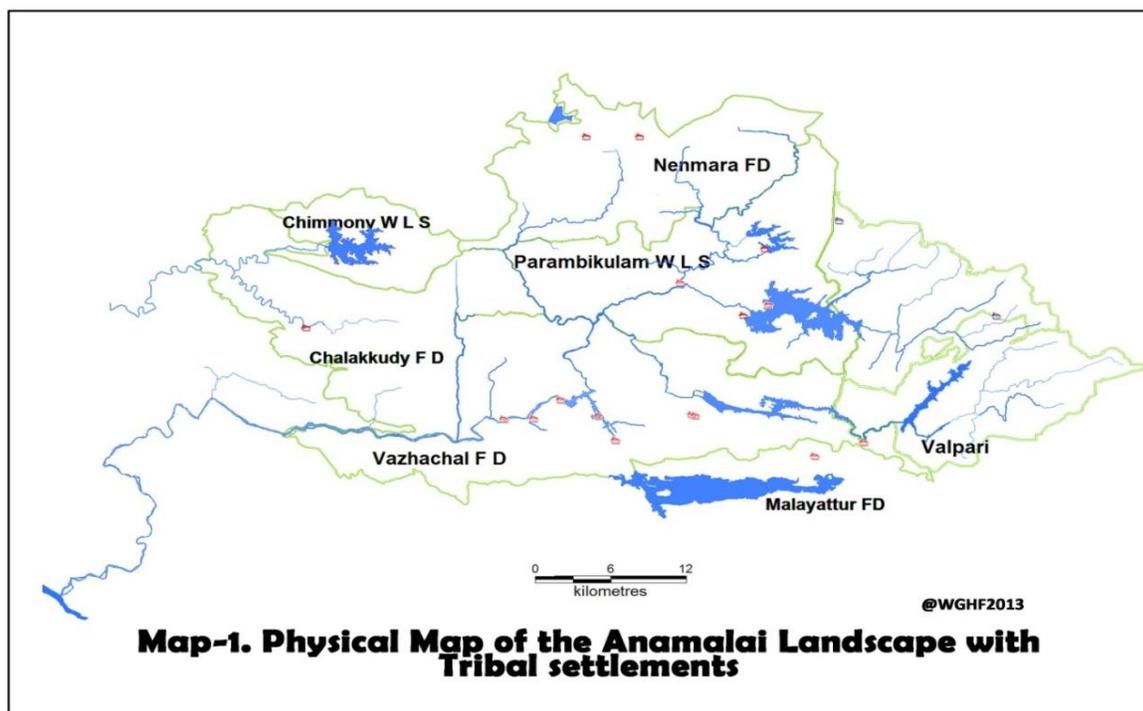
Project Activities

1. Interaction with forest officials and local communities, awareness creation, identification of local community groups for resource monitoring

a. **Permission letter** from the Kerala Forest Department received during the initial stage of the project which covers most of the targeted area like Parambikulam Tiger Reserve, Vazhachal, Malayattur, Nenmara and Chalakkudy Forest Division.

b. Identification of local ethnic community groups under each forest administrative units

As a total eight forest administration units had been identified, five in Kerala (Parambikulam Tiger Reserve, Vazhachal Forest Division, Chalakkudy Forest Division, Nenmara Forest Division and Malayattur forest Division, two in Tamil Nadu (Topslip and Valparai) and one in Karnataka (Dandeli area). Activities in Karnataka part did not happened yet because of unavailability of the committed local partner (FCBCRD Joida), but later awareness on hornbill conservation has been planned with support from Balachandra Hegde. Activities in 18 tribal hamlets out of the 20 envisaged (2 from Dandeli – Karnataka) were successfully implemented around important evergreen forest habitat of Anamalai landscape (see Table 1).



c. Awareness programs, regional planning and selection of tribesmen for resource monitoring

Total 23 awareness programs were conducted at village level, 20 integrated levels including forest division level during this time. Different strategies were opted for different forest administrative units in consultation with the community, forest department and other interested groups. Activities were planned and implemented

depending on the nature of the community, resource use and their exposure to previous conservation and monitoring initiatives.

i. Vazhachal forest Division: Community based monitoring of Hornbill Nest trees involving 'Kadar' primitive tribes were started in this forest division since 2004-05 by Western Ghats Hornbill Foundation (Bachan 2006, Bachan *et al* 2011). Serious discussions at community level happened in this division involving hornbill monitoring guards from the eight 'Kadar' tribal settlements. As a result systematic sampling and survey of major NTFP trees were planned in the resource use areas of all the eight 'Kadar' tribal settlement regions apart from continuation of the Hornbill Nest tree monitoring. Actually this covered almost all the forest administrative units of the Vazhachal forest division except lower regions of the Athirapilly range. Support for engaging tribesmen to conduct resource monitoring ('Ecological Monitoring') of resources they depend on and endangered species was leveraged from WWF-India. Fund support for the hornbill nest tree monitoring was provided by Kerala Forest Department, Vazhachal Division under the Fragile Ecosystem Management Fund. Community based nursery for the NTFP and endangered species were also initiated with the end of the project at one location –Malakkapara. Nearly 40 people directly involved in the overall activity.

ii. Malayattur Forest Division: forest settlements ((Adichilithotty and Kappayam Muthuva tribal) based on the location of important forest habitat contiguous with the main forest area in the landscape were selected from this division. We were able to conduct activities at one tribal settlement (Muthuva) during the project period. These include awareness programs, hornbill nest tree monitoring, initial surveys for NTFP and endangered trees and community based nursery for endangered and important NTFP species with the end of the project. About 14 people were directly involved in the activity.

iii. Nelliampathy area of Nenmara Forest Division: There are two tribal settlements 1. The Pullukad Malaya settlement and the Cherunelly Kadar settlement. We planned for survey for hornbill nest trees and community based nursery. Succeeded only for the hornbill nest tree surveys and the nursery were initiated but the community were not able to continue the process because of unavailability of support from any other agency like Forest Department or the Grama Panchayath. The location and area of the hamlet has not been recognised by the government so far.

iv. Chalakkudy Forest Division: Only one Kadar tribal hamlet (Anpanatham hamlet) is close to the important forest area of the landscape. We were able conduct awareness programs, discussed the need of such community based resource monitoring and surveys for hornbill nest trees this year

v. Parambikulam Tiger Reserve: A major part of the newly constituted tiger reserve comes under Malakkapara part of the Vazhachal forest division, Nelliampathy part of Nenmara forest Division and Kavala – Anapanatham part of Chalakkudy forest divisions. We have already covered these areas through the involvement of Kadar tribal settlement at Malakkapara, Nelliampathy and Anapantham. Hornbill nest tree monitoring, survey for NTFP and endangered species were conducted for this region. Hornbill nest monitoring for other four hamlets resource areas were also conducted during the last season. A plan was developed for the entire Parambikulam Tiger Reserve for community based monitoring of NTFP resources and the Forest Department has agreed to take it up as part of their regular research and survey.

vi. Topslip and Valparai part of Tamil Nadu: Awareness programs and discussion with the community were done at Villuni Settlement with the support from the community. A draft plan about their area of resource use and possibilities for monitoring were discussed. It was not progressed further because the Forest department not turned up for such initiative. A partnership program with Nature Conservation Foundation (NCF), forest department for the community is under discussion.

Table 1 - Project Activities at A glance against work plan and deliverable of the project proposal

Sl. No	Forest Division	Ethnic Community	Involvement				Additional Fund support	Project Fund Utilization	
			No. of Settlements	No. of persons	No. of VSS/EDC	Other Agencies			
I Kerala									
1	Vazhachal	Kadar	Vazhachal Pokalappara	8	28	6	Forest Department Vazhachal Division	Engaging Hornbill Monitoring Guards for two months Feb-march 2012 One Lakh Direct support to 30 days wages to 10 people	Awareness programs, Meetings & Planning Filed Trainings Resource Monitoring Hornbill Nest trees NTFP trees monitoring Endangered spp Engaging Field Coordinators from ethnic community during gap phase when other support are not available Nursery of endangered& imp NTFP Trees by community
			Poringalkuthu Mukumpuzha Vachumar am Anakkayam Sholayar Malakkapara				WWF India	Ecological Monitoring - Monitoring of NTFP and other Endangered Resources on systematic grid based transects for Vazhachal forest Division. Plan adopted from Resource monitoring of the CEPF-ATREE SG supported project Report submitted to WWF 3 lakhs Wages to Kadars for Survey (20 persons)	
2	Parambikulam Tiger Reserve	Kadar, Malasar, Malam alasar	4	6		KFD	Nil	Awareness, Training, Hornbill Nest Monitoring	

3	Malayattur	Muthuvan	1	8		KFD	Nil	Awareness, Training, Hornbill Nest Monitoring, Initial NTFP Survey Nursery of endangered& imp NTFP Trees by community
4	Nenmara	Malasar, Kadar	2	3		KFD	Nil	Awareness, Training, Hornbill Nest Survey Nursery of endangered& imp NTFP Trees by community But failed lack of continuity and maintenance
5	Chalakkudy	Kadar,	1	4		KFD	Nil	Awareness, Training, Hornbill Nest Monitoring
II Tamil Nadu								
1	Topslip	Kadar	1	2		KFD	Nil	Awareness, Training, Hornbill Nest Survey
2	Valparai Villuni	Kadar	1	4		Valparai	Nil	Awareness, Training
III Karnataka								
1	Dandeli					Balachandra - Hegde	Nil	Awareness, (Not happened during the project period, because of unavailability of local organization) Awareness programs will be conducted as a follow up supported by Balchandra hedge



19-11-2011- Awareness program at AdichilithottyMuthuva Settlement



Training for Resource Survey: Adichilithotty Tribal Settlement Malayattur Forest Division

Training Programme for Vazhachal Forest Division 29th Jan 2012



Meeting at Malakkapara Kadar Settlement (5th Nov 2011)



Sholayar Kadar Settlement (January 2012)



Vachumaram Kadar Settlement (November 2011)



Meeting at Thattekkad Bird Sanctuary – for Malayattur Forest Division (November 2011)



Team members at Villuni Tribal Settlement – Valparai – Tamil Nadu **December 2011**



Anpantham Kadar Settlement – Chalakkudy Forest Division (November 2012)



PullukadMalayar Settlement – Nelliampathy (December 2011)



Chrunelly Kadar Settlement – Nelliampathy (December 2011)



Major hornbill and evergreen forest habitat in the Topslip area is the Karianachola region and is shared by Parambikulam Tiger Reserve Kerala and the Anamalai Tiger Reserve Tamil Nadu. Survey for hornbill nest trees were done in this area with the support from tribal people from Erumapara settlement in Tamil Nadu.

2. An outline of the regional level community based plan for involving local communities in monitoring of resources in which they depend.

a. Selection of villages/ tribal settlements: The tribal settlements were selected based on the proximity to the contiguous important rainforest habitat in the Anamalai landscape and their resource use dependence in the area. This involves mainly Kadar, Muthuvan and Malaya tribes in the Kerala and Tamil Nadu part of Anamalai Landscape unit.

b. Selection Areas for Survey and Monitoring: The areas were selected based on the traditional forest dwelling areas of each selected tribal settlement under different forest administrative divisions. (Table – 1). A team of eight experienced tribal guards were selected as tribal trainees and they were used for training other tribal people along with the project team. Eight tribesmen were selected as coordinator for each region and the activities were coordinated (Table-6).

3. Overall result and impact of the community based survey and monitoring of resources

The basic concept of the project was to involve local ethnic communities in monitoring of resources they depend on and other endangered flora and fauna in their traditional resource use area through proper capacity development in order to develop a community owned resource survey and long term monitoring. Since the fund support in this project was limited, development of proper partnership with other organisations and govt department with local tribal community and leveraging proper fund supports were envisaged. Following are the major activities and its results of the implementation of the project.

i. Awareness programs, Sensitisation and Field level training

Awareness programs including visual presentations on need of resource conservation and involvement of local communities, Screening of documentary “The Fragile World of Great Hornbills’ on the participatory hornbill conservation program involving Kadar tribal settlement in the Vazhachal forest division, awareness on FRA 2006 emphasising on Community Forest Area (CFR), were conducted facilitating Oorukoottams or Grama Sabhas in all the villages or meetings at VSS /EDC level. Education and training programs for the women and kids were also conducted to sensitise the people. Group discussions of the interested people at GS or VSS/EDC level were conducted first and they were taken into the field for initial trainings. Experienced eight tribal trainers were selected and they along with project team led training sessions.

Selection of the Resource Monitoring Guards was based on three aspects 1. Area of their domain i.e. people who familiar with resource use area of a particular settlement. 2. Experience in forest dwelling, knowledge of the terrain, landmarks and resources 3. Their attitude towards contributing for the conservation and sustainable use of resources. Also their ability to learn the methods, continuous involvement and commitment to work as a team were the factors for the final selection. The tribesmen were grouped based on their forest dwelling area within the resource use area of their hamlets. The involvement of Hornbill Monitoring Team developed by Western Ghats Hornbill Foundation (WGHF) in each team supported smooth rendering of the survey and they helped to train other people. Their traditional forest dwelling routes were GPS recorded first. From this they were trained to locate the grid points/survey locations based on their traditional landmarks and the GPS location. They were trained in the field to establish transect, use GPS etc. and did survey for the NTFP species such as *Canarium* and *Myristica*.

Table -2. Awareness programs, planning and selection of tribesmen

Sl. No	Date	Description	Location		No. of participants		
			Place	Forest Division	Project Team	Forest Staff	Tribesmen
1	5th Nov 11	Vazhachal FD, Kadar	Malakkapara	Vazhachal FD	3	1	24
2	16-Nov-11	Awareness on Hornbill Monitoring	Thattekkadu	Tattekkadu & Malayattur	2		
3	19,20 Nov 11	Malayattur FD, Muthuvan	Adichilithoty	Malayattur FD	3	1	21
4	3-Dec-11	Vazhachal FD, Kadar	Malakkapara	Vazhachal FD	2	0	38
5	4-Dec-11	Valparai, Tamil Nadu, Kadar	Vilooni	Valparai-TN	4	0	18
6	28,29,30 Dec 11	Awareness on FRA, Vazhachal	Five settlements	Vazhachal FD	3	6	72
7	2-Feb-12	Forest Types Reassessment	IFGTB-Coimbatore	NA	1	NA	NA
8	22-Feb-12	Sholayar, Anakkayam	Settlements	Vazhachal FD	3	2	54
9	23-Feb-12	Mukkumpuzha, Poringal	Settlements	Vazhachal FD	3	0	27

10	24-Feb-12	Vazhachal	Settlement	Vazhachal FD	2	0	31
11	21-23-Mar-12	Training for Forest Guards & tribesmen	Vazhachal	Vazhachal, Chalakkudy & Malayattur	6	34	8

Table 3. Important Meetings With Forest / other Officials

Sl. No	Date	Designation/Organization	Subject	Place	Jurisdiction
1	12-Oct-12	Field Director	Resource Monitoring Frame Work-initial Talk	Parambikulam	Parambikulam Tiger Reserve
2	2-Dec-11	CCF	Resource Monitoring Frame Work-initial Talk	Thrissur	Central Forest Circle
3	1-Jan-12	CCF	Resource Monitoring Central Circle Discussion Draft		Central Forest Circle
4	12-Jan-12	TA to CCF	Submission of Draft	Thrissur	Central Forest Circle
5	17-Jan-12	PCCF (WL),	Permission Reg.	Thiruvananthapuram	State
6	2-Feb-12	Meeting with DFO	Resource Monitoring	Nenmara	Malayattur FD
7	12-Feb-12	Meeting with NCF	Resource Monitoring	Valparai	Tamil Nadu/NGO
8	15-Feb-12	Meeting with DFO	Resource Monitoring	Chalakkudy	Chalakkudy FD

Field Training : Adichilithotty – Malayattur Forest Division (November 2012)



ii. Survey for Hornbill Nest Trees & Hornbill Nest Tree Monitoring

Methodology adopted: Simple transect walks were conducted through resource use area to understand the presence of hornbills, NTFP and endangered trees and important fauna. Methods by Bachan *et al* (2011), including monitoring of Old Growth trees, traditionally known nests and looking for movement of lone males during nesting season were followed and data sheets in local languages were used for community based monitoring of Great Hornbill nests.

Results

A total of 116 nests have been identified in the Anamalai landscape 101 in Kerala part and 16 in Tamil Nadu region around resource use areas of the selected tribal villages / settlements

Of which 109 nests were monitored during this period and the results were summarised as follows.

Table 4. Meeting of the Hornbill / Resource Monitoring Guards & Training					
Sl. No.	Date	Description	Place	Forest Division	Tribal Group
			Location	Forest Division	
1	5-Nov-11	Regional Meeting	Malakkapara	Vazhachal	Kadar
2	12-Nov-11	Regional Meeting	Vachumaram	Vazhachal	Kadar
3	13-Nov-11	Regional Meeting	Sholayar	Vazhachal	Kadar
4	20-Nov-11	Selection of Guards	Adichilithotty	Malayattur	Muthuvan
5	3-Nov-11	Selection of Guards	Malakkapara	Vazhachal	Kadar
6	4-Nov-11	Regional Meeting	Vilooni -TN	Valparai	Kadar
7	12-Dec-11	Meeting of the Hornbill Guards	Nelliyampathy	Nenmara	Malasar, Kadar
8	13-Jan-12	Selection of Hornbill Guards	Vazhachal	Vazhachal	Kadar & Malayar
9	22-Jan-12	Field Training	Vazhachal	Vazhachal	Kadar
10	28-Jan-12	Field Training	Chandanthodu	Vazhachal	Kadar
11	29-Jan-12	Meeting of the Hornbill Guards	Vazhachal	Vazhachal	Kadar
12	5-7-April-12	Meeting of the Hornbill Guards	Vazhachal	Vazhachal	Kadar
13	12-14-Apr-12	Meeting of the Hornbill Guards	Parambikulam	Parambikulam TR	Kadar, Malasar, Malamalasar
14	14-Apr-12	Field training	Topslip	Topslip -TN	Kadar
15	23-15-Apr-12	Field training	Nelliyampathy	Nenmara	Malasar, Kadar

Table 5. Hornbill Nest Tree Monitoring involving local ethnic community groups - Anamalai landscape

Sl. No.	Forest Division	No. of Tribal Settlements involved	No. of Nests identified	No of nests Monitored	No of Successful nests	No of New nests	No. of Reestablished nests	Loss of nest tree/ previous years
1	Vazhachal	8	71	71	63	9	3	5
2	Chalakkudy	1	10	9	7	0	0	2
3	Malayattur	1	4	4	4	0	0	1
4	Nenmara	2	6	6	5	0	0	1
5	Parambikulam	3	17	10	9	0	0	1
6	Anamalai TR - Topslip	1	10	6	6	0	0	1
7	Valparai	1	6	0	0	0	0	0
	Total	17	117	106	94	9	3	11

Hornbill Nest Tree Monitoring

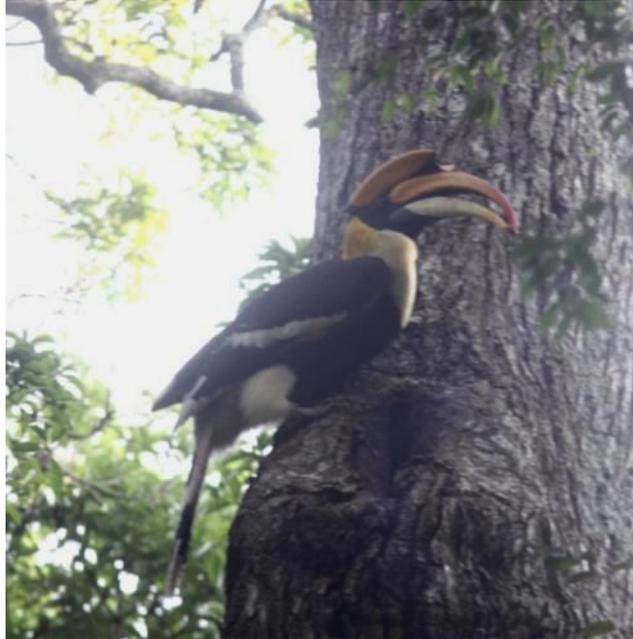


Measuring a Hornbill Nest Tree *Palaquium ellipticum* – Adichilithotty Muthuvan Settlement



Measuring girth of the Hornbill nest tree – Sholayar (Vazhachal)

A Male Great Hornbill At Nest – Karianchola



Hornbill Monitoring Guards at Nest tree – Topslip – Villuni



iii. NTFP resource Survey

Initial surveys for major NTFP trees were conducted in four forest divisions Vazhachal, Chalakkudy, Malayattur and Parambikulam, involving Kadar, Malayan and Muthuvan tribal community around their resource use area. These helped in sensitizing the people, develop a base plan for systematic resource monitoring for each village, resource use area and the forest division. Systematic survey for baseline data collection and development of community based protocol was done at Vazhachal Forest Division involving eight tribal hamlets.

Methodology adopted

Simple transect walks through the resource use area and recording of the important NTFP tree and other endangered species encounters were used as simple methodology for reconnaissance and training the tribal people for such surveys. Systematic sampling grids (2 x 2 km) were established across the forest resource use areas of each hamlet using GIS. It was very important to strategically link the traditional landscape knowledge with the grid positions or sampling locations. The following steps were taken for the implementation. i. Simple transect walk through the resource use area of the tribal settlements for sensitization and reconnaissance. ii. Train the tribal people in scientific surveys, use of GPS, locating grids etc integrating the Hornbill monitoring team and other selected people. iii. Select systematic sampling locations using GIS / or toposheets over the resource use areas. iv. Identify and GPS record forest dwelling trails traditionally used by the tribes for resource collection and management. v. Develop permanent transects (500m x 5m x 3 long transect, 0.75 ha) along the selected grids for long term monitoring. vi. Survey for major NTFP trees such as *Canarium*, *Myristica* and old growth honey comb trees along the transects.

Results

Major NTFPs used by the tribal communities in the region are

SL .NO	PRODUCT	LOCAL NAME	SOURCE
1	Honey large	Vanthain	Honey bee large
2	Honey small	Cheruthein	Honey bee small
3	Black Dammar	Thelly	<i>Canarium strictum</i>
4	White Dammar	Vella thelly	<i>Vateria indica</i>
5	Nut Meg	Pathripoo	<i>Myristica beddomei</i>
6	Kakkumkai	Kakkumkai	<i>Entada rheedei</i>

7	Shikakai	Cheevakai	<i>Acacia sinuata</i>
8	Kasthurimanjal	Kasthurimanjal	<i>Curcuma aromatica</i>
7	Bee Wax	Mezhuku	Bee Comb
8	Marottikkaya	Marottikkaya	<i>Hydnocarpus spp</i>
9	Incha	Incha	<i>Acacia caesia</i>
10	Cardamom	Elam	<i>Elettaria cardamomum</i>
11	Fish		

Table 6. Selected Tribal Filed coordinators /trainees/ Volunteers

Sl. No.	Name	Settlements	Forest Division	Duty/Role	Area envisaged
1	Senthil Kumar	Malakkapara	Vazhachal	Tribal Coordinator & Field Trainee	All the areas
2	Manikkaraj M.	Sholayar	Vazhachal	Tribal Coordinator -Regional	Sholayar
3	Ganesh G.	Erumapara	Topslip	Tribal Coordinator -Regional	Parambikulam Tiger Reserve
4	Suresh	Malakkapara		Tribal Coordinator -Regional	Malakkapara & Adichilithotty
5	Maniakandan	Pullukad	Nenmara	Tribal Coordinator -Regional	Nelliyampathy
6	Ratheesh	Pokalppara	Vazhachal	Tribal Coordinator -Regional	Pokalppara & Vazhachal
7	Manoj D	Sholayar	Vazhachal	Tribal Coordinator -Regional	Sholayar & Vachumaram
8	Ramachandran	Anapantham	Chalakkudy	Tribal Coordinator -Regional	Anapantham
9	Chilamban	Adichilithotti	Malayattur	Tribal Coordinator -Regional	Malyattur

Identified Traditional Resource Monitoring Trails

About 52 different traditional forest dwelling trails have been identified in the landscape as Traditional Resource Monitoring Trails useful for regular perambulation of the different resource use areas of each hamlet. We selected these trails from their traditional forest dwelling routes based on criteria such as i. Non overlapping, ii. Cover important areas of each settlements resource use area, iii. Connects important landmarks and regions in the area, iv. Can be perambulated within 2-4 days of period and v. That includes traditional camping locations (See Appendix table – 7).

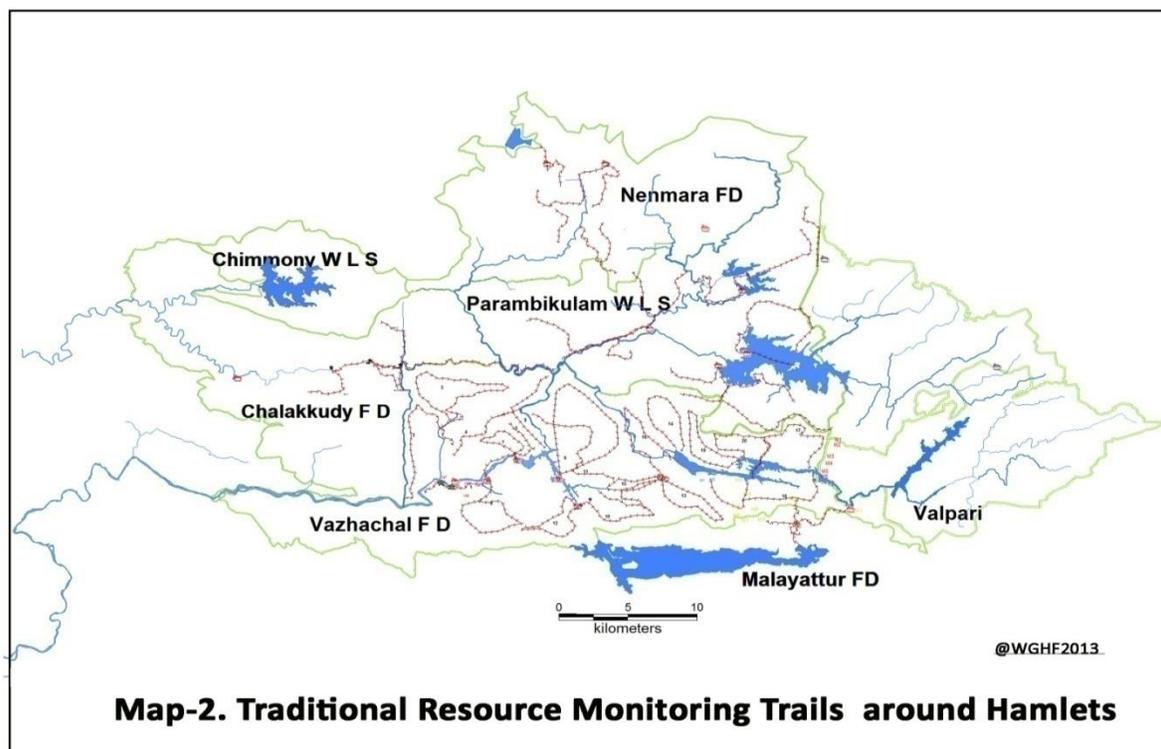


Table 7. – Traditional Resource Monitoring Trails identified in the Area

Sl. No	Settlement	Route Name	Description	Days to cover
I.	Nelliyampathy	Nemmara Forest Division		

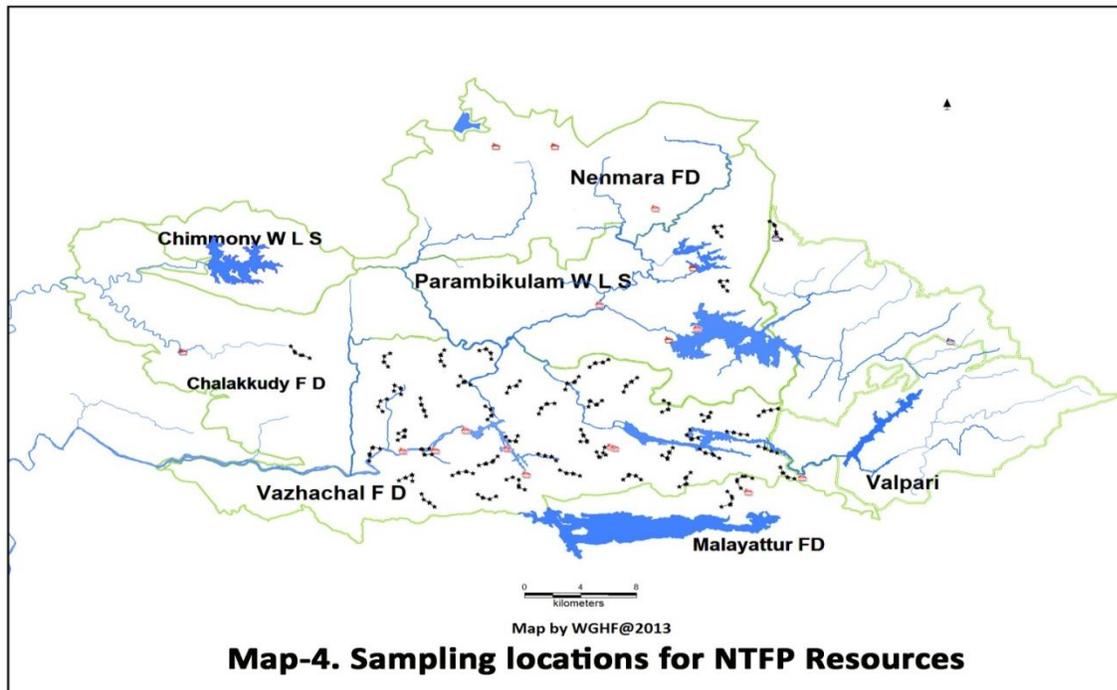
1.	Pullukadu	Pullukad -Rajakad	Pullukad-Pothundu-Rajakad	1
2.	Pullukadu	Karadi- hilltop	Karady – Pullala-Hilltop	2
4.	Pullukad	Hilltop-Padagiri	Hilltop – Padagiri- Lilly est	2
5.	Pullukad	Victoria-Rosery	Victoria-Beyatris-Rosery	2
6.	Pullukad	Victoria-Kurisumala	Victoria-Kurisumala- Maguttimala	2
7.	Cherunelly	Cherunelly-Pothundu	Cherunelly-Pothundu	1
8.	Cherunelly	Cherunelly-kesavanpara	Cherunelly-temple-Kesavanpara	2
II.	Chalakkudy Forest Divi.	Chalakkudy Forest Division		
1.	Anapantham	Sasthapoovam-Kavala	Sasthapoovam- Anpantham-Kavala	2
2.	Anapantham	Kavala-Orukomban	Kavala-Komalapara-Myladappan-Muthuvarachal-orukomban	3
3.	Anapantham	Velvara-kundurmedu	Velvarathandu-Kundoormedu	3
4.	Anapantham	Sasthapoovam-Kalachavitti	Sasthapoovam-Pambalumedu-Kalachavitti	2
5.	Anapantham	Kavala-Irumpupara	Sasthapoovam-Kavala-Irumpupara	3
III.		Vazhachal Forest Division		
1	Vazachal-1	Kannakuzhi-Kundoormedu-Vazhachal	Kanankuzhi, Kundoormedu, Vazhachal	2
2	Vazachal-2	Charpapadam - Orukomban	Vazhachal, Noottudumban, Lakshmi -Charpapadam-orukomban	2
3	Vazachal-3	VazhachalAkkare	Vazhachal, bridge, opposite river, Karadipara,Minarithodu-Charpa	1
4	Vazachal-4	Pachakkad-Karanthodu	Vazhachal, Pachakkadu, Kudikkalkunnu, Karanthodu	1
5	Pokalappara-1	Poringalkkuthu-Pattanthodu	Poringalkkuthu, Valiyapara, ,Pattanthodu	2
6	Pokalappara-2	Karadippara-pachilavalam	Karadippara, pachilavalam,UlasserythirichuPokalappara	2
7	Poringalkkuthu-1	ValiyaparaPachakkad-Kottamurathodu	ValiyaparaPachakkad, Kottamurathodu ,Pokalappara	2
8	Poringalkkuthu-2	Irumbupalam-Valanjakayam	Poringallrumbupalam,, Valanjakayam	2
9	Mukkumpuza-1	Mukkumpuzha-Kozikkuthu	Mukkumpuzha, Paradi , Valparai, Kozikkuthu	
10	Vachumaram-1	CheembalthoduVazi	Swamipocket, Valravarthodu	2
11	Vachumaram	Rapra	Vachumaram , Viramudi, Rapra	2

	2			
12	Vachumaram	Kalakallan	Vachumaram, Kalakkallan, Veernudi Kavalla	1
13	Sholayar1	Adavara-Mypa	PH colony, Mypa, adavar, Chooralvalich Number para	1
14	Sholayar2	Chenavara-Thellipettiyali	Ambalappara, Thellipettiyali, Chenavara, meancher ali, ambalappara	2
15	Sholayar3	Akkarappali-Kummatti	Akkarappali- Kummatti, anakkayam, road	1
16	Sholayar4	37 Odankuzal , Ambalappara	Sholayar PH, 37, Odankuzal, Vavalala, Koodal, Veetikunnu, Dam	2
17	Malakappara 1	Shekkalmudi	Shekkalmudi, Anayurundan, Kulamali, Chandanthodu	2
18	Malakappara 2	Aanamaden	Paerumbara, Chorigal, Anamadan, Thottappura	2
19	Malakappara 3	Iamthalachi - Keezmayakkal	Iamthalachi - Malamud, Keezmayakkal, Elanthalachi	2
20	Malakappara 4	Kulamali- Anayurundal	Kulamali- Anayurundal, melmayakkal, karimala	2
IV.		Malyattur Forest Division		
1	Adichilithotty	Adichilithotty-Pathadipalam	Adichilithotty-Pathadippalam	1
2	Adichilithotty	Puliyadichanthandu	Adichilithotty-Puliyadichanthandu-Edamalar	2
3.	Adichilithotty	Anamadam	Adichilithotty-Anamadamlowere area	2
4.	Adichilithotty	Perumpara	Adichilithotty-Perammapara-Perumpara	1
5.	Adichilithotty	Edamalar	Adichilithotty-Edamalar-Kappayam	2
V		Parambikulam WLS		
1	Earthdam Kadar	Earthdam-Karimala	Earthdam-Aranapara-Karimala	2
2	Earthdam Kadar	Naikundu	Earthdam-Aranapara-Naikundu	2
3	Earthdam Kadar	poopara	Earthdam-poopara	2
4	Earthdam Kadar	Chorakulam	Earthdam-Karimala-lower-Chorakulam	2
5	Kuriyarkutty	Thuthanpara	Pulikkalar-Thuthanpara	2
6	Kuriyarkutty	Pezha	Kuriyarkutty-Medamchal-pezha	2
7	kuriyarkutty	Orukomban	Kuriyarkutty-orukombankutty	2
8	Kuriyarkutty	Kotteyali	Kuriyarkutty-Kotteyali	2
9	Kuriyarkutty	Thellikkal	Kuriyarkutty-Thellikkal	2

10	Parambikulam Kadar	Vengoli	Vayal-Tunnel entry-Vengoli	2
11	Parambikulam Kadar	Vengoli-kallpara	Vengoli-kallpara	3
12	Parambikulam Kadar	Veettikunnu	Dam-Veettikunnu	1
13	Sungam	Sungam-Thellikkal	SunagmThunakadavu-Kannimarathekku-thellikkal	2
14	Sungam	Karianchola	Anppadi-Karinachola	1
15	Sungam	Pandaravarai	Karinachola-pandaravarai	3

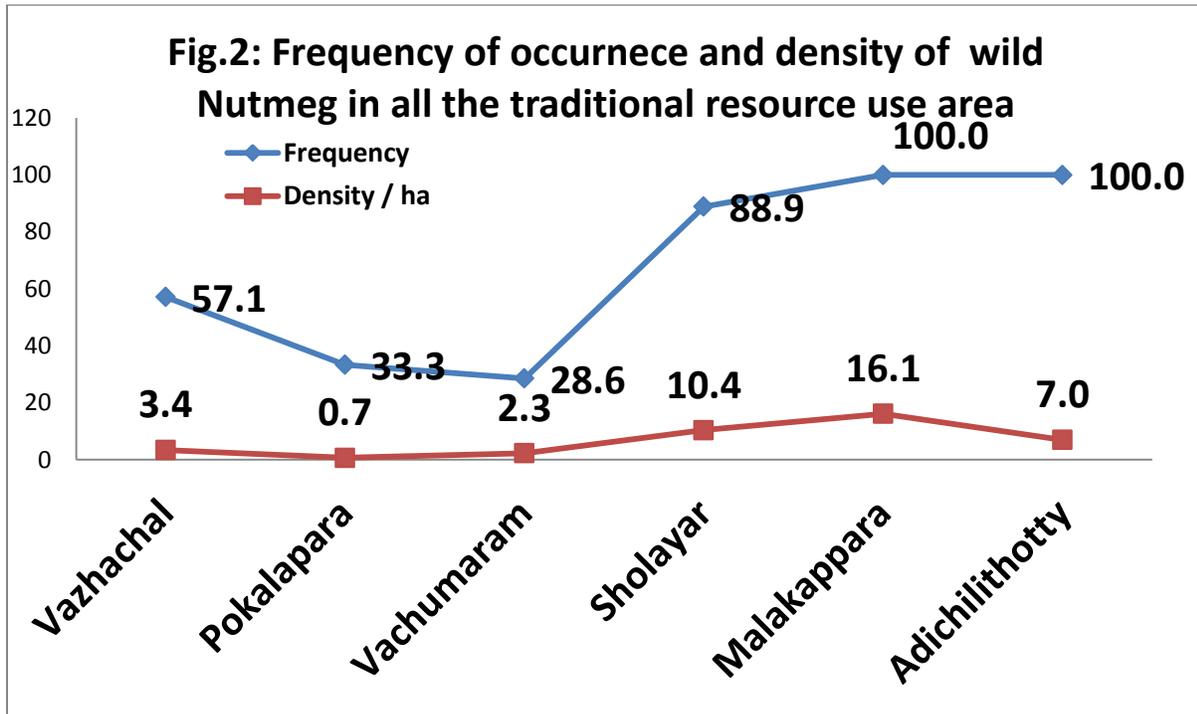
Major NTFP resources Survey

The selected NTFP trees for survey are *Canarium strictum*, *Myristica beddomei* and other old growth trees. All the three 500m transects in the selected grids were sampled as belt transect of 500x5m (2500sq m = 0.25 ha) of the area. Total of 0.75 ha of area were sampled from each grids. All the mature trees were measured for Girth at Breast Height (GBH) and Height class. Flowering and fruiting phonology, details of extraction of NTFP products such as resin (*Canarium*) fruits and seeds (*Myristica*) and status of trees were also noted. Occupancy, density and rate of extraction were analyzed for each of the of the NTFP trees.



Occurrence of Wild nutmeg (*Myristica beddomei*)

The Wild Nut Meg tree (*Myristica beddomei*) is distributed in all the traditional resource use area where natural forests are present.



Resource Monitoring Team at - Malakappara – Vazhachal



Measuring a large canopy tree



Measuring the NTFP trees – Malakkapara, Vazhachal



A damaged resin extracted Canarium tree



Frequent occurrence of wild nutmeg was found in the resource use areas of Malakkapara and Sholayar region of Vazhachal Forests and adjacent Adichilithotty settlement area in the Malayattur forest division. It was present in every 0.75 ha (100%) samples of resource use areas of Malakkapara and Adichilithotty, followed by 89% in Sholayar region and 57% in traditional resource use areas of Vazhachal settlement. The least frequency was observed in the traditional resource use areas of Vachumaram (28.6%) and Pokalappara (33.3).

Density of Wild Nutmeg in the Traditional Resource use areas

Maximum density was observed in the traditional resource use areas of Malakkapara Kadar settlement of Vazhachal Forest Division (16.1 trees / ha). This was followed by Sholayar (10.4 trees / ha), Adichilithotty (7 trees/ha), Vazhachal (3.4 trees/ha) and the least represented by Pokalappara (0.7 trees/ha) and Vachumaram (2.3 trees / ha).

Settlement	Transects of Occurrence	Frequency	Tot Individuals	Density (in Ha)
Vazhachal	4	57.14285714	18	3.42857143
Pokalappara	2	33.33333333	3	0.66666667
Vachumaram	2	28.57142857	12	2.28571429
Sholayar	8	88.88888889	70	10.3703704
Malakkapara	10	100	121	16.13333333
Adichilithotty	4	100	21	7

Occurrence of Black Dammar tree (*Canarium strictum*)

The frequency of black dammar was high in the traditional resource use areas of Malakkapara Kadar settlement of Vazhachal forest Divisions (80%) followed by Sholayar (55.6%) and Adichilithotty (50%) area of Malayattur forest Division. Least frequency was observed in resource use areas of Pokalappara Kadar settlement area (16.7) and Vazhachal and Vachumaram shoed the similar trend (28.6%).

Density of Black Dammar in the Traditional Resource use areas

Density of Black Dammar tree (*Canarium strictum*) showed similar trend and maximum density was observed in traditional resource use areas of Malakkapara Kadar settlement (2.7 trees per ha), followed by Vachumaram 1.3/ha, Sholayar 1.2/ha and Adichilithotty 0.7 trees per ha. Least density was observed in Vazhachal and Pokalappara region (0.4 tree per ha).

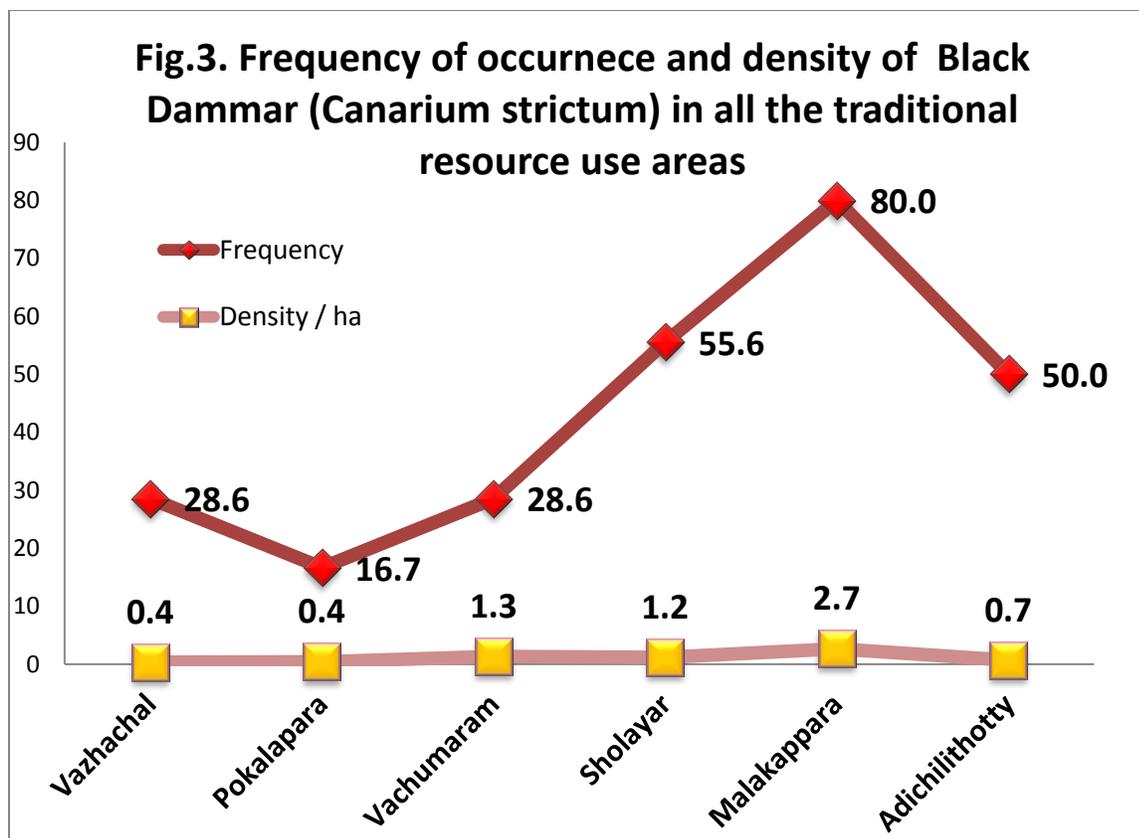


Table 9. Density & frequency of Black Dammar

Settlement	Transects of Occurrence	Frequency	Tot Individuals	Density (in Ha)
Vazhachal	2	28.57142857	2	0.38095238
Pokalappara	1	16.66666667	2	0.44444444
Vachumaram	2	28.57142857	7	1.33333333
Sholayar	5	55.55555556	8	1.18518519
Malakappara	8	80	20	2.66666667
Adichilithotty	2	50	2	0.66666667

Density of Extraction of Black Dammar and Wild nutmeg in the traditional resource use areas

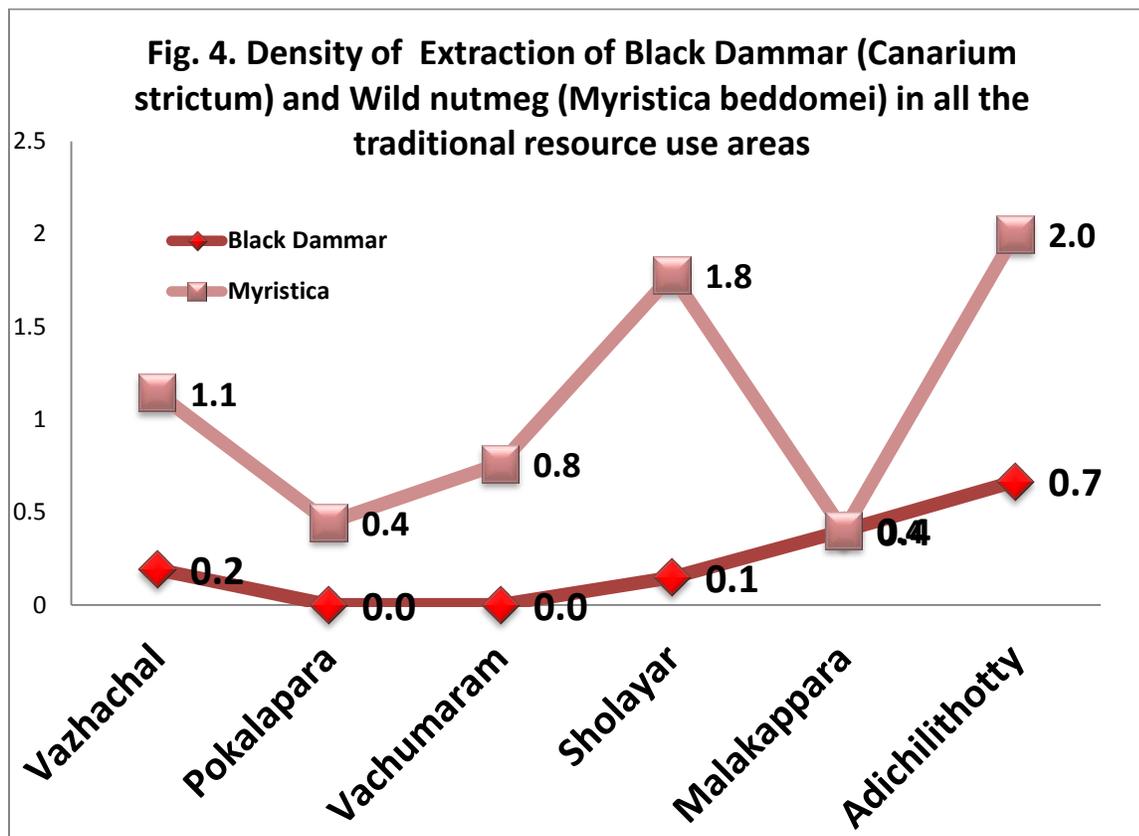
Black Dammar

Maximum extraction rate has been observed in the Adichilithotty area of Malayattur forest division (0.7 tree/ha), followed by Malakappara region (0.4 tree/ha) and Vazhachal (0.2 trees / ha) and Sholayar (0.1 trees/ ha). Presences of mature trees were also very poor in most of the areas.

Density of extraction of Wild Nutmeg in the Traditional resource use areas

Density of extraction of Wild Nutmeg trees was high in Adichilithotty area (2 tree/ha) followed by Sholayar region (1.8 trees/ha), Vazhachal region (1.1 tree/ha), Vachumaram (0.4 trees/ha), Pokalappara and Malakkapara region (0.4 trees per ha. Each).

Settlement	Frequency of extraction	Density of extraction
Vazhachal	9.52381	1.142857143
Pokalappara	11.11111	0.444444444
Vachumaram	9.52381	0.761904762
Sholayar	11.11111	1.777777778
Malakkapara	10	0.4
Adichilithotty	33.33333	2



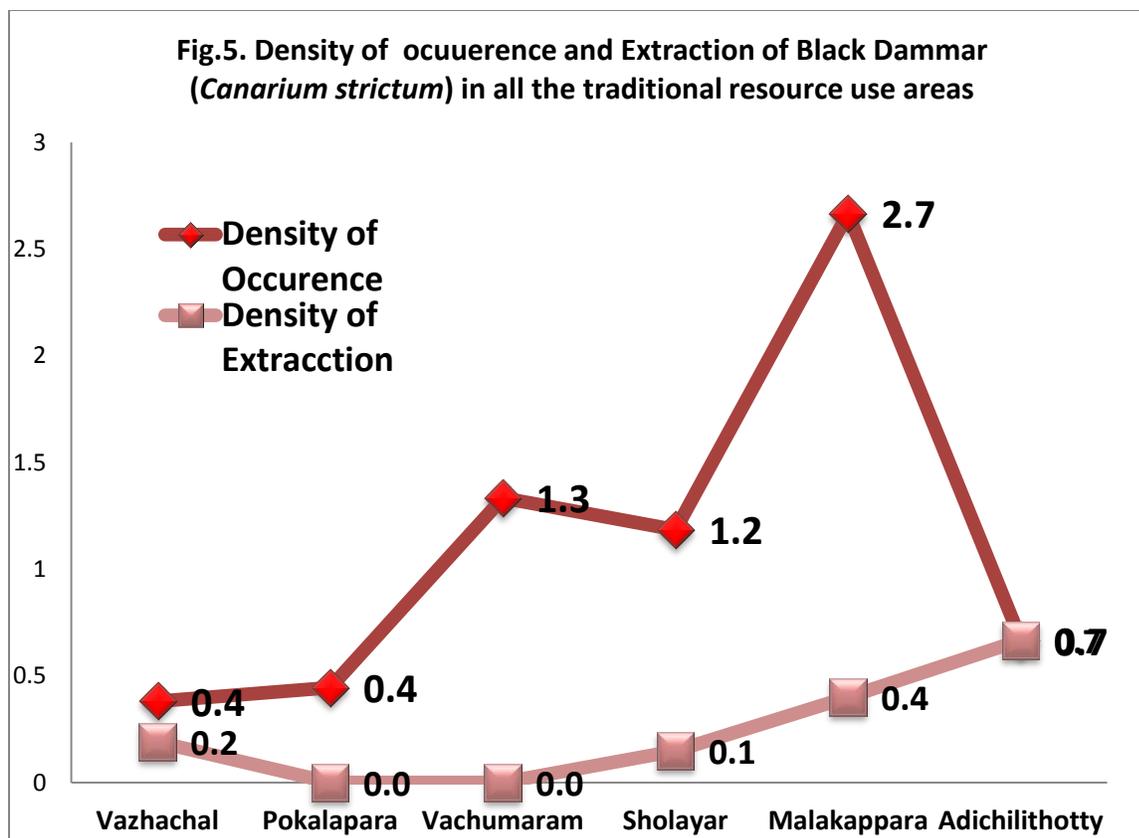


Table 11. Resource extraction of Black Dammar

Settlement	Frequency of extraction	Density of extraction
Vazhachal	4.761905	0.19047619
Pokalappara	0	0
Vachumaram	0	0
Sholayar	3.703704	0.148148148
Malakkapara	10	0.4
Adichilithotty	16.66667	0.666666667

vi. Community owned Nurseries for important NTFP and endangered species.

The basic concept was to develop community owned nurseries in one or two locations within the vicinity of tribal settlements with support from the project and later widen its scope integrating schemes from Panchayath or forest department including MNREGS. We have initiated the process in three locations, one each in three different forest administrative units and three different tribal communities. 1. Pullukad Malayan settlement of Nelliampathy in the Nenmara Forest Division. 2. Malakkapara Kadar settlement of Vazhachal Forest Division and Adichilithotty Muthuva Settlement of Malayattur Forest Division.

i. Nelliampathy area (Pullukad Settlement)

The attempt was initiated with the beginning of the project (November – January 2011) and it was not succeeded because of following reasons.

a. The rights of the settlement including their individual land rights have not been settled and there is a conflict happening between the community and the Forest and Revenue Department regarding the ownership of the area. Hence it was difficult to leverage any kind of support from either Panchayath or Forest Department. e. A group of people deliberately wanted to demonstrate their willingness for conservation programs and they initiated making seed beds etc, but shortage of water in the stream they depend was another problem. C. Three families who took initiates had resistance from the officials (as community said) they have to abandon the process.

ii. Adichilithotty Muthuva Settlement of Malayattur Forest Division

The community has become ready to own up such an initiative very recently to develop a nursery of 5000 seedlings as model of community owned nursery. A collective of seven families living together took the initiative and they established a seed bed of about 2500 seedlings first. The families include families of the village chief Mr. Perumal (Sivakumar), Nangalappan, Chilamban, Thangaraj, Chinnaiah, Sundaripatti and Chellamma. They have set up the nursery near a stream flowing near to their settlement suitable for watering. The resource monitoring team made the seed bed, developed a fencing around it using reeds in their traditional way. Now Chellamma is taking the daily care. They are collecting seeds of rare NTFP resources such as Wild Nutmeg, Black Dammar, rare and endangered old growth trees such as *Palaquium ellipticum*, *Dysoxylem malabaricum*, *Vateria indica*, *Cullenia exerillata* etc.

They have a plan to develop this nursery as a model and submit as report to the Grama Panchayath to include it into the MNREGS project.

iii. Malakkapara Kadar tribal settlement of Vazhachal Forest Division

We have started developing a nursery of about 5000 seedlings of NTFP and Endangered species with support from Malakkapara Settlement of Vazhachal Forest Division. Trials were last year with the onset of the project and major problem was facilities to water the plants and long term availability of the families in the settlement. But recently during the end of this season around seed bed for nearly 5000 seedlings were made. **Hectares Protected:** 52315.4 ha in seven administrative divisions of the Anamalai landscape

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Resource monitoring through empowerment of ethnic communities: a gateway to the community based resource management on the background of Forest Right Act (FRA) and Community Forest Resource area (CFR)

Amitha Bachan, K.H.

*Western Ghats Hornbill Foundation, Aranyak, Mathilakam – 680685, Kerala. amithab@poetic.com.
www.hornbillfoundation.org, +919497627870*

The Forest Rights Act 2006, which legally ensures rights of the indigenous communities to conserve, manage and utilize forests and forest resources versus the centrally planned big investments and conversion of the forest land, brings a big challenge before the conservationist. Not just as a country but worldwide we are at the edge of paradigm shift for changing our approaches used in the field of conservation for ensuring the fundamental rights of the indigenous communities. A big paradigm shift in the conservation arena is very near not just in India but all over the world ensuring rights of the local and indigenous communities. Since the inception of FRA the fear exists in regard to transferring the power of management in the hands of the local communities and the consequences it will perhaps can have but we tend to overlook the successful efforts of Joint Forest Management (JFM) and Participatory Forest Management (PFM) is due to very fact of active involvement of such communities. The lack of purely community owned such mechanism or examples is one of the serious concern of conservationist and in other hand whatever good examples exist in the country as JFM or PFM is because of the participation of the people. Kerala is in forefront setting up Protected areas and also for PFM activities and but ironically no community claims have been made so far under FRA 2006. Experiments in the Vazhachal forest division of the Anamalai landscape unit of Kerala, involving indigenous ethnic *Kadar* communities in monitoring of resources they depend on brings practical way of strengthening Grama Sabhas of forest Villages, and developing protocols for community based resource management and conservation. Integrated effort of participatory hornbill nest tree monitoring involving State Forest Department and *Kadar* ethnic community which is facilitated by Western Ghats Hornbill foundation for past 7 years have successfully located 57 Great Hornbill and 4 Malabar Pied Hornbill nests across 400 sq.km of Vazhachal Forest Division. Active involvement of tribal field team has ensured protection of these nests by regular monitoring as well as vegetation characteristics of have been documented for nesting habitat. Through CEPF-ATREE and WWF grants WGHF has initiated community based monitoring of major NTFPs using scientific approach with an aim to develop long term monitoring and resource management. The preliminary study of this NTFP monitoring has revealed density and distribution of important rainforest tree species such as *Canarium* and *Myristica* species, and their extraction rates. Participatory activities as mentioned above set a good platform in the direction of CFR implementation. There is an urgent need to strengthening of local institutions such as Grama Sabha and Oorukutam and we believe that involvement of community members in activities such as resource monitoring and its management will bring forward the decision making power of the community rather than just depending on schemes and programs offered. In another initiative we are targeting the schools to integrate human-ecological in the syllabus of pre-primary schools for tribal children. We have published an education package which involves information about their immediate environment in tribal, regional and English language. These packages so far have been distributed to 30 Anganwadis in this landscape and a study is under way to assess the impact of introduction of such education material. These efforts and the results indicate how such efforts of involving ethnic community in resource monitoring with proper involvement of village Grama Sabhas can act as tools to bring measures and activities to develop CFRs and CFR management committees. Efforts like integrating traditional knowledge as well as the scientific methods and publication of Local language materials using the essence of immediate biodiversity information can also facilitate capacity building and overall empowerment. Such activities can set up fruitful integrated platform of activities of local communities, their organizations including Grama Sabhas, VSS/EDCs, various Govt. departments and research organizations.