

**Third Party Monitoring and Evaluation
undertaken under Compensatory Afforestation
Fund Management and Planning Authority
(CAMPA) in Kerala**

**for the period
2021 - 2022**

Submitted to
Kerala Forests & Wildlife Department (CAMPA)

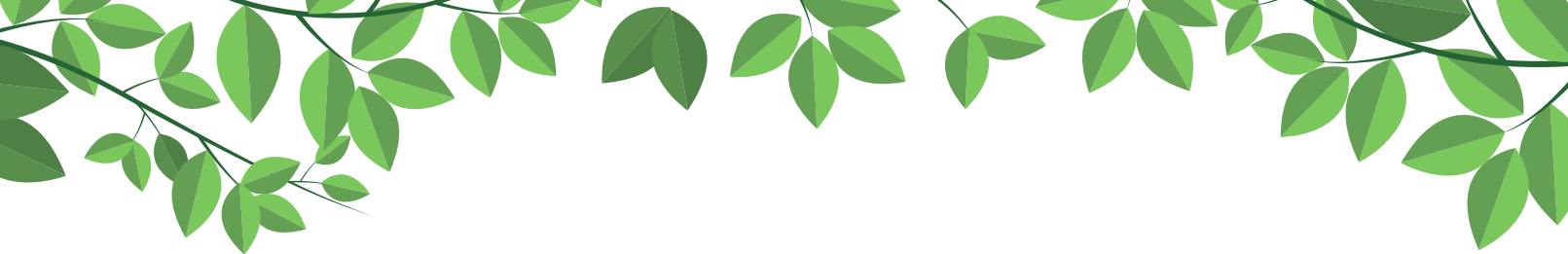


ICFRE-Institute of Forest Genetics and Tree Breeding

(Indian Council of Forestry Research and Education)

Coimbatore – 641002

May 2025



Evaluation of CAMPA, 2021-22

CAMPA Evaluation Report
Third Party Evaluation of works undertaken under
Compensatory Afforestation Fund Management
And Planning Authority (CAMPA)
in Kerala for the Year 2021-22

Submitted to
Chief Executive Officer, CAMPA
Forest Headquarters,. Vazhuthacaud,
Thiruvananthapuram - 14.

Submitted by
ICFRE-Institute of Forest Genetics and Tree Breeding

Period for the Report: 2021-22

Month & Year: May, 2025



Dr R. Yasodha
Director

वन आनुवंशिकी एवं वृक्ष प्रजनन संस्थान
ICFRE - INSTITUTE OF FOREST GENETICS AND TREE BREEDING
भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद्
Indian Council of Forestry Research & Education
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
Ministry of Environment, Forest & Climate Change
Government of India

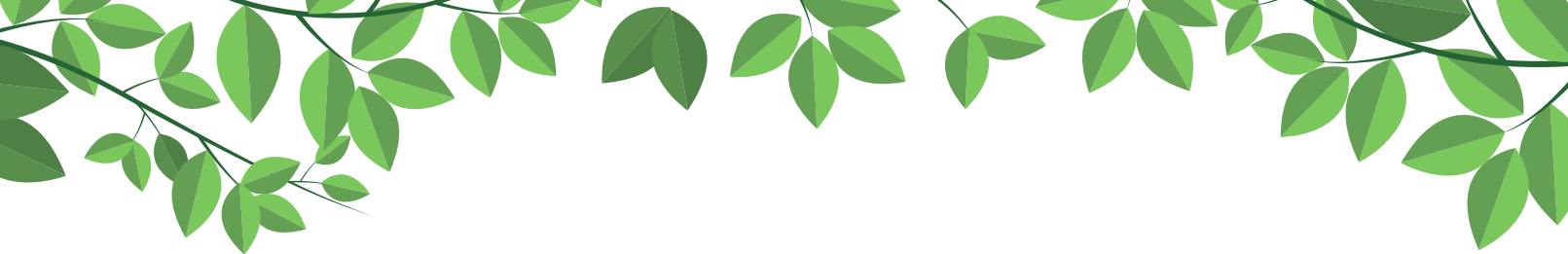
P.B. No. 1061, R.S. Puram, HPO., Coimbatore - 641 002
Tamil Nadu, India

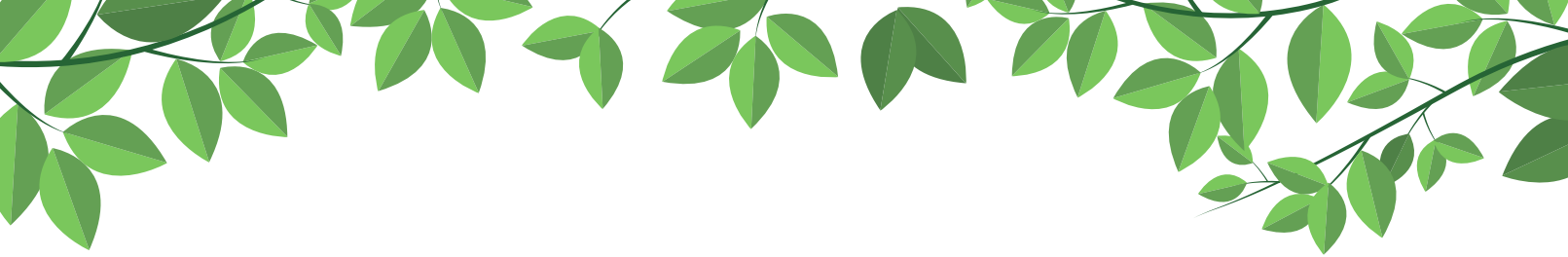
Preface



The State of Kerala established the Compensatory Afforestation Management and Planning Authority (CAMPA) Scheme in 2009 to encourage afforestation, reforestation, and restoration/regeneration activities to compensate for forest land diverted for non-forest purposes and to enhance the state's forest cover. The Kerala Forests & Wildlife Department prepared the Annual Plan of Operations (APO) for the year 2021-2022 with the approval of MoEF & CC, GoI. As per the APOs, the state had planned various activities, including compensatory afforestation, soil and moisture conservation, biodiversity conservation, awareness campaigns on forests, wildlife and the environment, eradication of invasive alien weeds, river bank stabilisation, protection of research plots and seed production areas, creation of fire breaks and other essential maintenance activities towards forest conservation. All these activities were spread across the forest divisions, including the wildlife sanctuaries. The success and sustainability of these CAMPA activities, including structures established and plantations raised in terms of planning, implementation, the quantity of inputs, condition of health and survival, and outcomes, need to be evaluated and documented for monitoring purposes by an independent agency. Accordingly, ICFRE-IFGTB, Coimbatore, was awarded the monitoring of CAMPA activities undertaken. A team of ICFRE-IFGTB staff, including forest officers, scientists and technical personnel, have been involved in the work since March 2024. The sampling methodology approved by MoEF & CC was broadly followed, and a detailed survey, monitoring and evaluation exercises were conducted to represent all the forest circles and plantation models adopted in a given year. In total, 100 project sites were identified in 50 forest divisions, and 314 activities taken up during 2021 to 2022 were monitored. Overall the CAMPA activities supported the forests and contributed to enhance forest health in Kerala. I would like to acknowledge the Kerala Forests & Wildlife Department for their support and assistance in bringing out this document in a comprehensive manner.

(Dr R. Yasodha)

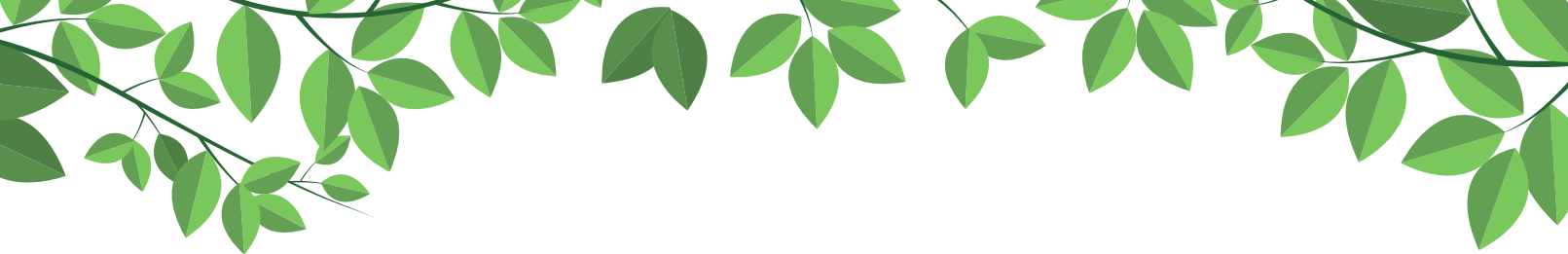




Acknowledgements

We acknowledge the Kerala Forest & Wildlife Department for identifying ICFRE-IFGTB, Coimbatore, to evaluate the CAMPA activities carried out for the period 2021 to 2022. We sincerely thank the PCCF & Head of Forest Force for facilitating this special assignment. We would like to express our gratitude to Chief Executive Officer CAMPA, Kerala, who facilitated the evaluation work and extended valuable guidance in finalising the formats for evaluation of different CAMPA activities in the state. We extend our heartfelt gratitude to the Divisional Forest Officers of all forest divisions in Kerala for their active involvement in the study, sharing their valuable insights, and apprising the team on the activities undertaken. We are especially thankful for their clarifications on various field-level aspects of project formulation and implementation, which significantly contributed to our understanding and the conclusions drawn. Our sincere thanks also go to the forest rangers for their cooperation and for making the necessary arrangements to facilitate the work of the evaluation team. We are deeply appreciative of the dedicated ground staff of the Kerala Forest and Wildlife Department, for their continuous support throughout the study. Their assistance in field visits, site coordination, and local arrangements was invaluable. We are particularly grateful to the members of the Vana Samrakshana Samitis (VSS), the villagers at large, for generously sharing their time with the evaluation team and providing crucial inputs on forest protection and management efforts. Last but not least, we sincerely thank all the evaluators for their unwavering commitment and tireless efforts in ensuring the successful completion of the evaluation.

ICFRE-IFGTB



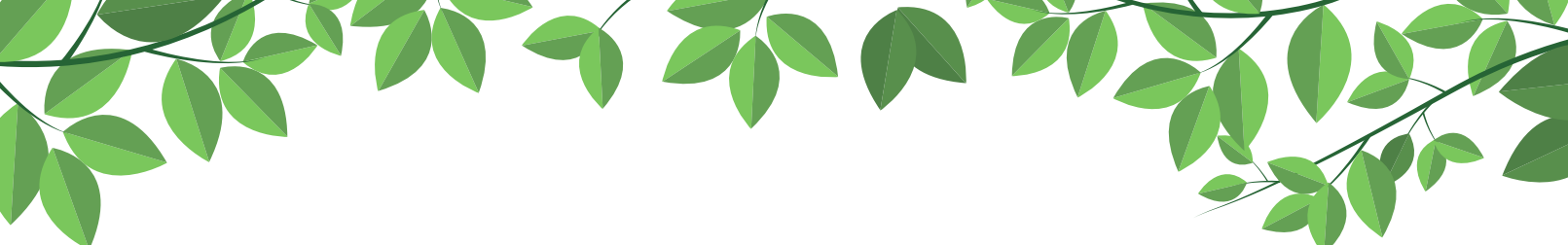
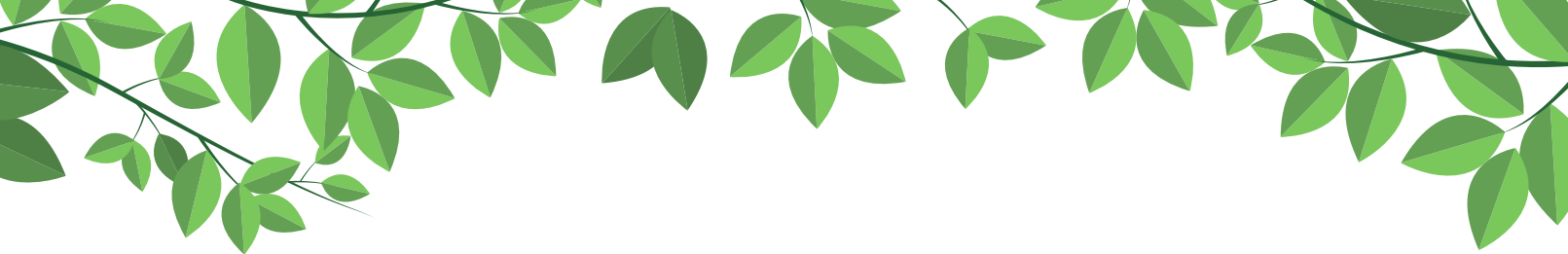


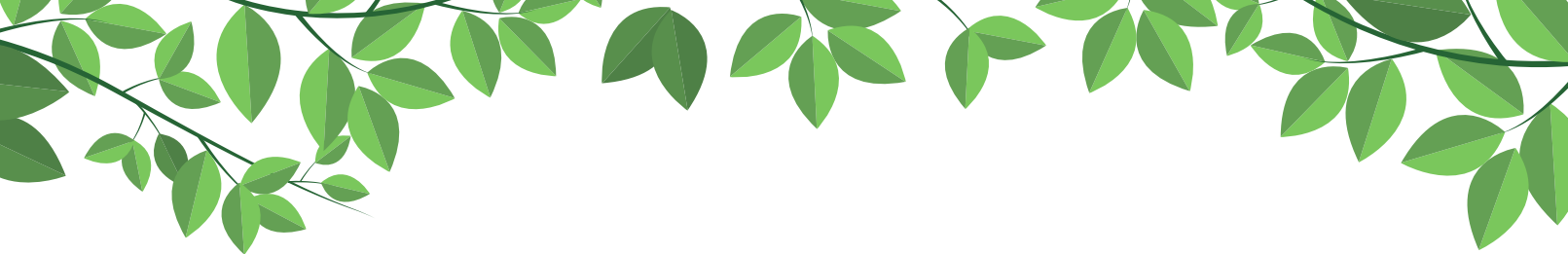
Table of Contents

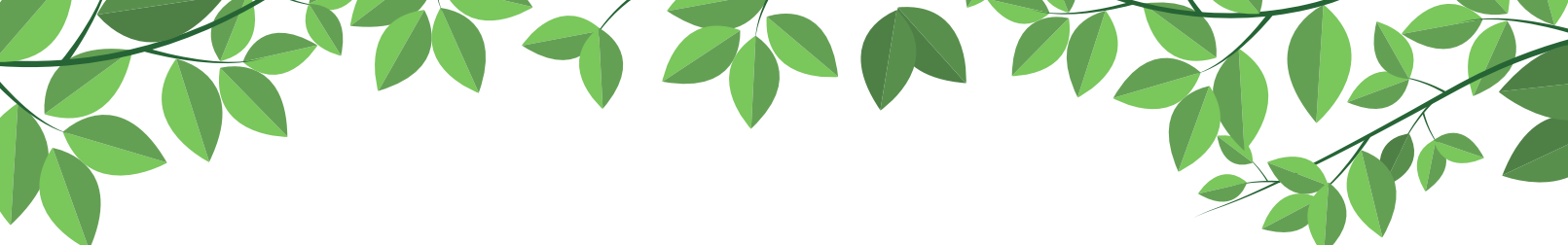
Preface	iii
Acknowledgement	v
Fact Sheet	ix
Executive Summary	xi
Introduction	1
Project Profile	4
Methodology	4
Details of the Circles and Divisions evaluated	7
Northern Circle, Kannur	10
Eastern Circle, Palakkad	27
Central Circle, Thrissur	37
High Range Circle, Kottayam	44
Southern Circle, Kollam	66
Wildlife Circle, Palakkad	102
Field Director Project Tiger, Kottayam	113
Agasthyavanam Biological Park Circle	123
Social Forestry, Central Region, Ernakulam	133
Social Forestry, Northern Region, Kozhikode	140
Social Forestry, Southern Region, Kollam	143
Forest Headquarters	75
Recommendations	150
ANNEXURES	



Fact Sheet

S. No.	Item	Details
1.	Scope of evaluation	Third-party monitoring and evaluation of the CAMPA activities of Kerala Forests and Wildlife Department (2021-2022)
2.	Period of evaluation work	Signing of MoU – 02 February 2024 Field works – April to August 2024 Report preparation – September 2024 to April 2025
3.	Focus	Quality of conservation and development works. Assessment of compensatory afforestation activities. Public awareness campaigns.
4.	Evaluation teams	15 Evaluation Teams and one editorial team.
5.	Objective	◆ To evaluate different plantations established under CAMPA in different forest divisions of Kerala. ◆ To evaluate the civil structures (buildings and soil and water conservation structures) established under CAMPA in different forest divisions of Kerala. ◆ To suggest for improvement in quality of plantations for future.
6.	Area covered	25 territorial forest divisions. 14 social forestry divisions. 11 wildlife divisions.
7.	Sample size	Plantation: 20% of the plantation was randomly selected from various divisions. Sampling intensity for evaluation of block plantations is nearly 10%. For every hectare of plantation, the evaluation was done on a 30 x 30 m plot. In the case of a linear plantation, evaluation of every 10th tree/planted sapling of each row for 25% of its length per running km basis. Soil and Moisture Conservation (SMC) activities: 20% of SMC works evaluated in each division based on random selection from measurement book (M-book). Eradication of weeds: Density assessment and plot transects. Forest protection: 10% of all firelines evaluated in each division.
8.	Findings	◆ The average survival rate in ecorestoration activities is 75%. Damage by wild animals is high in some divisions. In some sites, the species showed adaptation difficulties. ◆ The quality of other departmental works was mostly high (81%) ◆ Check-dams and gullies are the major SMC works taken up. ◆ Vayals (marshy grasslands – a source of fodder for herbivores) have been given priority in many divisions and are well maintained. ◆ Active involvement of the VSS in various department activities has ensured a participatory approach to the protection and conservation of forests. ◆ Comparative analyses across years demonstrate that afforestation initiatives are successful, underscoring the department's effective conservation and reforestation efforts.





Executive Summary

The Forest (Conservation) Act (1980) was enforced to conserve and protect forest resources. The Act mandated that whenever forest land is diverted for non-forestry purposes usually the conditions relating to transfer, mutation and declaration as Reserve Forest/Protected Forest, the equivalent non-forest land for compensatory afforestation and funds for raising compensatory afforestation etc. are to be imposed. Additional conditions such as maintaining a safety zone area, fencing and regeneration etc. are prescribed for mining purposes, and catchment area treatment plans are stipulated for big and medium irrigation projects. Further, the Act provided that the non-forest land for Compensatory Afforestation (CA) was to be identified contiguous to or close to Reserved Forest or Protected Forest. The funds for CA are received from the user agencies based on the rates fixed by the State Forest Department, which are site-specific and vary according to the species, type of forest and site. The fund received for compensatory afforestation, additional compensatory afforestation etc. has to be used as per site-specific schemes submitted by the state along with the approved proposals for diversion of forest land. After receipt of the fund, State Forest Department has to accomplish the afforestation for which money is deposited in the CA Fund within a period of one year or two growing seasons.

The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Kerala has been constituted with the objective of conservation, protection, regeneration and management of existing natural forests, wildlife and their habitat and raising site specific compensatory afforestation, penal compensatory afforestation etc. As per the provisions of CAMPA guidelines, the state CAMPA has been formulating Annual Plans of Operation (APO) since 2009-10 and continued to 2021 - 2022.

The Government of India released Rs. 25,13,00,000 for the period 2021- to 2022 to Kerala to implement CAMPA Activities.

The Assignment

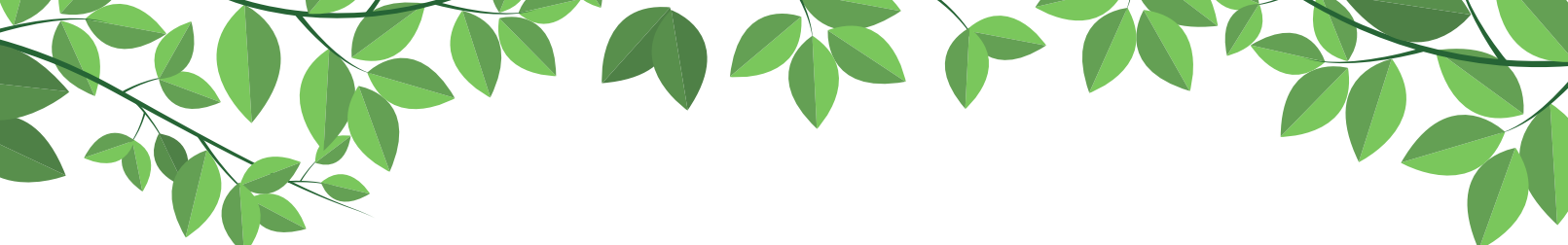
As a range of activities were taken up under CAMPA, a technical evaluation of the activities by a third party was considered essential. IFGTB-ICFRE was identified to carry out third-party monitoring of all the CAMPA interventions during 2021 to 2023 (Order No. FC5-2380/2022 dated 09.02.2024 of CEO, State CAMPA, Kerala). The broad scope of evaluation comprised all the components and sub-components of CAMPA implementation in Kerala.

Study Area

The evaluation study covered 50 forest divisions of Kerala (25 Territorial, 14 Social Forestry and 11 Wildlife Divisions) under 11 forest circles. In addition, Research Divisions and Working Plan Divisions and HQ where CAMPA funds were utilised are also covered in the study.

Study Approach and Methodology

Various CAMPA interventions were evaluated using appropriate sampling criteria, data collection approaches and, in view of diversity, nature of component and stakeholders involved. The study approach and methodology have been adopted from the evaluation formats of the MoEF&CC, GoI.

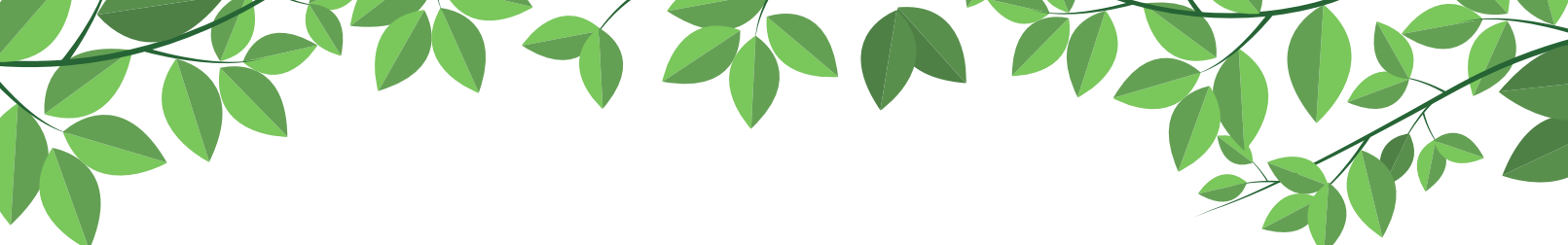


Details of Data Collection

- ◆ **Primary Data:** First-hand information was obtained using separately designed formats for different components and subcomponents.
- ◆ **Secondary Data:** Secondary data relating to various activities undertaken in CAMPA were collected from the circle, division and range offices in pre-designed formats and checklists.
- ◆ **Focussed Group Discussion:** FGDs with the members of the VSS were conducted to evaluate peoples' perceptions and participation levels in implementing CAMPA activities in a given locality.
- ◆ **Consultation with Forest Officials:** Consultations were undertaken with a range of forest officers involved at various stages- planning and decision making, implementation, monitoring and evaluation. This included Divisional Forest Officers (DFOs), Forest Range Officers (FROs), Forest Beat Officers (FBOs), Foresters, Forest Guards, etc.
- ◆ **Field Observation:** Data on survival, field measurements to assess growth in different plantations, condition of physical structures in Soil and Moisture Conservation (SMC) activities and weed density in plantation sites were collected. Notes were prepared on various activities under CAMPA implementation, which provided the basis for the entire evaluation process.

Performance of CAMPA during the period 2021-to 2022

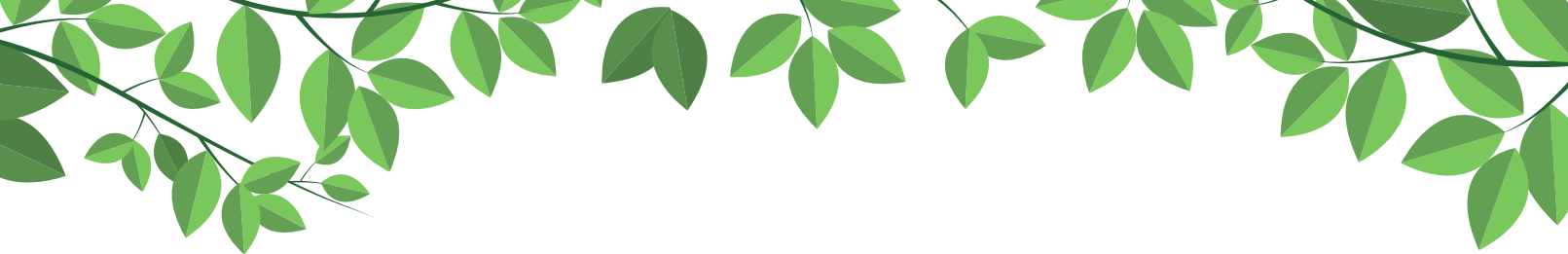
- ◆ The total funds received from the Adhoc CAMPA for APO year 2021-22 stands at Rs. 25.13 crores and the expenditure ending March 2022 was Rs. 16.03 crores which is 63.79 % of the funds received. The core activities undertaken with the CAMPA funds comprise plantations, creation of SMC structures, forest protection, wildlife management and assistance to tribal VSS.
- ◆ The non-core activities comprised biodiversity conservation, capacity building, infrastructure development, forest IT, monitoring, evaluation and accounting.
- ◆ During the initial years of CAMPA APOs, assistance to tribal VSS, improving the infrastructure for protection and soil and moisture conservation activities were prioritised (70%). The VSS members were engaged in almost all the activities.
- ◆ Various SMC structures in CAMPA APOs included check dams, contour trenches, gully plugging etc. SMC structures undertaken by frontline forest officers under CAMPA are site-specific as per the site requirement.
- ◆ Focus on eco-restoration, planting and silvicultural operations was minimal (undertaken only in two circles) in the initial years of CAMPA implementation. Most activities were done departmentally, an economical and time-saving approach. River bank stabilisation, vegetation barrier creation and eradication of weeds were taken up in one site.
- ◆ Vayals have been prioritised unlike in earlier APOs and have been maintained effectively, as is evident from the increased movement of wild animals around them.
- ◆ Inclusion of VSS members in patrolling, fire break creation, developing infrastructure in interior forest areas, has encouraged their active participation in conservation activities.

- 
- ◆ Training and capacity development programmes undertaken under CAMPA includes theme based trainings, strengthening communication and plantation skill development.
 - ◆ Under infrastructure development, efforts were taken to repair / improve dilapidated structures. The major construction activities undertaken with the help of CAMPA funds were antipoaching campsheds.

Recommendations and Suggestions

A diverse range of activities was implemented under the CAMPA Annual Plan of Operation (APO) 2021–22, covering multiple components across various forest divisions. In most cases, the activities were found to be qualitative and productive. However, in certain instances, there is scope for additional improvements to further strengthen and enhance the effectiveness of the ongoing initiatives.

1. Species should be selected on the basis of floristic composition of the forest types and prevailing local soil condition of the afforestation / plantation site.
2. De-centralized local nurseries for production of forest type specific planting stocks may be promoted.
3. Maintenance and watch and ward may be continued for 4 to 5 years for better establishment.
4. Number of watchers should be increased proportionate to the size of the plantation site.
5. There should provision in CAMPA APOs for the periodic maintenance of SMC structures as most SMC structures are subject to heavy wear and tear due to recurrent floods.
6. Buildings / structures constructed during this period needs to be repaired and maintained. In some cases, renovation / refurbishing may also be done based on a fixed schedule.
7. It is better to avoid plantations deep inside forests, with heavy movement of wildlife, as monitoring of the plantations is difficult. Instead, manual seeding may be done by adopting seed ball technology. Seeds to be broadcasted should match the floristic composition of the respective forest types.
8. The frontline staff may be trained on seed handling and nursery technologies of native tree species.



Monitoring and Evaluation of CAMPA Plantations and Other Activities (2021 – 2022)

1. Introduction

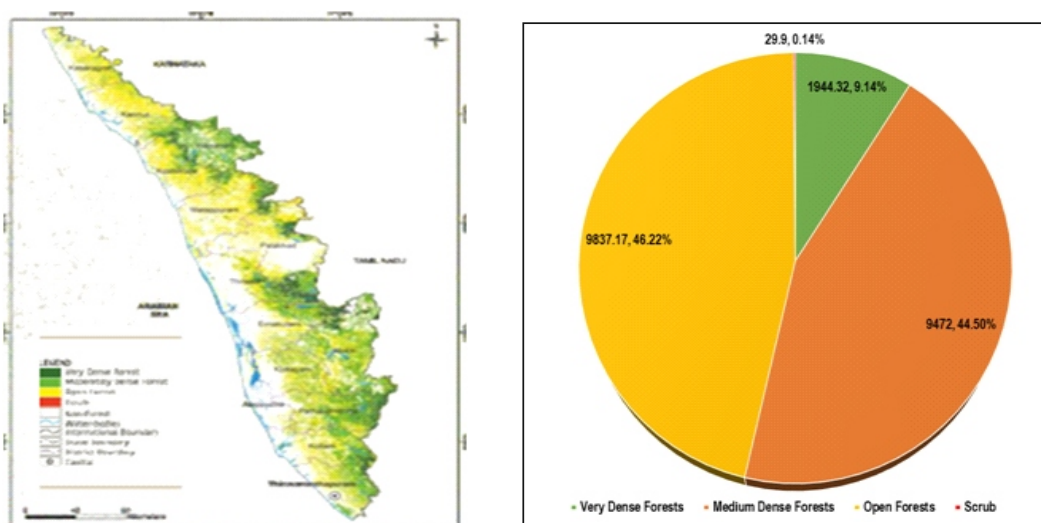
1.1 Background

Forests in India encompass a wide range of forest types and reserved areas, covering approximately 24.62% of the country's total geographical area. These forests play a vital role in supporting the livelihoods of communities residing in and around them. They serve as crucial natural carbon sinks and play a key role in regulating water regimes. Despite their ecological and socio-economic significance, forest land is often diverted for non-forestry developmental activities, leading to a substantial reduction in forest cover.

Kerala, in particular, is blessed with abundant natural resources. Its favourable tropical climate supports forests rich in biodiversity and endemic species. The Western Ghats, a recognized global biodiversity hotspot, forms the eastern boundary of the state and enhances its ecological richness. However, the rising population and evolving lifestyles are placing increasing pressure on these forest ecosystems. The foremost challenge lies in balancing developmental aspirations with the urgent need to conserve and protect Kerala's invaluable and fragile forest heritage.

1.2 Forest Cover in Kerala

The forest cover in the state based on the interpretation of the Forest Survey of India (FSI) 2021 is 21,253.49 sq km which is 54.7 % of the state's geographical area. Forest Cover in the State has increased by 109 sq km compared to the previous assessment reported in ISFR 2019. Among forest canopy density classes, the state has 1944.32 sq km area under very dense forest, 9472 sq km area under moderately dense forest and 9837.17 sq km area under open forest.



Source: ISFR, 2021

1.3 Forest Cover In Kerala From 2007 To 2021

Forest cover in the state has been increasing over the years. Forest conservation and afforestation activities are the key reasons for the improvement.

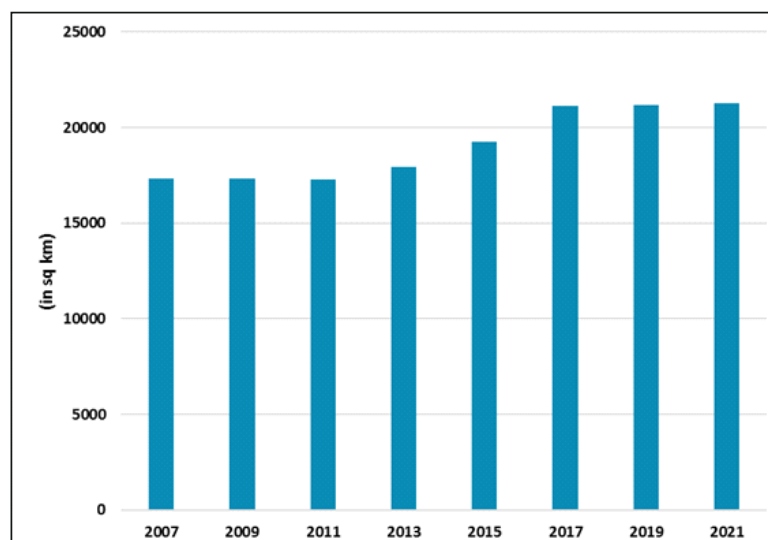


Figure 1.1. Forest Cover change (in km²) from 2007 to 2021 in Kerala.

Source: ISFR, 2021

1.4 District-wise Forest Coverage in Kerala

Table 1.1 provides the district-wise forest coverage in Kerala (area in sq km), and the tree map at Fig 1 provides the distribution across districts.



Fig 1.2. Forest Area of Districts as % of total Geographic area

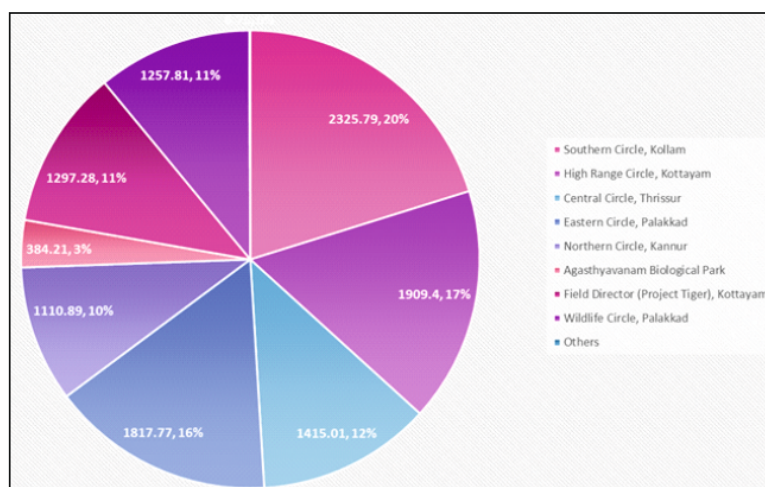


Fig 1.3. Circle wise forest area (km2) according to legal status as on 31.03.2021.

Source: Kerala Forest Statistics Report 2021.

Table 1.1

District	Geo-graphical Area (GA)	VDF	MDF	OF	Total	%of GA	Scrub
Alappuzha	1415	0	27	53.54	80.54	5.69	0
Ernakulam	3063	165.52	614.4	604.56	1384.48	45.20	5.60
Idukki	4356	355.72	1783.33	1016.27	3155.32	72.44	2.51
Kannur	2961	58	489.63	1121.23	1668.86	56.36	0.18
Kasaragod	1989	1.9	288.7	692.97	983.57	49.45	0
Kollam	2483	104.4	656.88	572.5	1333.78	53.72	0
Kottayam	2206	11.31	525.73	562.01	1099.05	49.82	0
Kozhikode	2345	70.77	409.94	967.11	1447.82	61.74	0.80
Malappuram	3554	142.67	424.68	1416.32	1983.67	55.82	6.47
Palakkad	4482	402.14	637.77	1063.77	2103.68	46.94	12.71
Pathanamthitta	2652	164.92	1229.12	554.88	1948.92	73.49	0.51
Thiruvananthapuram	2189	59.12	702.42	555.5	1317.04	60.17	0.07
Thrissur	3027	218.86	477.79	469.6	1166.25	38.53	0.62
Wayanad	2130	188.99	1204.61	186.91	1580.51	74.20	0.43
Total	38852	1944.32	9472	9837.17	21253.5	54.70	29.90

Source: Kerala ENVIS, 2022

Comparing district-wise area cover in Kerala, Idukki has the largest forest cover (3155 sq km) in the state, followed by Palakkad (2104 sq km), Malappuram (1984 sq km), Pathanamthitta (1949 sq km) and Kannur (1669 sq km). In terms of percentage of forest cover concerning the total geographical area, Wayanad with 74.2 % has the highest forest cover, followed by Pathanamthitta (73.49%), Idukki (72.44%), Kozhikode (61.74%) and Thiruvananthapuram (60.17%). The table reveals an increase in forest cover by 109 sq km compared to the previous assessment (in 2019).

Nearly 60 lakh ha of forest is degraded with less than 40% canopy density. This is the target area for the afforestation programmes. Forest plantations extend over 1.56 lakh ha, teak being the major species, covering almost 50 % of the total plantation area, followed by mixed plantations and Eucalyptus. The natural forests, plantations and homestead gardens contribute to the state's green cover, and all these are required in forest management.

2. Project profile

Compensatory Afforestation Programmes in the state were initiated in 1993, and plantations were maintained until 2002-03. The Government of India notified The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) in April, 2004. The State CAMPA receives funds collected from user agencies towards compensatory afforestation, additional compensatory afforestation, penal compensatory afforestation, Net Present Value (NPV) and all other amounts recovered from such agencies under the Forest (Conservation) Act, 1980. Kerala State CAMPA was constituted in November 2009.

Kerala Forests & Wildlife Department (KFD) has been receiving funds since 2009 from CAMPA, MoEF&CC, GoI for various developmental activities such as afforestation programs, soil and moisture conservation works, capacity building for staff and local communities, the establishment of civil structures, etc. in various forest divisions of Kerala. The funds are spent for compensatory afforestation, biodiversity conservation, soil and moisture conservation, etc. The Chief Executive Officer, CAMPA, Kerala, is responsible for preparing the schemes, Annual Plan of Operations (APO) for CAMPA, and getting it approved by the Executive Committee, Steering Committee and the Government of India, followed by implementation of the approved APO. After receiving the fund allotment under State CAMPA, the implementing officers, the District Forest Officers (DFOs) execute the assigned activities as per the APO. Under each major heads, there are different subheads available, which vary according to site conditions and needs.

The total outlay of the CAMPA activities from 2021 to 2022 is Rs. 16.03 crores. The details of the Divisions, and the number of activities against different years are in Annexure-I.

3. Methodology

Physical Verification of Activities

I. Plantation - Methodology

- ◆ 10% of the plantation was randomly selected from various divisions.
- ◆ Sampling intensity for evaluation - 10% for block plantations.
- ◆ For every hectare of the plantation, the evaluation was done on a 30 x 30 m plot.
- ◆ Each plot was marked on a map of the plantation area, and GPS co-ordinates of all such (30 x 30 m) plots were collected.
- ◆ In case of linear plantation, every 10th tree/planted sapling of each row was evaluated for 25% of its length per running km basis (5 intermittent line transects – each for 5% of length per running km) .
- ◆ The evaluation was done on 0.1 ha by laying a 30 x 30 m plot based on random sampling.

II. Soil and water conservation measures

- The teams obtained the norms and expenditure of SMC activities taken up in the plantation site from the respective offices.
- The teams assessed the quantity/ present condition/ treatment plans of the different SMC works. 20% sampling was carried out.
- For civil works, 50% M&E was carried out, based on random selection from Measurement Books from various divisions.

III. Eradication of weeds

Density assessment - plot counts

- ◆ Three or more plots (quadrats) of size 10 x 10m (located randomly over the site) were marked, and the number of plants within the plots was counted.
- ◆ To get the actual number per hectare, multiplied the average number of plants in the plots by 100.

Plot transects

- ◆ Marked out 100m transects, keeping them parallel to one another (10m-50m apart). Using a 2 x 2m plot frame (using a rope) plots were placed at intervals along the transect.
- ◆ The number of plants within the plot was counted. The values were converted to density measure by averaging the number of plants in each of the plots (i.e. individuals per hectare)

IV. Forest protection

- ◆ 10% of all firelines were evaluated in each division based on random selection from Measurement Books from various divisions.

V. Qualitative Aspects

Focussed group discussion (FGD): FGD was conducted for 10% of the villages in which CAMPA works were undertaken with at least 15 villagers in a commonplace within the village. The group comprised office bearers of JFMC, BPL households, and village residents.

Ranking of individual projects

The criterion below was used to evaluate the project needs since the site parameters, species and inputs provided vary from site to site.

Site suitability	High	Medium	Low
Suitable area with favourable site condition rainfall, soil, etc.	7 to 10	>3 to <7	≤ 3
Medium quality forest sites	>5	2-5	≤ 2
Poor forest sites	> 4	2-4	≤ 2

Criteria for classifying a site into suitable site, medium site and poor site

- (a) Suitable site: soil depth more than 61 cm, rainfall range between 1270 to 3810 mm, average prevalence of adverse biotic factors, gentle to moderate slopes.
- (b) Medium site: Soil depth ranges between 30.4 cm to 61 cm, rainfall ranges between 889 to 1270 mm, average prevalence of adverse biotic factors, gentle to moderate slopes.
- (c) Poor site: Soil depth less than 30.4 cm, rainfall less than 889 mm and excessive prevalence of mist and fog during monsoon, prevalence of adverse biotic factors and steep slopes.

This approach involved aggregating the percentage of readings falling into the three higher ratings (3-5) under the 'satisfactory' heading and the two lower ratings (1-2) under 'unsatisfactory'. The introduction of these two broad categories allowed better tracking of performance trends. The ranking table is provided below

Score	Assessment	Category
5	Highly satisfactory	Satisfactory
4	Satisfactory	
3	Moderately satisfactory	
2	Unsatisfactory	Unsatisfactory
1	Highly Unsatisfactory	

Physical verification

Each of the selected plots were visited by the monitoring team and documented the following details in the field.

- ◆ Plot location with GPS co-ordinates and area
- ◆ Plantation type and design (wherever available)
- ◆ Year of establishment
- ◆ Number of saplings planted initially (species wise)
- ◆ Height of the saplings when planted
- ◆ Number of plants surviving at the time of monitoring
- ◆ Average height of surviving plants
- ◆ Species composition and distribution
- ◆ Protection measures and maintenance
- ◆ Anthropogenic pressure, etc.

Parameters considered during M&E

- ◆ **For plantations**
 - a. Qualitative – Site suitability (both climatic and edaphic factors), condition of the plantation, choice of species, etc.
 - b. Quantitative - Total seedling/tree height, collar girth/Girth at Breast Height (GBH), survival percentage, etc.
 - c. Other parameters – Management practices, biotic and abiotic factors, etc.

◆ **For civil constructions**

- a. Verification (sketch and dimensions) based on the original documents and M-book.

Deliverables and time schedule

4. Evaluation Details of the Circles and Divisions

The details of various circles and divisions evaluated are presented below.

	Circles	Divisions
Territorial Circles and Divisions	Northern Circle, Kannur	Kannur, North Wayanad, South Wayanad, Kasaragod and Kozhikode Forest Divisions
	Eastern Circle, Palakkad	Nilambur North, Nilambur South, Mannarkkad, Palakkad and Nemmara Forest Divisions
	Central Circle, Thrissur	Thrissur, Chalakkudy, Vazhachal and Malayattoor Forest Divisions
	High Range Circle, Kottayam	Kothamangalam, Mankulam, Munnar, Marayoor and Kottayam Forest Divisions
	Southern Circle, Kollam	Ranni, Konni, Punalur, Thenmala, Achenkovil and Thiruvananthapuram Forest Divisions
Wildlife Circles and Divisions	Wildlife, Palakkad	Aralam, Wayanad, Parambikulam, Peechi and Silent Valley National Park Wildlife Divisions
	Field Director Project Tiger(FDPT), Kottayam	Munnar, Idukki, Periyar Tiger Reserve (PTR) East and Periyar Tiger West Wildlife Divisions
	Agasthyavanam Biological Park (ABP), Thiruvananthapuram	Shendurney and Thiruvananthapuram Wildlife Divisions
Social Forestry Circles and Divisions	Social Forestry, Central Region, Ernakulam	Palakkad, Thrissur, Ernakulam and Idukki Social Forestry Divisions
	Social Forestry, Northern Region, Kozhikode	Kasargod, Kannur, Wayanad, Kozhikode and Malappuram Social Forestry Divisions
	Social Forestry, Southern Region, Kollam	Alappuzha, Kottayam, Pathanamthitta, Kollam and Thiruvananthapuram Social Forestry Divisions
Research Circles and Research Divisions	Working Plan and Research	Kozhikode, Palakkad, Munnar, Punalur and Kollam Working Plan Divisions as well as Research Division, Thrissur Research Division

5. Coverage of sites by the evaluation team

The site coverage activities conducted under various categories reflect a comprehensive outreach across multiple forest circles and divisions. Under plantation-related efforts, eco-restoration sites were visited in 7 circles and 22 divisions, covering a total of 69 sites, while fire protection measures were reviewed more extensively across 9 circles, 32 divisions, and 196 sites. In terms of infrastructure and asset-related assessments, CAMPA-funded infrastructure was inspected in 7 circles and 14 divisions, encompassing 32 sites. CAMPA assets were inspected in 1 site under 1 circle and wildlife infrastructure was inspected in 5 circles, 5 divisions and 5 sites. Significant attention was given to wildlife assets, with 41 sites visited across 5 circles and 15 divisions.

S. No.	Activities	No of circles visited	No of Divisions visited	No of Sites visited
1	Plantation			
i	Eco restoration sites	7	22	69
ii	Fire Protection	9	32	196
2	Infrastructure and assets			
i	CAMPA (Infrastructure)	7	14	32
ii	CAMPA (Assets)	1	1	1
iii	Wildlife (Infrastructure)	5	5	5
iv	Wildlife (Assets)	5	15	41

This systematic coverage ensured a well-rounded evaluation of both ecological and infrastructural initiatives under different programme heads of CAMPA.

Northern Circle, Kannur (2021-2022)

The evaluation covered five forest divisions of the circle. They include

1. Kannur
2. North Wayanad
3. South Wayanad
4. Kasaragod
5. Kozhikode

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Compensatory afforestation works (creation / preparatory works)	Compensatory afforestation works (creation / preparatory works).	North Wayanad
Protection of plantations of forests	I. Eco-restoration of monocultures a. Eco-restoration in monocultures with indigenous species - creation / preparatory works.	Kannur, North Wayanad, South Wayanad, Kasaragod, Kozhikode,

Component	Particulars of work	Division
	b. Eco-restoration in monoculture plantations (maintenance works)	
	2. Augmentation of mangroves along degraded mangrove stretches of kasaragod	
	3. Strengthening forest protection and anti-poaching units.	
	a. Organising joint patrolling and raids along inter-divisional and inter-state forest boundaries	
	b. Interior camp shed maintenance	
	c. Field ration for interior camps.	
	d. Field survival kits and field equipments	
	4. Improvement of wildlife habitat	
	a. Maintenance of vayal (marshy grasslands which are source of fodder for herbivores).	
	b. Removal of exotic weeds	
	5. Forest fire prevention and control habitat	
	a. Engaging fire gangs through participatory forest management	
	b. Awareness campaigns	
	c. Fire fighting equipments	
	d. Creation of fire break	
	6. Human-animal conflict mitigation	
	a. Engaging watchers to mitigate human animal interface	
	b. Protective Gears for wildlife conflict mitigation staffs	
	c. Purchase of Equipment's /Ration for RRT	
	7. Better connectivity	
	a. Maintenance of forest roads	
	b. Maintenance of trek paths/ patrolling routes	

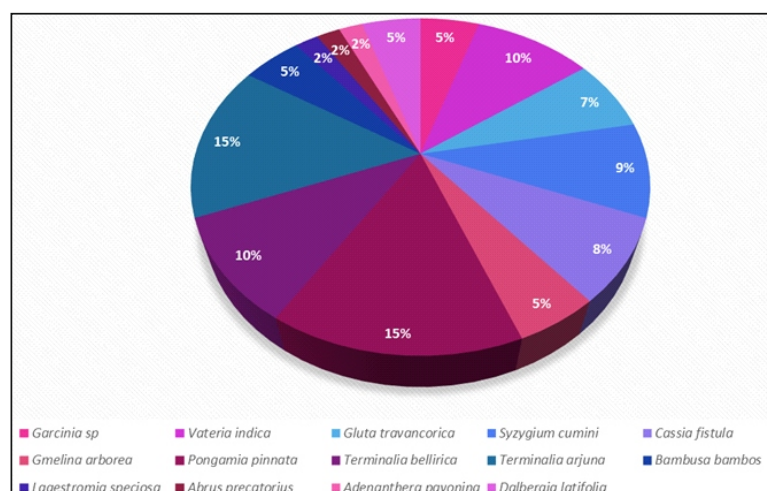
Coverage of Sites in Northern Circle, Kannur

Division	Fire	CAMPA infra-structure	CAMPA Assets	Wild Life infra-structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Kannur	4	-	-	-	5	-	-
Kasaragod	4	1	-	-	4	-	-
North Wayanad	2	-	-	-	2	-	5
South Wayanad	25	7	-	-	4	-	2
Kozhikode	-	-	-	1	-	-	-

I. Compensatory afforestation work(creation / preparatory works)

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Kakkolamkunnu/ Periya/ North Wayanad	11.8188 75.8191	5 ha	Compensatory afforestation work	Five thousand seedlings of various plant species, including Garcinia sp, Vateria indica, Gluta travancorica were planted in 5 ha in 2.5 x 2.5 m spacing.

As per APO 2021-2022, compensatory afforestation work was carried out in 5 ha at Kakkolamkunnu, Periya range in North Wayanad division as a part of ecorestoration activity in a old Acacia plantation. The evaluation team, on field inspection, observed good survival with minimal browsing. The records, files and vouchers were verified and found correct.



Species composition of the ecorestoration efforts in Kakkolamkunnu, North Wayanad

II. Protection of plantations of forests

1. Eco-restoration in monoculture plantation

a. Eco-restoration in monocultures with indigenous species - Creation / Preparatory Works.

Eco-restoration activity was planned in the 1958 teak plantation (12 ha) in Ondayangadi, Begur, North Wayanad. However, the work could not be completed since the locals did not favour harvesting the existing teak plantation.

Wildings of native seedlings and species such as *Michelia sp*, *Phyllanthus emblica*, *Pongamia pinnata*, *Dysoxylum malabaricum*, *Gmelina arborea*, *Terminalia tomentosa* etc were used in raising Assisted Natural Regeneration (ANR) plantation at Kochumala in an area 10 ha at Kalpetta, South Wayanad division. Fireline work was also undertaken during the dry season.

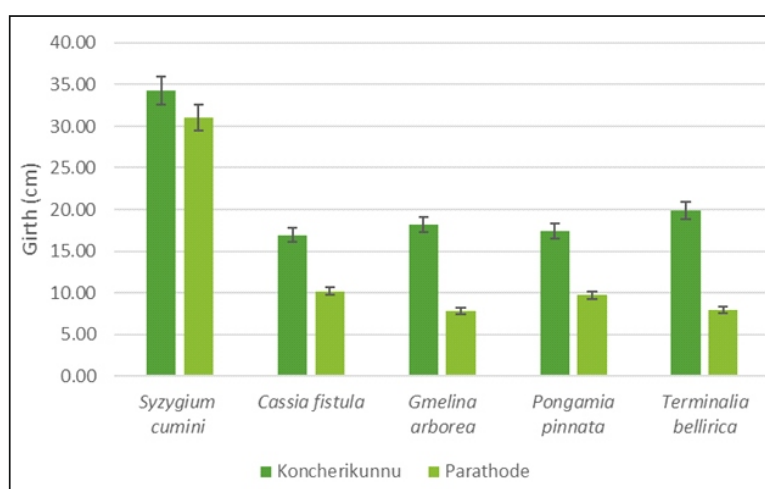
ANR was undertaken at Koncherikunnu in an area of 10 ha at Kalpetta, South Wayanad division. Very good natural regeneration of native seedlings such as *Elaeagnus sp*, *Terminalia tomentosa*, *T. bellirica* and *Syzygium cumini* was observed in the area.

It is suggested that regular maintenance activities and seedling planting should continue in the area.

b. Eco-restoration in monoculture plantation- maintenance

Under this activity, 2nd year maintenance of 1996 Eucalyptus plantation (10 Ha for Rs. 4.61 lakhs) such as casualty replacement, weeding, fireline and soil moisture conservation works were carried out in Koncherikunnu Eco-restoration zone, Kalpetta range, South Wayanad. Species such as *Terminalia bellirica*, *T. tomentosa*, *Syzygium cumini* were observed to grow well.

Maintenance of eco-restoration efforts in 1992 Eucalyptus plantation (27.3 ha for Rs. 16.29 lakhs) was carried out in Parathode, Kalpetta, South Wayanad division. Seedlings of *Terminalia bellirica*, *Cassia fistula*, *Gmelina arborea*, *Dalbergia latifolia*, *Syzygium cumini* are observed to perform well. The vouchers and records were verified and found correct.

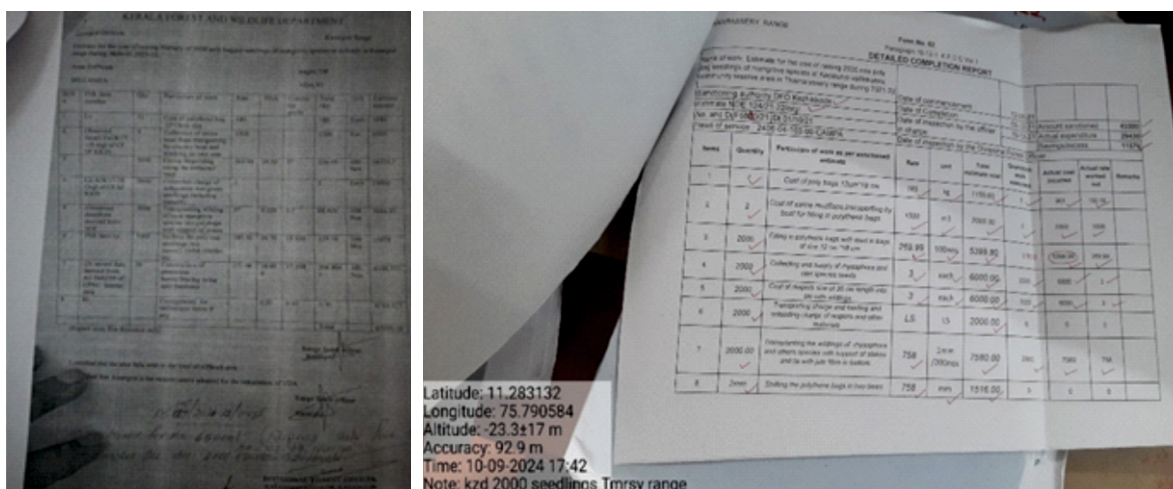


Average girth (cm) of the common species across both locations in the ecorestoration zones (Bar indicates std error)



2. Augmentation of mangroves along degraded mangrove stretches of Kasaragod

As per APO 2021-2022 under this activity 5000 mangrove seedlings was aimed for raising and planting at Kasaragod coast during 2021-2022. Only 2000 mangrove seedlings were raised and planted. The plantation is establishing well. An interaction with local fisherfolk revealed that good natural regeneration near the old mangrove plantations had been observed and is now hindering local fishing boats' movement. The amount of Rs. 0.29 lakhs spent was verified from the vouchers.



Estimate sanctioned and detailed completion report related to mangrove seedling raising in Kasaragod division

3. Strengthening forest protection and anti-poaching units

Location/Range/ Division	Activity	Remarks
Borders with South Wayanad, Kannur, Kozhikode Divisions/ North Wayanad	Organizing joint patrolling and raids	Staffs from Forest and other departments involved in the joint patrolling. The records were verified.
Kannur/Kannur Balankaya, Vellarikaya and Nerodi/ Kasaragod	Organizing joint patrolling and raids	Staffs from the forest and other departments involved in the joint patrolling. The records were verified.

Location/Range/ Division	Activity	Remarks
Meppady/ South Wayanad	Organizing joint patrolling and raids	Records related to joint patrolling and raids under Meppady range were checked.
Kannur, Kasaragod Mandamala/ Kalpetta/ South Wayanad	Interior Camp shed maintenance	Maintained well.
Kannavam/ Kannur Koodallor/ Kalpetta/ South Wayanad	Provision for field ration for interior camps	Essential field rations were purchased and supplied to the interior camps regularly. Verified all the official records available in the division.
Varayil FS, Kunchome FS, Periya FS/ Periya/ North Wayanad	Provision for field ration for interior camps	Essential field rations were purchased and supplied to the interior camps regularly. Verified all the official records available in the division.
Kakkayam Dam site/ Thamaraserry/ Kozhikode	Provision for field ration for interior camps	Essential field rations (rice, dal, tea powder etc) were purchased and supplied to the Kakkayam interior camp. Essential field rations were also supplied to Chothupara, Athikode, Sankaranpuzha anti-poaching camping sheds of the Kozhikode division. Discussion with watchers confirmed the supply and verified all the official records available in the division.
Kottiyur/ Kottiyur/ Kannur	Field survival kits and field equipment's	Six camera traps used to record the movement of wild animals were physically verified.
Bavikannam, Kanhankad/ Kasaragod/ Kasaragod	Field survival kits and field equipment's	Three camera traps in Bavikannam and two in Kanhankad sections were verified. One camera trap was damaged by a wild boar.
Thamaraserry/ Kozhikode	Field survival kits and field equipment's	Camera traps were purchased and issued to the sections. Verified the records and vouchers.
Kasaragod and Kanhangad/ Kasaragod	Field survival kits and field equipment's	Physically verified the field survival kits such as field shoes, bags, torch lights etc in Kasaragod division. Verified the records and found correct.
Koodallor/ Kalpetta/ South Wayanad	Field Survival Kits and Field Equipment's	Verified the records and found correct

The activities carried out during 2021-2022 were physically verified, and records were perused and found correct.



Field survival kids at Kannur division



Field survival kids at South Wayanad division

5. Improvement of Wildlife habitat

Under this activity maintenance of vayals and removal of exotic weeds were carried out effectively in North Wayanad and South Wayanad divisions and maintenance of vayals in North Wayanad division.

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Pathirimandam/ Mananthavadi, Makkiad FS/ North Wayanad	11.7536 75.8559	1 ha	Removal of exotic weeds	Exotic weeds such as <i>Lantana camara</i> and <i>Mikania micrantha</i> and biomass of other plants were removed from the grasslands. The members of Chalil VSS were involved in the removal of exotic weeds. On inspection, there was abundant grass growth and it is very difficult to traverse through the area. It is suggested that regular annual removal of exotic weeds should be continued for few more years for

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
				effective eradication of weeds from the grasslands.
Valaramkunnu/ Mananthavadi, Vellamunda Section/ North Wayanad	11.6919 75.9321	6 ha	Removal of exotic weeds	The members of Manglaseri VSS were involved in the removal of exotic weeds. Relevant records were verified from the Division. It is suggested that regular annual removal of exotic weeds should be continued for few more years for effective eradication of weeds from the area.
Maramala/ Chedalath/ South Wayanad	11.7325 76.1882	1 ha	Removal of exotic weeds	Invasive alien species such as <i>Chromolaena odorata</i> , <i>Lantana camara</i> and <i>Ageratum conyzoides</i> were observed along the path and open areas. <i>Lantana</i> was eradicated to improve the habitat for the wildlife. The density of <i>Lantana</i> was very less ($1/10\text{m}^2$) in the eradicated site compared to the unworked adjacent areas ($6/10\text{m}^2$). The evaluation team suggested that the <i>Lantana</i> eradicated site should be planted with native seedlings in order to reduce the secondary invasion.
Mariyanad/ Chedalath/ South Wayanad	11.7306 76.1912	1 ha	Removal of exotic weeds	Invasive alien species such as <i>Chromolaena odorata</i> , <i>Lantana camara</i> , <i>Ageratum conyzoides</i> , <i>Mikania micrantha</i> , <i>Triumfetta</i> sp, <i>Bidens pilosa</i> were observed along the path and open areas. <i>Lantana</i> was eradicated to improve the habitat for the wildlife. Though the density of <i>Lantana</i> was very less in the eradicated site compared to the unworked adjacent areas, secondary invasion by other species has been observed in the site. Hence it is suggested that regular removal of the exotic weeds need to be undertaken.
Challormatheri/ Periya/ North Wayanad	11.7987 75.8346	3 ha	Maintenance of vayals	The Challormatheri vayal is being maintained effectively. <i>Pandanus</i> sp is found growing in this Vayal and locals from Churulli tribal colony are also using this as grazing ground for their cattle. It is suggested that regular maintenance of the vayal is required as it is one of the sites for tiger census.
Kunkhichira/ Periya/ North Wayanad	11.7679 75.8294	2 ha	Maintenance of vayals	Some of the invasive alien plants such as <i>Sphagneticola trilobata</i> and <i>Ageratum conyzoides</i> have been found on the edges

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
				of the Vayal which may invade into the vayal. The Kunkhichira vayal is being maintained effectively and indirect evidences for the movement of wild animals were observed.

As per APO 2021-2022 under this activity the vayals were maintained well in North Wayanad division especially Kunkhichira vayal is being maintained effectively and indirect evidences for the movement of wild animals were observed. Records were verified and found correct.



Removal of exotic weeds in grass land, North Wayanad



Maintenance of Challormatheri Vayal, North Wayanad



Exotic weed Lantana in Chedalath/ South Wayanad



Maintenance of Vayal, North Wayanad

6. Forest fire prevention and control habitat

Fire awareness campaigns and fire control measures

Location/Range/ Division	Activity	Remarks
Karamaramthattu/ Thaliparamba/ Kannur	Engaging mazdoor as fire gangs	Fire gangs were engaged during Jan-March to prevent the spread of forest fireKasaragod
Pathirimandam/ North Wayanad	Engaging fire gangs	Regular activity carried out throughout the year in the fire vulnerable areas. Records were verified

Location/Range/ Division	Activity	Remarks
Kannavam/ Kannur	Fire awareness campaigns	Conducted in all the fire vulnerable points of the division. Relevant records were verified.
Thaliparamba Range/ Kannur	Fire awareness campaigns	Fire management training was organized for 16 staffs of the division.
Mananthavadi, Periya and Begur Ranges / North Wayanad	Fire awareness campaigns	Conducted in all the fire vulnerable points of the Division. Relevant records were verified.
Irulam/ Chedelth Range/ South Wayanad	Fire awareness campaigns	Fire awareness campaigns were conducted. The detailed report including the demonstration of firefighting equipment and number of participants was available at the Irulam Station. Relevant records related to the fire awareness campaigns were verified.
Kasaragod, Kanhangad / Kasaragod	Firefighting equipment like Fire beater, Field bag, Field Knife, Rakes, Hiking shoes, Blowers were purchased and distributed to staff in all stations.	Physically verified the firefighting equipments and records.
Pathirimandam/ North Wayanad	Firefighting equipment	Some of these instruments were damaged during the fire control
Kalpetta/ South Wayanad	Firefighting equipment	Some of the firefighting equipments are available in Karummannan forest station, Kalpetta Range.

b. Creation of fire break

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Ranipuram/ Kanhangad/ Kasaragod	12.4181 75.3517	10 Km	Creation of fire break	Maintained well.
Chembra/ Mepapdi/ South Wayanad	11.5583 76.0832	-	Creation of fire break	Strip cutting in fire-prone stretches of grasslands in Chembra has been carried out.
Valaramkunnu/ Mananthavadi/ North Wayanad	11.6919 75.9321	9 Km	Creation of fire break	Verified records

It is suggested that fire breaks should be maintained regularly in order to prevent the spread of fire.



Fire break in grass land areas of Ranipuram, Kasaragod



Fire line in ecorestoration area in South Wayanad



Firefighting equipments, Kasaragod



Firefighting equipments, North Wayanad



Strip cutting in fire prone stretches of grasslands in Chembra, South Wayand

7. Human-animal conflict mitigation

Location/Range/ Division	Activity	Remarks
Thamaraserry/ Kozhikode	Establishment, operation and maintenance of Animal rescue centre and veterinary treatment facility	Minor infrastructure in the form of cages, examination table, accessories were purchased for the operation and maintenance of animal rescue centre and veterinary treatment facility. Most of the animals were released back into the wild after treatment.

Location/Range/ Division	Activity	Remarks
Parappa / Kasaragod and Kanhangad/ Kasaragod	Engaging watchers to mitigate human animal interface	Watchers were equipped with fire crackers, t-shirt, caps and shoes. Items were verified from the records available in the ranges.
Thamaraserry/ Kozhikode	Engaging watchers to mitigate human animal interface	The watchers were engaged in various sections of the division to mitigate human animal interface. These watchers are equipped with fire crackers, head torches, solar panels, Walkie talkie. Some of the items were verified from the records available in the ranges.
Tirunelli/ North Wayanad	Engaging watchers to mitigate human animal interface	Watchers were engaged in all vulnerable areas of the division. Relevant records such as number of watchers engaged and the wages paid were checked.
Meppadi FS/ South Wayanad	Engaging watchers to mitigate human animal interface	Human animal interface incidences regular in the area. Records related to engaging watchers to mitigate Human animal conflict in Meppadi range were verified.
Kottiyur, Thaliparamba / Kottiyur, Thaliparamba / Kannur	Protective Gears for wildlife conflict mitigation staffs	Watchers are equipped with fire crackers, t-shirt, caps and shoes to drive away the elephants from human habitation.
Kasaragod, Kanhangad/ Kasaragod Irulam/ Chedleth/ South Wayanad	Protective Gears for wildlife conflict mitigation staffs	Watchers are equipped with fire crackers, t-shirt, caps and shoes. Items were verified as per the records and found correct
Thaliparamba / Thaliparamba / Kannur	Purchase of Equipment's / Ration for RRT	Equipments, rope, ring net rope etc were purchased and issued to various sections of the range for recovering injured animals.
Kasaragod and Kanhangad/ Kasaragod	Purchase of Equipment's / Ration for RRT	Equipments like nets, ladder, sticks were purchased and distributed to the sections.
Thamaraserry/ Kozhikode	Purchase of Equipment's / Ration for RRT	Minor items such as safety boots, crackers, chain saw, weed cutter, etc were purchased and given to the RRT. A detailed month wise list of animals rescued for the last three years showed that the RRT team is functioning very well.
Meppadi/ South Wayanad	Purchase of Equipment's / Ration for RRT	Equipments for the RRT such as LED torches, alkaline batteries, chain saw, wood cutter and cages were purchased and distributed to the various station and sections of the division. Some of these equipments were kept in the Mundakkai, Meppadi and used for recovering injured animals.



RRT equipment at Kasaragod



RRT equipment at Kasaragod

As per the APO 2021-2022 under this activity, minor infrastructure in the form of cages, examination table, accessories were purchased for the operation and maintenance of Animal Rescue Centre and veterinary treatment facility at Kasaragod division. Most of the animals were released back into the wild after treatment. The records and vouchers were verified by the evaluation team and found correct. Records related to engaging watchers to mitigate human wildlife conflict for an amount of Rs. 12 lakhs at Thamaraserry, Kozhikode Division was verified. Equipment such as helmets, poly carbonate shields, etc were purchased and issue to various sections of the North Wayanad Division for use in recovering injured animals. Some of these equipments were kept in the Periya Range.

Animals	Numbers
Asian palm civet	13
Checkered keelback	3
Cobra	72
Common Krait	8
Eggs of Monitor lizard	1
Indian Python	94
Indian Rat Snake	52
Mongoose	1
Monitor lizard	9
Monkey	1
Porcupine	3
Red Sand Boa	16
Seagull	2
Trinket snake	4
Viper	38
Wasp nest	1
Grand Total	307

8. Better Connectivity

Location/Range/ Division	Geo coordinates	Activity	Remarks
Parappa-Bellippady and Pandy- Puliparamba/ Kasaragod	12.5807 75.3041 12.5362 75.2431	Maintenance of trek paths/patrolling routes – well maintained	Two trek paths/patrolling routes from Parappa to Bellippady (5km) and Pandy to Puliparamba (4km) were evaluated. Natural regeneration of native species and grasses was observed. The evaluation team suggested for regular maintenance of trek paths.
Poolamandam- Thavalapara to Chirapullu / Periya, Vellamunda section/ North Wayanad	11.6919 75.9321	Maintenance of forest road-9 ha	Under this activity, clearing of bushes, minor repairs and removal of boulders from either side of the forest road were carried out in different locations of the division. The road is maintained very well.
Four cent colony to to Kaveri Poyil / Begur/ North Wayanad	11.8345 76.0491	Maintenance of forest road-3 ha	Connecting road for the teak and softwood plantation. The road is very well maintained. Regeneration of Dalbergia and Curcuma has been observed.

Under this activity, maintenance of trek path and forest connecting road for the teak and softwood plantation sub activities were executed well. The documents and vouchers pertaining to these activities were verified and found correct. Evaluation team suggested for regular annual maintenance of trek paths.



Trek path maintenance at Kasaragod division



Maintenance of Forest road at North Wayanad



Animals rescued at Kasargod



Animal rescue cage at Kozhikode

Overall, an amount of Rs. 251.88 lakhs was allotted to the circle during the period of which 76.82 percent financial achievement was observed.

Eastern Circle, Palakkad (2021-2022)

The evaluation covered five forest divisions of the circle. They include

1. Nilambur North
2. Nilambur South
3. Mannarkkad
4. Palakkad
5. Nemmara

Ten different activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Compensatory Afforestation Works	a. Compensatory afforestation works (creation / preparatory works). b. Compensatory afforestation works (maintenance).	Nilambur North
Catchment area treatment plan fund part	River bank stabilization	Mannarkkad
Protection of Plantations of Forests	1. Eco-restoration of monocultures a. Eco-restoration in monocultures with indigenous species-creation/preparatory works. b. Eco-restoration in monoculture plantations (Maintenance works) 2. Strengthening forest protection and anti-poaching units. a. Organising joint patrolling and raids along inter-divisional and inter-state forest boundaries b. Interior camp shed maintenance c. Field ration for interior camps. d. Field survival kits and field equipments 3. Improvement of wildlife habitat a. Maintenance of vayal (marshy grasslands which are source of fodder for herbivores). b. Removal of exotic weeds c. Habitat enrichment in degraded areas d. Bird survey and conservation 4. Forest fire prevention and control habitat a. Engaging fire gangs through participatory forest management b. Awareness campaigns	Nilambur North Nilambur South Mannarkkad Palakkad Nemmara

Component	Particulars of work	Division
	c. Fire fighting equipments d. Creation of fire break	
	5. Human-animal conflict mitigation a. Establishment, operation and maintenance of animal rescue centre and veterinary treatment facility. b. Purchase of equipments / ration for rapid response teams c. Providing field equipments and medicines for animal rescue and veterinary care facilities	
	6. Soil and moisture conservation	
	7. Better connectivity a. Maintenance of forest roads b. Maintenance of trek paths/ patrolling routes c. Awareness program d. Nature camps for schools and colleges	

Coverage of sites in Eastern circle, Palakkad

Division	Fire	CAMPA infra-structure	CAMPA Assets	Wild Life infra-structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Thrissur	2					1	1
Chalakudy	6				5		3
Vazhachal	8						1
Malayattoor	0						3
Thrissur	2					1	1

I. Compensatory Afforestation Works

As per APO 2021-2022, under compensatory afforestation works planting and first year maintenance works were carried out in 1.5 ha at Thannippoyil, Edavanna range and raised 50,000 seedlings for CA Plantations at Nilambur range of Nilambur (North) Division. These activities were verified through inspecting vouchers by the inspecting team and found correct.

S. No	Location/Range/Division	GPS Location	Activity	Dimensions
1	Thannippoyil, Edavanna range, Nilambur North Division	11.3172 76.0330	Planting and First year maintenance	1.5 ha
2	Nilambur central Nursery/ Nilambur/ Nilambur North division	11.3107 76.2552	Raising seedlings for CA plantation	50,000

II. Catchment area treatment plan fund part

1. River bank Stabilization

As per APO 2021-2022, under the activity river bank stabilization, raising and planting of seedlings of bamboo, reeds and other miscellaneous species for planting along the Bhavani riverside under this component was not carried out at Attappadi Range of Mannarkkad division.

III. Protection of Plantations of Forests

I. Eco-restoration of monocultures

- a. Eco-restoration in monocultures with indigenous species-creation/preparatory works
Miscellaneous plantation was raised in an area of 21 ha in Arimbarkuth, Marathode and Edappottipoyil under Edavanna range of Nilambur north division. The physical and financial progress assessed by the evaluation team was found correct.

S. No	Location/Range/Division	GPS Location	Activity	Dimensions
1	Arimbarkuth Edavanna Range/ Nilambur (North) Division	13.0958 76.2294	Raising miscellaneous Plantation	18 ha
2	Marathode/Edavanna Range	11.3131 76.1064	Raising seedlings for CA plantation	1 ha
3	Edappottipoyil in Edavanna Range/ Nilambur (North) Division	-	Raising miscellaneous Plantation	2 ha

b. Eco-restoration in monoculture plantations (Maintenance works)

As an eco-restoration activity in monoculture plantations, 2nd year maintenance of eucalyptus plantations raised during 1978, 1996, 2000, 2004 and 2004 was carried out in Vazhikadavu and Nilambur ranges in Nilambur North, Augmentation Planting, fire protection, weeding, SMC work in 1974 and 1982 teak plantation (TP) in Karulai Range in Nilambur South; Augmentation Planting, fire protection, weeding, SMC work in 1965 and 1979 TP in Olavakkode Range in Palakkad Division and Augmentation Planting, fire protection, weeding, SMC work in 1963 Eucalyptus plantation, 1964 and 1965 TP in Nelliampathy Range/ Nemmara Division. Second year maintenance work of 1976 TP was not carried out Colonippady Block1, Kariyam-Muriyam in Vazhikadavurange in Nilambur division. The vouchers were verified by the evaluation team and found correct.

S. No	Location/Range/Division	GPS Location	Activity	Dimensions
	Nilambur north Division			
1.	Thanuppanchola/ Vazhikadavu/ Nilambur North	11.3172 76.0330	2 nd year maintenance 1978 Eucalyptus Plantation (Weeding, SMC, Removal of coppice shoots of Eucalyptus) Bit I	1 ha
2.	Thanuppanchola / Vazhikadavu/ Nilambur North	11.4202 76.3798	2 nd year maintenance of 1996 Eucalyptus Plantation (Weeding, SMC, Removal of coppice	1 ha

S. No	Location/Range/Division	GPS Location	Activity	Dimensions
			shoots of Eucalyptus) Bit II	
3.	Thottappala / Nilambur / Nilambur North	11.3553 76.3240	2 nd year maintenance of 2002 Eucalyptus Plantation	1 ha
4.	Udumboyil/ Nilambur / Nilambur North	11.3836 76.2871	2 nd year maintenance of 2000 Eucalyptus Plantation (Weeding, SMC, Fire Protection)	0.2 ha
5.	Manchakkode/ Vazhikadavu/ Nilambur North	11.4290 76.3267	2 nd year maintenance of 2004 Eucalyptus Plantation (Weeding, SMC, Fire Protection)	4.5 ha
6.	Colonippady Block1, Kariyam- Muriyam/ Vazhikadavu range/ Nilambur North	11.4292 76.3252	2 nd year maintenance of 1976 TP Colonippady Block1, Kariyam-Muriyam (Weeding, SMC, Fire Protection)	Work not carried out
	Nilambur (South) Division			
7.	Nedumkayam Karulai Range/ Nilambur (South)	11.2931 76.356	Augmentation Planting, fire protection, weeding, SMC work in 1974 TP	10 ha
8.	Vattikkal/ Karulai Range/ Nilambur (South)	11.2931 76.356	Augmentation Planting, fire protection, weeding, SMC work in 1982 TP	8 ha
	Palakkad Division			
9.	Sappal/ Olavakkode Range/ Palakkad Division	10.8763 76.6152	Augmentation Planting, fire protection, weeding, SMC work in 1979 TP	7 ha
10.	Elival/ Olavakkode Range/ Palakkad Division	-	Augmentation Planting, fire protection, weeding, SMC work in 1965 TP	7 ha
	Nemmara Division			
11.	Myladumpara/ Nelliampathy Range/ Nemmara Division	10.5367 76.5572	Augmentation Planting, fire protection, weeding, SMC work in 1963 Eucalyptus plantation	8 ha
12.	Thiruvazhiyad/ Nelliampathy Range/ Nemmara Division	10.5411 76.5605	Augmentation Planting, fire protection, weeding, SMC work in 1964 TP	5 ha
13.	Ayilamudi/ Nelliampathy Range/ Nemmara Division	10.5510 76.5570	Augmentation Planting, fire protection, weeding, SMC work in 1965 TP	10 ha

2. Strengthening forest protection and anti-poaching units.

All the activities envisaged were completed during 2020-21 in various ranges under all the five divisions in this circle. Overall, an amount of Rs. 6.30 lakhs was allotted to the circle to organize joint patrolling and raids along inter Divisional and interstate boundaries of which only Rs. 1.56 lakhs was utilized.

Nilambur North Division: Under organizing joint patrolling and raids activity man-mazdoor were engaged for joint patrolling and raids at Nilambur, Vazhikadavu and Edavanna ranges under Nilambur North division for Rs. 0.47 lakhs. The vouchers were verified.

Nilambur South Division: Joint patrolling and raids were conducted at Kalikavu and Karulai ranges (Rs.64,172/-), Interior Camp shed maintenance work was carried out at Kannikatti, Pannampuzha (Rs. 2,18,468/-) and a toilet was constructed at camping station at Sankarngode in Karulai range. The vouchers and m-book were verified and found correct. The evaluation team inspected the toilet. The sub activities provision for field ration for interior camps and field survival kits and field equipment were not carried out. Organizing joint patrolling and raids work was not carried out in Palakkad division.

Location/Range/ Division	Activity
Nilambur, Vazhikadavu and Edavanna ranges/ Nilambur North	Organizing joint patrolling and raids
Kalikavu/ Kalikavu range/ Nilambur South	Organizing joint patrolling and raids
Karulai/ Karulai/ Nilambur South	Organizing joint patrolling and raids
Karulai/ Karulai/ Nilambur South	Organizing joint patrolling and raids
Attappadi/ Mannarkkad Division	Organizing joint patrolling and raids
Kollengode range/ Nemmara	Man-Mazdoor Engaged For Interior Patrolling and Joint Patrolling
Nelliyampathi range/ Nemmara	Man-Mazdoor Engaged For Interior Patrolling and Joint Patrolling
Kannikatti, Pannampuzha/ Karulai/ Nilambur South	Interior Camp shed maintenance
Sankarngode/ Karulai/ Nilambur South	Construction of toilet attached to camping station
Kalikavu and Karulai/ Nilambur South	Provision for field ration for interior camps-No work carried out
Alathur range / Nemmara division	Provision for field ration for interior camps
Nelliyampathy range/ Nemmara division	Provision for field ration for interior camps
Kollengode range/ Nemmara division	Provision for field ration for interior camps
Attappadi/ Mannarkkad Division	Provision for field ration for interior camps
Olavakkode, Walayar, Ottappalam/ Palakkad division	Provision for field ration for interior camps
Nilambur South	Field Survival Kits and Field Equipment's- No work carried out
Kollengode range/ Nemmara division	Field survival kits and Field Equipment's

Location/Range/ Division	Activity
Nelliyampathy range/ Nemmara division	Chainsaw and others
Attappady/ Mannarkkad Division	Field Survival Kits and Field Equipment's
Olavakkode, Walayar, Ottappalam/ Palakkad division	Field Survival Kits and Field Equipment's

3. Improvement of Wildlife habitat

Under this activity maintenance of vayals was carried out at Kareeippadam in Karulai for Rs. 1.41 lakhs, the existing check dam at Kodikuthimala was desilted. The evaluation team inspected the physical existence of the check dam along with the files and vouchers and found correct. Verified the m-books. Bird survey and conservation was not carried out at Nilambur South, Nemmara and Mannarkkad divisions. Under Habitat enrichment in degraded areas sub activity, tiger census training programme was conducted for frontline staff at Nelliyampathy range in Nemmara division.

Location/Range/ Division	Activity
Kareeippadam/ Karulai range/ Nilambur South	Maintenance of vayals-10 ha
Kodikuthimala/ Kalikavu range/ Nilambur South	Desilting of check dam
Thakarappady/ Nemmara Division	Maintenance of Vayal –work not carried out
Kodikuthimala/ Kalikavu range/ Nilambur South	Maintenance of check dam
Vatikkal/ Karulai range/ Nilambur South	Removal of exotic weeds at 1982 TP-10 ha
Moochala/ Karulai range/ Nilambur South	Removal of exotic weeds
Ayilamudy, Nelliyampathy /Nemmara	Removal of exotic weeds
Olavakkode ,Walayar and Ottappalam/ Palakkad	Removal of exotic weeds work was not carried out
Nelliyampathy/ Nemmara	Under Habitat enrichment in degraded areas conducted tiger census training programme
Karulai range/ Nilambur South	Bird survey and conservation- no work carried out
Attappadi Agali Mannarkkad/ Mannarkkad division	Bird survey and conservation- no work carried out
Nelliyampathy/ Nemmara Division	Bird survey and conservation- no work carried out

4. Forest fire prevention and control habitat

Location/Range/ Division	Activity
Palakkayam,Kozhippara, Cheenkannipali, Payya, Odakkayam, Pullipadam, Odayikkal, Vaniampuzha/ Nilambur, Vazhikadavu and Edavanna ranges/ Nilambur North division	Man-mazdoor engaged as fire gangs
Chembramalankundu, Adyanpara, Haritha, Appankappu, Kariem, Muriem, Thannikadavu, Marutha, Vellakkatta, Nellikuthu (All VSS)/ Nilambur, Vazhikadavu and Edavanna ranges/ Nilambur North	Man-mazdoor engaged as fire gangs
Kottamala and Koochimudi cliff / Kollengode range/ Nemmara	Man-mazdoor engaged as fire watcher
Kundali, Karappara and Cherunelli / Nelliampathi range/ Nemmara	Man-mazdoor engaged as fire watcher
Attappadi / Mannarkkad division	Engaging fire gangs
Olavakkode ,Walayar and Ottappalam/ Palakkad	Engaging fire gangs
Vaniampuzha/ Nilambur North	Fire awareness campaigns
Plakkalchola tribal colony/ Vazhikadavu range/ Nilambur North	Fire awareness campaigns
Plakkalchola tribal colony/ Vazhikadavu range/ Nilambur North	Fire awareness campaigns
Nelliampathy, Kollengode range/ Nemmara	Fire awareness campaigns- 2Nos
Attappadi / Mannarkkad division	Fire awareness campaigns
Olavakkode ,Walayar and Ottappalam/ Palakkad	Fire awareness campaigns
Edavanna Nilambur and Vazhikadavu ranges / Nilambur North	Firefighting equipments
Nelliampathy, Kollengode, Alathur ranges/ Nemmara	Firefighting equipments
Ommala/ Agali/ Mannarkkad division	Firefighting equipments
Olavakkode ,Walayar and Ottappalam/ Palakkad	Firefighting equipments
Edakkode-Kombankallu/ Edavanna range/ Nilambur North	Creation of fire break- 6 Km
Kombankallu to Peruvambadam/ Edavanna range/ Nilambur North	Creation of fire break -3Km
Mooleppadam / Edavanna range/ Nilambur North	Creation of fire break -1957 TP area (1.5 km)
Kallunda to Adyanpara/ Edavanna range/ Nilambur North	Creation of fire break -5 Km
Ramallur to Kalathumkadavu/ Edavanna range/ Nilambur North	Creation of fire break-1.5 Km
Tharamutam to H block/ Edavanna range/ Nilambur North	Creation of fire break- 3 Km
Amarappalam/ Edavanna range/ Nilambur North	Creation of fire break- 2 Km
PokkodeMannuppadam-Eranjimangad/ Edavanna range/ Nilambur North	Creation of fire break- 2.5 Km
Nedungayam/ Karulai range/ Nilambur South	Creation of fire break around 1977 TP
Nedungayam/ Karulai range/ Nilambur South	Creation of fire break around 1972 TP
Vattikkal/ Karulai range/ Nilambur South	Creation of fire break around 1982 TP
Chingakallu to Kalimuttam/ Kalikavu range/ Nilambur South	Creation of fire break
Chingakallu to Kalimuttam/ Kalikavu range/ Nilambur South	Creation of fire break

Location/Range/ Division	Activity
Poolakkappara / Kalikavu range/ Nilambur South	Creation of fire break around 1950, 1976,1977, 1978, 2004 TP
Nellikara to Thachadikunnu/ Kalikavu range/ Nilambur South	Creation of fire break
Vizhumala and Muringamala/ Alathoor/ Nemmara	Creation of fire break
Karimkulam, Thalippadam and : Cherunelly/ Nelliampathy/ Nemmara	Creation of fire break
Ommala and oollkkadavu/ Agali/ Mannarkkad	Creation of fire break
Vazhikadavu and Nilambur ranges/Nilambur North division	Repairing of fire-fighting equipments

Under the sub activity “Engaging fire gangs through participatory forest management” four activities such as engaging man-mazdoor as fire gangs, fire awareness campaigns, procuring firefighting equipments and creation of fire break were carried out at in all the five ranges under the circle. However, in the Nilambur South range, only the creation of fire breaks activity was carried out.

5. Human-animal conflict mitigation

As per the APO 2021-2022 under this activity providing veterinary care facilities, repairing of fire- fighting equipments, procuring veterinary care facilities, engaging watchers to mitigate human animal interface were envisaged. Further, providing field equipment's and medicine for animal rescue and veterinary care facilities and protective gears for wildlife conflict mitigation staffs were also targeted. Accordingly all these activities were carried out at Nilambur North, Nemmara, Palakkad and Mannarkkad divisions of the circle. The vouchers were verified by the evaluation team and found correct. In Nilambur south engaging fire watchers at TP activity was only carried out.

Location/Range/ Division	Activity
Vazhikadavu and Nilambur ranges / Nilambur North	Providing veterinary care facilities
Nilambur, Vazhikadavu and Edavanna ranges/ Nilambur North	Engaging watchers to mitigate human animal interface
Pothundy, Mathur, Nelliampathy/ Nelliampathy, Kollengode / Nemmara	Engaging watchers to mitigate human animal interface
Agali/ Agali/ Mannarkkad	Engaging watchers to mitigate human animal interface
Olavakkode,Walayar / Palakkad	Engaging watchers to mitigate human animal interface
Nilambur, Vazhikadavu and Edavanna ranges/ Nilambur North	Protective Gears for wildlife conflict mitigation staffs
Agali/ Agali/ Mannarkkad	Protective Gears for wildlife conflict mitigation staffs
Attappady, Agali and Mannarkkad/ Palakkad	Protective Gears for wildlife conflict mitigation staffs
Kollengode / Nemmara	Purchasing camping sleeping bags to staffs- 3 places

Location/Range/ Division	Activity
Vattikkal/ Karulai range/ Nilambur South	Engaging fire watchers at 1982 TP
Nedungayam/ Karulai range/ Nilambur South	Engaging fire watchers at 1977 TP
Nedungayam/ Karulai range/ Nilambur South	Engaging fire watchers at 1972 TP
Alathoor/ Nelliampathy/ Nemmara	Purchase of Equipment's /Ration for RRT
Palakkayam/ Mannarkkad/ Mannarkkad	Purchase of Equipment's /Ration for RRT
Olavakkode / Palakkad	Purchase of Equipment's /Ration for RRT
Nelliampathy/ Nemmara	Providing field equipment's and medicine for animal rescue and veterinary care facilities
Agali/ Agali/ Mannarkkad	Providing field equipment's and medicine for animal rescue and veterinary care facilities

6. Soil and moisture conservation

Under this activity gully plugging was carried out at Elival 1959 and 1965 TP at Olavakkode range in Palakkad division as per APO 2021-2022. The gullies were evaluated for physical existence and quality. The specifications of the gullies were checked by verifying the vouchers and estimates. Due to water flow during last rainy season were noticed in the gullies.

Gully plugging at Elival 1959TP at Olavakkode range in Palakkad division
GPS Coordinates - N 10.884634° E 76.641479°

S. No.	Gully plugging ID/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth * Length) in field	% variation (+/-)	Present Condition of the structure
1	A1/3	2.36x0.88x8.21	2.40x0.86x8.1	Nil	Minor damages were noticed due to water flow during last rainy season.
2	A2/2	2.19x0.70x6.18	2.19x0.70x6.18	Nil	
3	A3/3	2.33x0.93x12.85	2.34x0.92x12.80	Nil	
4	B1	2.23x0.99x12.60	2.20x0.97x12.62	Nil	
5	C1/7	2.22x0.80x6.59	2.24x0.85x6.60	Nil	
6	C2/7	2.32x0.85x5.81	2.33x0.84x5.80	Nil	
7	C3/7	2.26x0.81x5.18	2.26x0.80x5.20	Nil	
8	C4/7	2.49 x 1.02 x 9.71	2.49 x 1.01 x 9.72	Nil	
9	C5/7	2.49 x 1.05 x 7.73	2.49 x 1.02 x 7.73	Nil	
10	C6/7	2.60 x 1.12 x 7.47	2.60 x 1.10 x 7.48	Nil	
11	C7/7	2.52 x 0.78 x 10.45	2.52 x 0.75 x 10.45	Nil	



Gully plugging at Elival 1959 TP at Olavakkode range, Palakkad division

Gully plugging at Elival 1965 TP at Olavakkode range in Palakkad division

S. No.	Gully plugging ID/No.	Size (Width * Depth * Length) in Measurement Book	Actual Size (Width * Depth * Length) in field	% variation (+/-)	Present Condition of the structure
1	A1/6	2.11x0.84x4.32	2.11x0.82x4.32	Nil	Minor damages were noticed due to water flow during last rainy season.
2	A2/6	2.30x1.02x4.02	2.30x1.00x4.02	Nil	
3	A3/6	2.33x0.90x3.56	2.33x0.90x3.56	Nil	
4	A4/6	2.25x0.92x3.27	2.25x0.91x3.27	Nil	
5	A5/6	2.39x0.85x3.98	2.39x0.80x3.98	Nil	
6	A6/6	2.12x0.87x3.92	2.12x0.85x3.92	Nil	
7	B1/6	2.45x1.28x3.27	2.45x1.22x3.27	Nil	
8	B2/6	2.22 x 1.0 x 3.35	2.22 x 1.0 x 3.3	5Nil	
9	B3/6	2.22x1.05x2.58	2.22x1.00x2.58	Nil	
10	B4/6	2.17 x 0.82 x 3.30	2.17 x 0.81 x 3.30	Nil	
11	B5/6	2.24 x 0.77 x 3.21	2.24 x 0.75 x 3.21	Nil	
12	B6/6	2.25 x 1.04 x 4.32	2.25 x 1.00 x 4.32	Nil	
13	C1/6	2.55 x 1.03 x 2.76	2.55 x 1.00 x 2.76	Nil	
14	C2/6	2.35 x 1.03 x 2.95	2.35 x 1.00 x 2.95	Nil	
15	C3/6	2.39 x 1.32 x 3.55	2.39 x 1.30 x 3.55	Nil	
16	C4/6	2.30 x 1.13 x 3.90	2.30 x 1.10 x 3.9	Nil	
17	C5/6	2.26 x 1.01 x 2.26	2.26 x 1.00 x 2.26	Nil	
18	C6/6	2.35 x 1.03 x 4.37	2.35 x 1.00 x 4.37	Nil	



Gully plugging at Elival 1965 TP at Olavakkode range, Palakkad division

7. Better Connectivity

Under this activity an amount of Rs. 1.65 Lakhs was spent towards maintenance of trek paths/patrolling routes work at Nilambur North. Awareness programmes were conducted at Vazhikadavu and Nilambur ranges in Nilambur North division and an amount of Rs.0.45 lakhs was spent towards programmes. The vouchers were verified.

Location/Range/ Division	Activity
Nilambur, Vazhikadavu and Edavanna ranges/ Nilambur North	Maintenance of trek paths/patrolling routes – 10 Km
Onakkappara to Meenmutti/ Karulai /Nilambur South	Maintenance of trek paths/patrolling routes- 10 Km
Nelliyampathi/ Nemmara division	Maintenance of trek paths/patrolling routes – 10Km
Attappadi, Agali and Mannarkkad/ Mannarkkad	Maintenance of Forest Roads-10km
Nilambur and Vazhikadavu ranges/ Nilambur North	Awareness Programme
Nelliyampathy/ Nemmara division	Awareness Programme
Puttanikkad/ Mannarkkad	Awareness Programme
Attappadi, Agali and Mannarkkad/ Mannarkkad	Conducting nature camps to School and College Children
Palakkad	Conducting nature camps to School and College Children work not carried out
Nemmara Division	Nature Camps for Colleges and School Children was not conducted.

During the period, an amount of Rs. 250.11 lakhs was allotted to the circle, of which 97.33% financial achievement was observed. Among all circles, Palakkad circle executed the maximum number of activities, resulting in the highest expenditure.

Central Circle, Thrissur (2021-2022)

The evaluation covered four forest divisions of the circle. They include

1. Thrissur
2. Chalakudy
3. Vazhachal
4. Malayattoor

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Protection of Plantations of Forests	1. Eco-restoration of Monocultures ◆ Eco-restoration in monoculture plantations-maintenance work	Thrissur, Chalakudy Vazhachal, Malayattoor
	2. Strengthening forest protection and anti-poaching units. ◆ Organising Joint Patrolling and Raids along inter-divisional and inter-state forest boundaries ◆ Interior Camp Shed Maintenance ◆ Field Ration for Interior Camps ◆ Field Survival Kits and Field Equipments	
	3. Improvement of Wildlife habitat ◆ Maintenance of Vayal (marshy grasslands which are source of fodder for herbivores). ◆ Removal of Exotic Weeds ◆ Bird Survey and Conservation ◆ Sea Turtle Conservation	
	4. Forest fire prevention and control habitat ◆ Engaging Fire Gangs through participatory forest management ◆ Awareness Campaigns ◆ Fire Fighting Equipments ◆ Creation Of Fire Break	
	5. Better Connectivity ◆ Maintenance of Forest Roads ◆ Awareness Program ◆ Nature Camps for Schools and Colleges	

Coverage of sites in Central Circle, Thrissur

Circle	Division	Fire	CAMPA infra-structure	CAMPA Assets	Wild Life infra-structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Central	Thrissur	2	2					1
Circle	Chalakkudy	2				1		3
Thrissur	Vazhachal	15	2			1		
	Malayattoor	1				4		3

I. Protection of Plantations of Forests

1. Eco restoration in monoculture

a. Eco restoration in monoculture plantation maintenance work

Under this activity as per APO 2022-2023 second year and third year maintenance work was carried out in Chalakudy, Malayattoor and Thrissur divisions. The evaluation team suggested for weeding and causality replacement. The vouchers were verified and found correct. M-book was not provided at Thundathil range, Malayattoor division.

Location/Range/ Division	Geo coordinates	Area	Remarks
Nayaranagadi/ Pariyaram range/ Chalakudy division	10.3425 76.3675	9.4ha	2 nd and 3 rd year maintenance of 2021 plantation Weeding and causality replacement needed
Kuttenchira/ Palalppallil range/ Chalakudy division	10.4398 76.3425	14ha	Good plant growth but damage caused by wild animals. Invasive weeds such as <i>Mikania micrantha</i> and <i>Chromolaena odorata</i> present need to be removed.
Edamalayar/ Thundathil range/ Malayattoor	10.1965 76.6911	103 ha	2 nd year Maintenance of 2021 Eco restoration site was carried out. Weeding and causality replacement needed. M-book was not provided
Thekkumpadam/ Pattikkad/ Thrissur	10.5475 76.3563	10 Ha	1958 TP Thekkumpadam Eco restoration, well maintained with a fire line and less weeds. Causalities could not be ascertained due to gap planting with irregular spacing.

2. Strengthening forest protection and anti-poaching units

Location/Range/ Division	Activity
Chazhakkudy, Thrissur	Organizing joint patrolling and raids- no work was carried out
All ranges Malayattoor	Organizing joint patrolling and raids- no work was carried out
Vazhachal	Organizing joint patrolling and raids
Chazhakkudy, Vazhachal, Thrissur division	Interior Camp shed maintenance- No work carried out
Chazhakkudy	Provision for field ration for interior camps-No work carried out
Vazhachal division	Provision for field ration for interior camps
Thrissur	Provision for field ration for interior camps
Malayattoor	Provision for field ration for interior camps
Palappallil range/ Chazhakkudy division	Field survival kits and Field equipment's
Vazhachal, Thrissur	Field Survival Kits and Field equipment's- No work carried out

3. Improvement of Wildlife habitat

Location/Range/ Division	Activity
Chazhakkudy	Maintenance of vayals- No work carried out
Vazhachal	Maintenance of vayals
Neelappara/ Kollathirumedu/ Vazhachal	Removal of exotic weeds
Malayattoor	Removal of exotic weeds work was not carried out
Chazhakkudy/ Vazhachal/ Thrissur	Bird survey and conservation- no work carried out
Thrissur	Sea Turtle Conservation

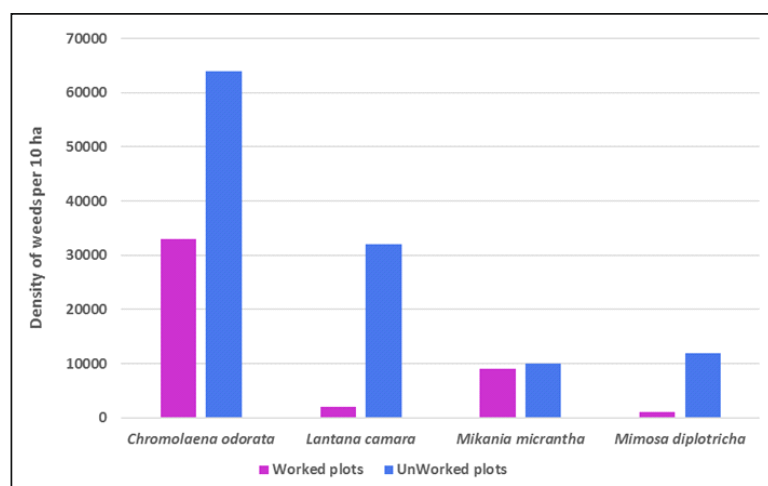
Location/Range/Division	No of turtle	No of eggs laid	No of eggs hatched	Hatching %
Puthankadappuram/ Wadakkanchery range/ Thrissur	134	13571 101/turtle	4515 34 /turtle	33.27 %
Blangad / Wadakkanchery range/ Thrissur	37	2079 56/turtle	1578 43/turtle	76.00 %
Punnayur / Wadakkanchery range/ Thrissur	59	6766 114/turtle	5461 93/turtle	80.71 %
	230	22416	11554	51.54 %

Vayals (3 ha) were maintained well at Anamukku, Kollathirumedu range, Vazhachal division. Noticed frequent visit of Indian gaur and Elephants. Sedge height was 1 M, Moderate infestation of invasive species like *Chromolaena odorata*, *Mikania micrantha* and *Melastoma malabathricum*. The evaluation team observed the vayals were maintained well. The files and vouchers were verified. M Book was not provided. As per Apo 2022-2023 Vayal maintenance work was not carried out at Chazhakkudy division.

Under the Sea turtle conservation activity, mazdoor were engaged as turtle protection watchers in Blangad, Punnayur (VSS) and Puthankadappuram in Wadakkanchery range of Thrissur division. The evaluation team physically inspected the sea turtle conservation locations. A total of 239 turtle recorded from these areas laid around 22,416 eggs of which 11,554 (51.54 %) hatched. Files and vouchers were and verified and found correct.

a. Removal of exotic weeds

Location/Range/ Division	Geo coordinates	Area	Remarks
Neelappara/ Kollathirumedu/ Vazhachal	10.2874 76.6723	-	Exotic weeds such as <i>Chromolaena odorata</i> , <i>Lantana camara</i> and <i>Mikania macrantha</i> were noticed in the eradicated field and density was found to be 63 % less than the unworked adjacent plot. Mbook details were not provided hence the year of work execution was not verified.



Comparison of exotic weed density between worked and unworked areas

Weed Eradication					
Id/No.	Size/density of infestation in the worked plot	Size/density of infestation in the unworked plot	% change (+/-)	Remarks Present status - Intact/Worn out/effectiveness of work	Efficacy of fire line created in terms of number of times fire spread is prevented by the presence of fire line, if any
1	2200/ha	5900/ha	-63%	Effective	Nil

4. Forest fire prevention and control habitat

Location/Range/ Division	Activity
Areas under Nayana VSS/ Palappallil range/ Chalakudy Mattathur fire block area / Vellikkulangara range / Chalakudy	Engaging mazdoor as fire gang

Location/Range/ Division	Activity
All ranges under Malayattoor	Engaging mazdoor as fire gang
Vazhachal	Engaging fire gangs- No information about the activity received from the division
Vazhachal	Fire awareness campaigns-No information received about the activity from the division
All ranges under Malayattoor	Fire awareness campaigns
Pattikkad/ Pattikkad/ Thrissur	Fire awareness campaigns- Fire awareness training with the help of Fire and Rescue
All ranges under Malayattoor	Firefighting equipments- work was not carried out
Mannamangalam / Pattikkad/ Thrissur	Firefighting equipment to frontline staff
Vazhachal	Firefighting equipments- No information received about the activity from the division
Pariyaram, Vellikkulangara ranges/ Chalakudy	Equipment like Fire beater, Field bag, Field Knife, Rakes, Hiking shoes, Blowers were purchased and distributed to staff in all stations.
Randukai VSS, Thenittampara VSS, Kottamala to Peelarmuzhi to Mothirakkanni/ Pariyaram range/ Chalakudy	Creation of fire break – 450 MM Maintained well and required weeding.
Erumugham FS, Kodanad Range/ Malayattoor	Engaging man mazdoor for various fire protection activities
Thayyoor, Pazhavor and Puthuruthy area/ Wadakkanchery/ Thrissur	Creation of fire break
Pullamkandam, Varikulam, Pattathippara, Vattai, Vallur, Malayamukku, Vattully, Viruppakka, Manchatty, Asurankundu, Vazholippadam, Thayoor, Pazhavor and Puthuruthy/ Wadakkanchery, Pattikkad and Machad/ Thrissur	Engaging fire protection mazdoor through various VSS
Vazhachal	Creation of fire break

Creation of fire break ay Vazhachal

Location/Range/ Remarks Division	Geo coordinates	Area	Remarks
Vazhachal to Puliylappara / Vazhachal / Vazhachal	10.2874 76.6723	Length: 5 Km Width: 5 m	Well maintained.
Peringal to Karamthodu/ Vazhachal/ Vazhachal	10.3167 76.6355	Length: 5 Km Width: 5 m	Firebreak was well maintained and mild weed growth was observed
Pokalappara to Anakayam/ Kollathirumedu/ Vazhachal	10.2880 76.6671	Length: 11 Km Width: 5 m	Firebreak was well maintained and mild weed growth was observed . Mbook verified

The evaluation team physically inspected the fire breaks created at two divisions Vazhachal and Kollathirumedu in Vazhachal division along with the M book and observed that they were maintained well.



Pokalappara to Anakayam fire break for 11 km at Vazhachal division

Equipment like Fire beater, Field bag, Field Knife, Rakes, Hiking shoes, Blowers were purchased and distributed to staff in all stations in Wadakkanchery range, Chalakudy and Pattikkad/ Thrissur.



Firefighting equipments at Chalakudy

Firebreak created in Erumugham FS, Kodanad Range, Malayattoor was well maintained but M Book were not provided. The evaluation team verified the vouchers and found correct.

5. Soil moisture conservation

No work has been carried out at Chalakudy, Malayattoor and Vazhachal divisions.

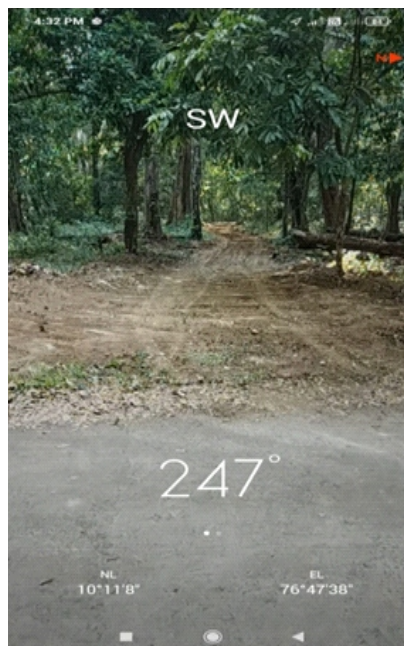
6. Better Connectivity

Location/Range/ Division	Activity
Parakkad/ Palappallil range/ Chalakudy	Coupe Road maintenance
Vazhikadambu to Atti/ Kuttanpuzha/ Malayattoor	Maintenance of trek paths/patrolling routes- maintained well
Vazhachal/Vazhachal division	Maintenance of trek paths/patrolling routes
Malayattoor	Awareness programme/training to staff and VSS/EDC members
Chalakudy and Vazhachal divisions	Nature camps for colleges and school children was not conducted.

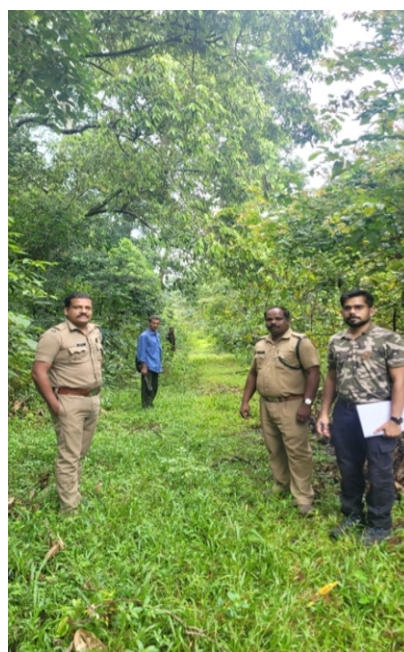
a. Coupe Road/ trek path maintenance in Parakkad

Activity	Location/Range/ Division	Geo coordinates	Size	Remarks
Maintenance of coupe road	Parakkad / Palappallil / Chalakudy	10.429 76.3612	Length : 3.5 Km Width: 3.5 m	Maintained well
Maintenance of trek paths Malayattoor	Vazhikadambu to Atti/ Kuttanpuzha /	10.1827 76.7786	Length : 4 Km Width: 1.5 m	Maintained well
Maintenance of trek paths	Choozhimedu to Peringal dam / Vazhachal/ Vazhachal	10.3085 76.6471	Length : 3 Km Width: 2.5 m	Maintained well but M- Book was not provided
Maintenance of trek paths	Karamathodu to Nedumchal / Vazhachal/ Vazhachal	10.3192 6.6373	Length : 5 Km Width: 1.5 m	Maintained well but M- Book was not provided
Maintenance of trek paths	Ikkashed to 1972 TP / Vazhachal/ Vazhachal	10.3300 76.6406	Length : 3 Km Width: 1.5 m	Maintained well but M- Book was not provided
Maintenance of trek paths	Pachakkad to Kattilappaara / Vazhachal/ Vazhachal	10.3400 76.6376	Length : 8 Km Width: 2.5 m	Maintained well but M- Book was not provided

The evaluation team inspected the coupe Road at Parakkad, Palappallil range, Chalakudy division and trek path at Malayattoor and Vazhachal divisions reported that they were well maintained. The M-book and vouchers were verified and found correct. M-book was not provided at Vazhachal division.



Trek path at Malayattoor



Maintenance of Choozhimedu to Peringal trek path

High Range Circle, Kottayam (2021-2022)

The evaluation covered five forest divisions of the circle. They include

1. Kothamangalam
2. Mankulam
3. Munnar
4. Marayoor
5. Kottayam

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Compensatory afforestation works	- Compensatory afforestation works (creation/ preparatory works). - Compensatory afforestation works (maintenance).	Munnar
Catchment area treatment plan fund part	River bank stabilization	Munnar
Protection of plantations of forests	- Eco-restoration of monocultures - Eco-restoration in monocultures with indigenous species - creation / preparatory works. - Eco-restoration in monoculture plantations (maintenance works) - Protection of research plots and seed production areas - Strengthening forest protection and anti-poaching units. - Organising joint patrolling and raids along inter-divisional and inter-state forest boundaries - Interior camp shed maintenance - Field ration for interior camps. - Field survival kits and field equipments - Improvement of wildlife habitat - Removal of exotic weeds - Bird survey and conservation - Forest fire prevention and control habitat - Engaging fire gangs through participatory forest management - Awareness campaigns - Fire fighting equipments - Creation of fire break - Human-animal conflict mitigation - Establishment, operation and maintenance of animal rescue centre and veterinary treatment facility. - Engaging watchers to mitigate human animal interface.	Kothamangalam Mankulam, Munnar Marayoor, Kottayam

Component	Particulars of work	Division
	c. Protective gears for wildlife conflict mitigation staffs. d. Purchase of equipment's /ration for RRT	
	7. Soil and moisture conservation (digging/ desilting of water holes)	
	8. Better connectivity a. Maintenance of forest roads b. Maintenance of trek paths/ patrolling routes c. Awareness program d. Nature camps for schools and colleges	

Coverage of sites in High range circle, Kottayam

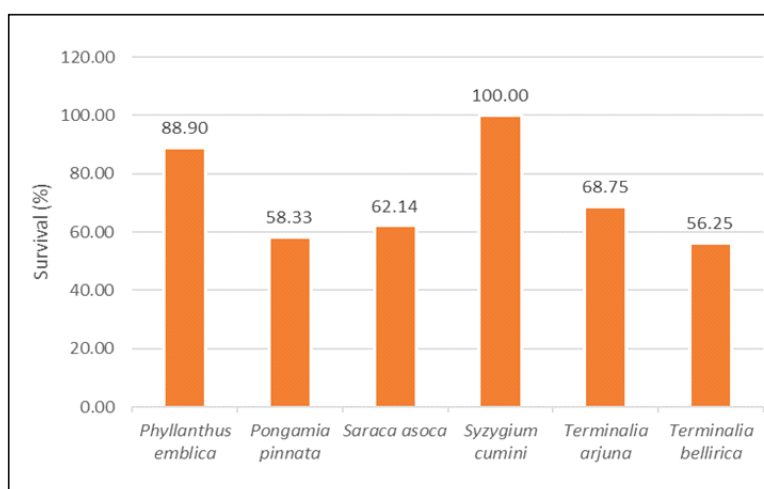
Division	Fire	CAMPA infra-structure	CAMPA Assets	Wild Life infra-structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Kothamangalam	7	4			2		1
Mankulam	2						
Munnar	6	1		1	1	3	
Marayoor	1				1		
Kottayam	10	3			2		1

I. Compensatory afforestation works

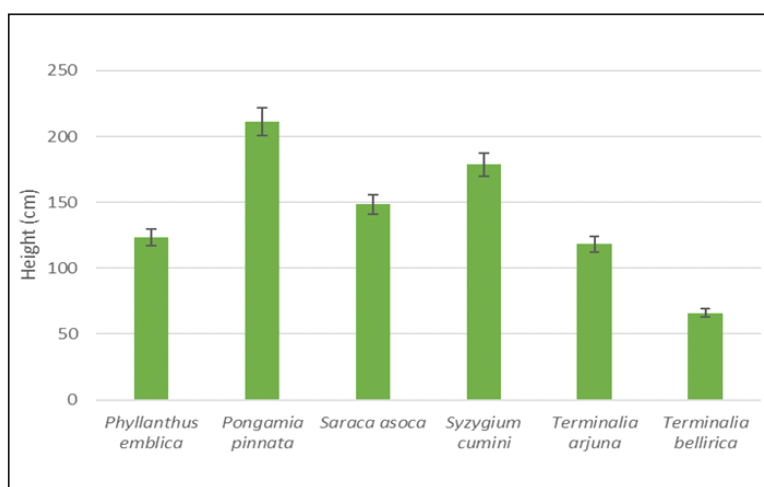
a. Compensatory Afforestation Works (Creation / Preparatory works)

Location/Range/ Division	Geo coordinates	Work/ Area	Species	Survival %	Remarks
Devikulam/ Munnar	10.0682 77.1900	CA in lieu of Thottiyar			Work was not carried out
Ozhuvathadaam/ Neriya Mangalam/ Munnar	10.0554 76.8491	2021 CA plantation- 2.0 ha, 5,000 seedlings	<i>Terminalia bellirica</i> , <i>Saraca asoca</i> , <i>Terminalia arjuna</i> , <i>Phyllanthus emblica</i> , <i>Syzygium cumini</i> , <i>Pongamia pinnata</i> , <i>Garcinia gummi-gutta</i> , <i>Cassia fistula</i>	70	Maintenance work like, weeding, fire line creation, soil work and causalty replacement were carried out

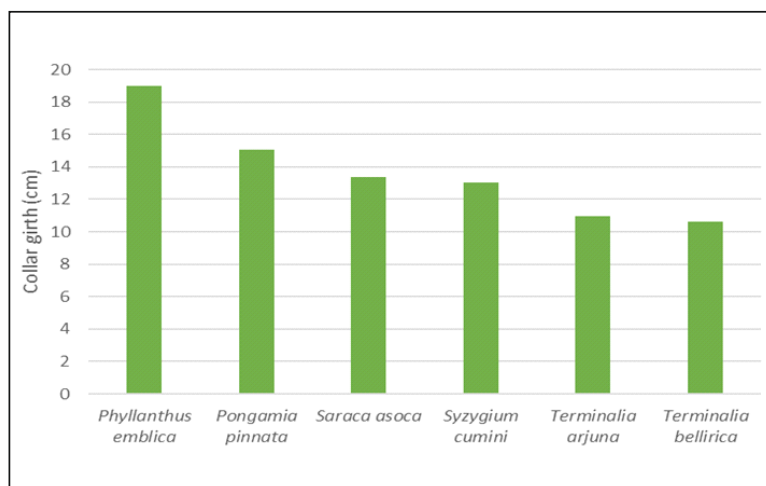
Location/Range/Division	Geo coordinates	Work/ Area	Species	Survival %	Remarks
Kottapara/ Adimali/ Munnar	10.0255 76.9785	2021 CA plantation at Kottapara- 6 ha 6,000 seedlings	<i>Dalbergia latifolia</i> , <i>Terminalia arjuna</i> , <i>Syzygium cumini</i> , <i>Pongamia pinnata</i> , <i>Bambusa bambos</i> , <i>Garcinia gummi gutta</i> , <i>Hopea parviflora</i> , <i>Lagerstroemia speciosa</i>	40	Maintenance work like, weeding, fire line creation, and causalty replacement work were carried out. Low survival percentage due to heavy drought.



Survival of 2021 CA plantation at Ozhuvathadaam, Munnar



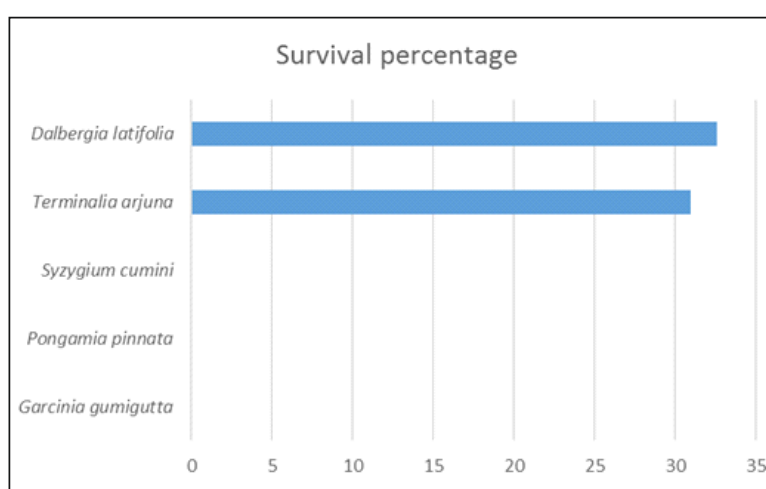
Growth performance (height) of 2021 CA plantation at Ozhuvathadaam, Munnar
(Bar indicates std error)



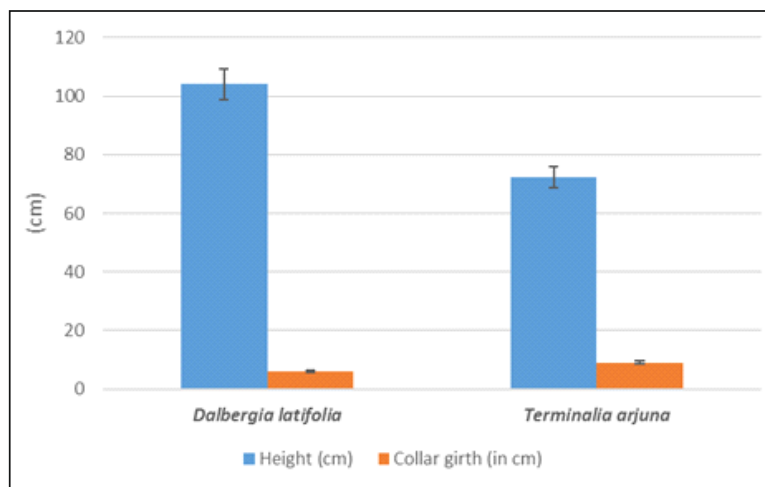
Growth performance (Collar girth) of 2021 CA plantation at Ozhuvathadaam, Munnar



CA plantation at Ozhuvathadaam, Munnar CA plantation at Kottapara, Munnar



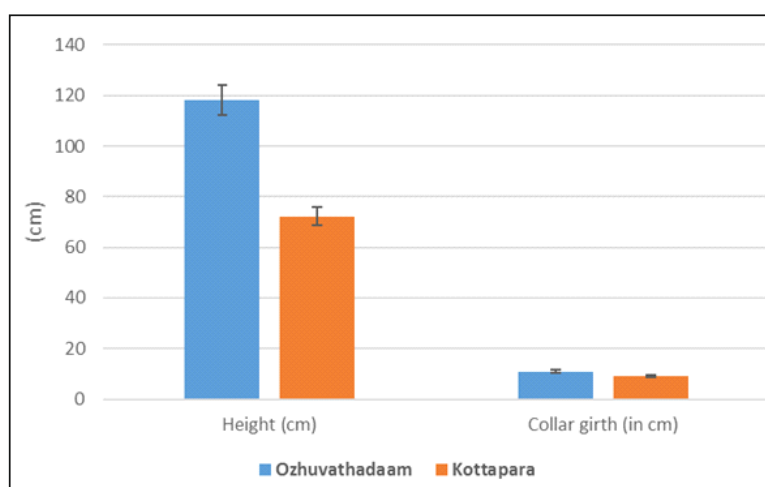
Survival of CA plantation at Kottapara, Munnar



Growth performance (Collar girth) of 2021 CA plantation at Ozhuvathadaam, Munnar



2021 CA plantation at Kottapara, Munnar



Performance of *Terminalia arjuna* across two locations - Ozhuvathadaam and Kottapara in Munnar (Bar indicates std error)

As per the APO 2021–2022, under the activity "Compensatory Afforestation Works," the following works were undertaken:

- ◆ In the 2021 CA plantation at Ozhuvathadaam (2 ha), two rounds of weeding, soil work, creation of fire lines, and replacement of 200 plants were carried out.
- ◆ In the 2021 CA plantation at Kottapara (6 ha) in the Munnar Division, similar activities were conducted, including two rounds of weeding, soil work, creation of fire lines, and replacement of 2,002 plants.

The evaluation team inspected the sites and verified the related records and vouchers.

II. Catchment area treatment

1. River Bank Stabilization

Raising Bamboo, reed and other indigenous seedlings

Location/Range/Division	Geo coordinates	Activity	Remarks
Neriyamangalam/ Munnar	10.0682 77.1900	Raising Bamboo, reed and other indigenous seedlings	Work was not carried out
Neriyamangalam, Adimali/ Munnar	-	Cost of raising 1 st year maintenance of hardwood species plantation and kaithachal-Ettichuvadu bit I and bit II in Adimali range	The payment of Rs. 7.56 lakh for the work carried out in 2020-2021 was made in 2021-2022.

b. Protection of Plantations and Forests

1. Eco-restoration of Monocultures

a. Eco-restoration in monocultures with indigenous species - Creation / Preparatory Works

Location/Range/Division	Geo coordinates	Area	Activity	Remarks
Pothady and Chinna Pothady/ Marayoor	10.2897 77.1397	-	1984 and 1986 Wattle plantation	Work was not carried out

b. Eco-restoration in monoculture plantations (Maintenance works)

Location/Range/Division	Geo coordinates	Activity	Remarks
Thattekkad/ Kothamangalam	10.1225 76.6786	Eco-restoration of 1946 TP Thattekkad after selection felling	1000 nos of rain water harvesting soil pits of size 1m*0.5m*0.4m were dug at 1946 TP.

Location/Range/ Division	Geo coordinates	Activity	Remarks
Kulamavu/ Nagarampara/ Kottayam	9.7965 76.8934	1987 Acacia plantation	Work was not carried out
Pothady and Chinna Pothady/ Marayoor	10.2897 77.1397	1984 and 1986 Wattle plantation	Work was not carried out
Idalimotta/ Munnar/ Munnar	10.0682 77.1900	2 nd year maintenance of 1991 Wattle Plantation bit I and bit II	Work was not carried out
	10.0682 77.1900	2 nd year maintenance of 1991 Putukkudi, Kudala	Vouchers verified



Rain water harvesting soil pit at 1946 TP Thattekkad

2. Protection of Research Plots and seed Production Areas

As per APO 2021-2022 under the activity, Protection of Research Plots and seed Production Areas work watchers were engaged to protect research plots and nursery areas in Nachivayal SR-I (N 10° 15' 3.76" E 77° 9' 6.45'), Marayoor division for an amount of Rs.4.40 lakhs. Vouchers were verified. The evaluation team inspected the research plots.

3. Strengthening forest protection and anti-poaching units.

Location/Range/ Division	Activity	Remarks
Naduvakkad/Kaliyar/ Kothamangalam	Organizing joint patrolling and raids	Vouchers verified. Purchase of Tarpaulin sheet, Torch, FA kit and field ration for 12 joint patrol camps
Veloor, Poomala and Arakulam Sections/ Thodupuzha/ Kothamangalam Nagarampara, Kumily Ayyappancoil/ Kottayam Devikulam, Munnar/ Munnar	Organizing joint patrolling and raids	Work was not carried out.

Location/Range/ Division	Activity	Remarks
Mankulam/Anakkulam/ Mankulam Marayoor and Kanthaloar Range/ Marayoor Neriya mangalam, Adimaly/ Munnar Range	Organizing joint patrolling and raids	Verified vouchers
Pothenchenni/ Kaliyar/ Kothamangaam Uppukuzhi, Pallikavala/ Mullaringad/ Kothamangaam, Anchuveedu, Therthamalai/ Kanthalloor/Marayoor Devikulam/ Munnar	Interior Camp shed maintenance	Work was not carried out
Koottickal/ Kothamangaam	Interior Camp shed maintenance	Purchased materials like Tarpaulin, Rope and nails for construction of temporary camp shed (Machaan), Inspected the camp shed and verified vouchers.
Valadupara/ Ayyappancoil/ Kottayam	Interior Camp shed maintenance	Construction of staircase for camp shed was inspected as mentioned in Mbook. Vouchers were verified
Uluppooni, Placherry, Kombukuthy / Erumeli/ Kottayam	Interior Camp shed maintenance	Ceiling fan, LED bulbs and cost of electrical work carried out in Placherry FS, temporary campshed in Chakrimed, Uluppuni (VFS). Cots and chairs for Kombukuthy. Vouchers verified.
Thattakanni, Kathippara Adimali/ Munnar	Interior Camp shed maintenance	Constructed temporary Campshed. Inspected the camp shed and verified records and vouchers.
Kaliyar, Thodupuzha, Koottickal / Kothamangaam, Ayyappancoil, Erumeli, Nagarampara, Kumily/ Kottayam	Provision for field ration for interior camps	Vouchers were verified
Kavalapara block, Kozhivala Block, Kavithakadu block ,Boundary thandu block, pambadumpara block and cholamala block/ Mankulam/ Anakkulam/ Mankulam, Devikulam, Adimali, Neriya mangalam/ Munnar SNP/ENP/CWS/ Munnar WL division	Provision for field ration for interior camps	Vouchers were verified
Marayoor Kanthalloor Range/ Marayoor	Provision for field ration for interior camps	Work was not carried out
Thodupuzha/ Kothamangaam	Field survival kits and Field equipment's	Purchase of GPS, Battery, Brush cutter and Torch light. Verified the physical existence of the equipments and verified the records and vouchers.

Location/Range/ Division	Activity	Remarks
Ayyappancoil, Erumely/ Kottayam	Field survival kits and Field equipment's	Purchased hicking bag, men walking shoe, hicking back pack, armchair, bleeping bag, torch, wooden cot, rain suit, rescue cage and paper gundu for Ayyappancoil. Rain coat, back pack, shoes, flash light, FA kit, gum boot, foldable camping cot and hardwood cots – 10 nos for Erumely range. Vouchers verified
Marayoor,Kanthaloor/ Marayoor	Field survival kits and Field equipment's	Wind cheater cum Rain cots, antiskid rubber Shoes and jackets purchased were verified by the evaluation team and verified vouchers
Mullaringad/ Kothamangaam Kumily/ Kottayam	Field survival kits and Field equipment's	Work was not carried out.

As per APO 2021-2023 under the activity strengthening forest protection and anti-poaching units, interior camp shed maintenance and field survival kits and equipments carried out were physically inspected by the evaluation team and verified records and vouchers pertaining to the said works. Temporary camp shed at Eachampetty, Munnar WL Division was destroyed due to animal attack.



Inspecting camp shed at Kottickal. Kothamangaam



Firefighting equipments at Thoduphula, Kothamangalam



Construction of staircase for camp shed at Valadupara, Ayyappancoil, Kottayam



Firefighting equipments at Ayyappancoil, Kottayam

4. Improvement of Wildlife habitat

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Perumannoor/ Kothamangalam	-	Perumannoor (1998 plantation)	Removal of exotic weeds	Work was not carried out
Kainagiri, Nashtharakuthu/ Mankulam, Anakkulam/ Mankulam	-	-	Removal of exotic weeds	Vouchers were verified
Karayoor SR-I, Vannanthura SR-I,	10.2526 77.1833 10.2644 77.2029	32 ha 16 ha	Removal of exotic weeds	<i>Lantana camara</i> were removed
Meeshapuli mala/ Devikulam/ Munnar	10.0989 77.2019	10 ha	Removal of exotic weeds	Vouchers were verified
Pampadum Shola National Park/ SNP/ Munnar WL	10.1601 77.2558	6.5 ha	Removal of exotic weeds	Eco restoration at Pattiyankal in PSNP
Mankulam/ Anakkulam/ Mankulam Karayoor/ Marayoor Kanthalloor/ Marayoor	10.1217 77.2431	-	Bird survey and conservation	Work was not carried out
Devikulam/ Munnar	-	-	Bird survey and conservation	Vouchers were verified



Removal of exotic weeds at Mankulam



Exotic weed removal at Munnar WL division

5. Forest fire prevention and control habitat

Location/Range/ Division	Activity	Remarks
Thommankuth/ Kaliyar/ Kothamangalam, Velloor FS/ Thodupuzha/ Kothamangalam	Engaging fire gangs through participatory forest management	Vouchers verified
Mankulam/Anakkulam Neriyamangalam, Munnar, Adimali/ Munnar	Engaging fire gangs through participatory forest management	Vouchers verified
Mullaringad/ Kothamangalam Kothamangalam/ Kothamangalam Marayoor Kanthalloor/ Marayoor Devikulam range/Munnar	Engaging fire gangs through participatory forest management	Work was not carried out
Kaliyar, Mullaringad ranges/ Kothamangalam, Neriyamangalam, Munnar, Devikulam / Munnar	Awareness campaigns	Work was not carried out
Thodupuzha/ Kothamangalam	Awareness campaigns	To staffs and VSS members of Mannukad, Kaithappara. Vouchers verified.
Kothamangalam/ Kothamangalam Mankulam/Anakkulam/ Kottayam Marayoor, Kanthalloor/ Marayoor Adimali/ Munnar	Awareness campaigns	Work Executed and Bills Verified
Kaliyar/ Kothamangalam	Firefighting equipments	Purchase of head light, LED torch, water sprayer, jungle boot, fire beater, bill hook, rake, water can, solar lantern, water tank, FA kit and safety specs for various fire blocks in Kaliyar range. Physical existence and vouchers were verified.

Location/Range/ Division	Activity	Remarks
Mullaringad, Kothamangalam/ Kothamangalam	Firefighting equipments	Purchase of Torch, Water sprayer, Head light, Bill hook, Gum boot, Fire beater and Rake. Verified the physical existence of the equipments and vouchers.
Vananthura/ Kanthalloor/ Marayoor	Firefighting equipments	Vouchers verified
Thodupuzha/ Kothamangalam Devikulam/ Munnar	Firefighting equipments	Work was not carried out.
Mankulam/Anakkulam/ Kottayam	Firefighting equipments	Cutter,Chainsaw,Fireblower and other firefighting equipments were physically inspected. Vouchers verified
Munnar, Neriyaamangalam, Adimali/ Munnar	Firefighting equipments	Purchased blower, chain saw and fire protection equipments were inspected for their existence and vouchers for that was verified
Thodupuzha, Mullaringad / Kothamangalam	Creation of fire break	Work was not carried out.
Kaliyar, Kothamangalam/ Kothamangalam Kanthalloor/ Marayoor SNP/ENP/CWS/ Munnar WL division	Creation of fire break- 8 ha	Verified vouchers



Fire gang watchers at Velloor FS, Thodupuzha range, Kothamangalam

As per APO 2021-2022 under the activity Forest fire prevention and control habitat Mankulam Section, Viripara VSS, Pandiankudy VSS, Mangaparakudy VSS, Kadalar Section, Sevalkudy VSS were engaged as fire gang watchers achieved physical target of 625 man mazdoor against 820 man mazdoor with financial target of Rs. 7.65 Lakhs. Watchers were engaged as fire gangs in SNP/ENP/CWS ranges in Munnar WL division watchers achieved physical target of 997 man mazdoor with financial target of Rs. 8.70 Lakhs. As per APO an amount of Rs. 6.00 lakh allotted for the activity, engaging fire gangs through participatory forest management has been utilized for the activity engaging watchers to mitigate human animal conflict.



Interaction with MM Members of Pandikudy VSS, Kottayam



Awareness campaign to staffs and VSS members of Mannukad, Kaithappara, Thodupuzha



Fire Awareness Campaigns at Adimali range, Munnar



Firefighting equipments at Kaliyar/ Kothamangalam

Fire lines

Fire line Id/No.	Size (Width * Length) in Measurement Book	Actual Size (Width * Length) in field	% variation (+/-)
Thattekad Road	W- 5.2 m L -4.0Km	W- 5.2 m L -4.0Km	Nil
Kalappara	W- 5.2 m L -2.0 Km	W- 5.2 m L -2.0 Km	Nil
Mankulam/Anakkulam	W 5.2 M L 1.0 Km	W 5.2 M L 1.0 Km	Nil

Fire line Id/No.	Size (Width * Length) in Measurement Book	Actual Size (Width * Length) in field	% variation (+/-)
Karayoor SR I/ Kanthalloor/ Marayoor	W- 5.2 m L- 1.0 Km	W- 5.2 m L- 1.0 Km	Nil
Karayoor SR II/ Kanthalloor/ Marayoor	W- 5.2 m L- 1.0 Km	W- 5.2 m L- 1.0 Km	Nil
Vananthura SR I/ Kanthalloor/ Marayoor	W- 5.2 m L- 1.5 Km	W- 5.2 m L- 1.5 Km	Nil
Vananthura SR II / Kanthalloor/ Marayoor	W- 5.2 m L- 1.5 Km	W- 5.2 m L- 1.5 Km	Nil
Theerthamala/ Kanthalloor/ Marayoor	W- 5.2 m L- 1.75 Km	W- 5.2 m L- 1.75 Km	Nil
Kodakkadu(m) / Kanthalloor/ Marayoor	W- 5.2 m L- 16.8 km	W- 5.2 m L- 1.5 Km	Nil
Kurathikudy / Munnar	W- 5.2 m L- 2.0 Km	W- 5.2 m L- 2.0 Km	Nil
Chempakapara/ Munnar	W- 5.2 m L- 1.0 Km	W- 5.2 m L- 1.0 Km	Nil
Kottaooara-Pettimudi/ Munnar	W- 5.2 m L- 2.0 Km	W- 5.2 m L- 2.0 Km	Nil
Choorakettan / Munnar	W- 5.2 m L- 3.0 Km	W- 5.2 m L- 3.0 Km	Nil

Fire Protection-Evaluation team report

Activities	Remarks
1. Maintenance of movement register	Completely / Partially / Not Maintained
2. Methodology of protection	Fire break creation
3. Extent of cooperation of villagers in forest protection	Fully / Partially / Not involved
4. Trend in forest fire occurrence	Nil
5. Usage and adequacy of forest fire protection equipments	Fully / Partially / Not Adequate
6. Following of SOP procedure	Completely / Partially / Not Followed
7. Detection of offenders and Booking of cases	Nil
8. Meeting with villagers	Fully / Partially / Not involved
9. Extent of co-operation	Fully / Partially / Not involved
10. Preparation of Fire Map.	Completely / Partially / Not Prepared
11. Response to fire incidents received from FSI	Completely / Partially / Not Addressed

Status of protection

Criteria	Remark
1. Fire Protection	Excellent/Average/Poor
2. Protection from grazing	Excellent/Average/Poor
3. Protection from insects/diseases	Excellent/Average/Poor
4. Roll of watcher in protection	Excellent/Average/Poor



Evaluation of fire line at Kalappara, Kothamangalam



Fire line at Marayoor

6. Human-animal conflict mitigation

Location/Range/ Division	Activity	Remarks
Kaliyar, Mullaringadu/ Kothamangalam	Purchase of equipment's / Ration for Rapid Response Team	Work was not carried out
Thodupuzha/Kothamangalam	Purchase of equipment's / Ration for Rapid Response Team	Purchase of RRT equipments - snake capture, snake hook, boot, snake bag, torch were physically inspected. Verified vouchers.
Marayoor/ Marayoor	Purchase of equipment's / Ration for Rapid Response Team	Walkie talkie and GI rack procured in Marayoor range for SSF and RRT were inspected and vouchers verified.
All ranges/ Munnar Division	Purchase of equipment's / Ration for Rapid Response Team	Fire crackers, torch light, generator, mobile phones, camping and rescue equipment, camera trap and uniform procured for watchers were verified.
Kaliyar, Thodupuzha/ Kothamangalam	Providing field equipments and medicines for animal rescue and veterinary care facilities	Work was not carried out
Thattekad/ Kothamangalam Marayoor, Kanthalloor/ Marayoor Adimali/ Munnar	Providing field equipments and medicines for animal rescue and veterinary care facilities	Verified vouchers
All ranges/ Munnar Division	Providing field equipments and medicines for animal rescue and veterinary care facilities	Purchase of sample storage and disease diagnosis kits were verified.
Kaliyar, Mullaringadu/ Kothamangalam, Kaliyar, Thodupuzha/ Kothamangalam	Engaging watchers to mitigate human animal conflict	Work was not carried out
Thodupuzha/ Kothamangalam Mankulam/Anakkulam Marayoor, Kanthalloor/ Marayoor All ranges/ Munnar Division	Engaging watchers to mitigate human animal conflict	Verified vouchers
Mankulam/Anakkulam	Protective gears for wildlife conflict mitigation staffs	Verified vouchers
Marayoor, Kanthalloor/ Marayoor	Protective gears for wildlife conflict mitigation staffs	Purchased walkie talkie
Neriyamangalam, Adimali/ Munnar	Protective gears for wildlife conflict mitigation staffs	Purchased shoes and rain coats for field staffs. Items and vouchers were verified.

As per APO 2021-2022 under the activity Human-animal conflict mitigation, watchers were engaged in Anakkulam section, Kadalar section, Virinjapara, Companykudy areas of Mankulam and Anakkulam range to mitigate human animal conflict which amount to Rs. 7.28 Lakhs.



RRT equipments in Thodupuzha/Kothamangalam

Soil and moisture conservation (Digging/Desilting of water holes)

Digging/Desilting of Water Holes work was carried out in Karakkadu, in Munnar WL division. The work was inspected by the evaluation team and vouchers were verified.

8. Better connectivity

Location/Range/ Division	Activity	Remarks
Kaliyar, Thodupuzha/ Kothamangalam	Maintenance of forest roads	Work was not carried out
Kanthalloor/ Marayoor	Maintenance of forest roads	Maintenance work to improve 50 m forest road from Vannanthura forest station to Vannanthurakudi was completed. Vouchers verified.
Neriyamangalam, Adimali/ Munnar	Maintenance of forest roads	Vouchers verified
Kaliyar, Thodupuzha/ Kothamangalam	Maintenance of trek paths/ Patrolling Routes	Work was not carried out
Adimali and Neriyamangalam/ Munnar	Maintenance of trek paths/ Patrolling Routes	Vouchers verified
Manayathadam/ Thodupuzha/ Kothamangalam	Maintenance of trek paths/ Patrolling Routes Creation of trek path from Kottuvala to Manayathadam under Veloor FS of Thodupuzha Range.	Physical target was Length 3.0 Km * Width 1.5m Physical achievement was Length 1.1 Km * Width 1.5m Verified M-book and vouchers. Work was not carried out at Keezarkuth to Kaithapara trek path, Kothamangalam

Location/Range/ Division	Activity	Remarks
Kaliyar, Thodupuzha/ Kothamangalam, Marayoor, Kanthalloor / Marayoor	Awareness program	Work was not carried out
	Awareness program	
Thommankuth / Kaliyar/ Kothamangalam, Marayoor, Kanthalloor / Marayoor SNP/ENP/ CWS/ Munnar WL division	Nature camps for schools and colleges	Verified vouchers

Trek path Id/No.	Size (Width * Length) in Measurement Book	Actual Size (Width * Length) in field	% variation (+/-)	Efficacy of trek path
Kanthalloor/ Marayoor	W- 1.5 m L- 9500 m	W- 1.5 m L- 9500 m	Nil	Efficient



Trek path maintenance at Manayathadam, Thodupuzha



Maintenance of trek path at Munnar division



Maintenance of forest road at Kanthalloor range in Marayoor division



Inspecting the maintenance work of forest road in Munnar division

Miscellaneous activities: At Kothamangalam, Purchase of new grass cutter and Vista line clearance- Clearing light jungle growth in both side of roads in Thattekkad section of Kothamangalam range was undertaken, while in Thodupuzha, Purchase of back pack blower and fabrication and erection of display boards at Panamkuzhi and Mnuliyannpara in Mullaringad range were undertaken. An additional work on Eco-restoration-Raising shola species plantation Theerthamala bit I (3ha) and bit II (3.5 ha) of Aruvikkadu section in Devikulam range was undertaken These were activities carried outside of the APO.

During the period, an amount of Rs. 413.34 lakhs was allotted to the circle, of which only 43.66% financial achievement was recorded. A major component of the plan, eco-restoration in monoculture areas using indigenous species, including creation/preparatory works and maintenance, was estimated at Rs. 158.78 lakhs for the High Range Circle, Kottayam. However,



Digging/Desilting of Water Holes in Munnar WL division

this work was not carried out, with only preparatory activities amounting to Rs. 4.515 lakhs being executed.

South Circle, Kollam (2021-2022)

The evaluation covered six forest divisions of the circle. They include

1. Ranni
2. Konni
3. Punalur
4. Thenmala
5. Achenkovil
6. Thiruvananthapuram

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Compensatory afforestation works	Compensatory afforestation works (creation / preparatory works).	Punalur, Ranni
Catchment area treatment plan fund part	River bank stabilization	Thenmala, Thiruvananthapuram
Protection of plantations of forests	1. Eco-restoration of monocultures a. Eco-restoration in monocultures with indigenous species - creation / preparatory works. b. Eco-restoration in monoculture plantations (maintenance works)	Ranni, Konni, Punalur, Thenmala, Achenkovil Thiruvananthapuram

Component	Particulars of work	Division
	2. Strengthening forest protection and anti-poaching units. a. Organising joint patrolling and raids along inter-divisional and inter-state forest boundaries b. Interior camp shed maintenance c. Field ration for interior camps. d. Field survival kits and field equipments	
	3. Improvement of wildlife habitat a. Removal of exotic weeds b. Bird survey and conservation	
	4. Forest fire prevention and control habitat a. Engaging fire gangs through participatory forest management b. Fire fighting equipments c. Creation of fire break	
	5. Human-animal conflict mitigation a. Establishment, operation and maintenance of animal rescue centre and veterinary treatment facility. b. Engaging watchers to mitigate human animal interface. c. Protective gears for wildlife conflict mitigation staffs. d. Purchase of equipment's /ration for RRT	
	6. Soil and moisture conservation (digging/ desilting of water holes)	
	7. Better connectivity a. Maintenance of forest roads b. Maintenance of trek paths/ patrolling routes c. Awareness program d. Nature camps for schools and colleges e. Infrastructure development in tribal colony and setting up district permanent nurseries	

Coverage of Sites in South Circle, Kollam

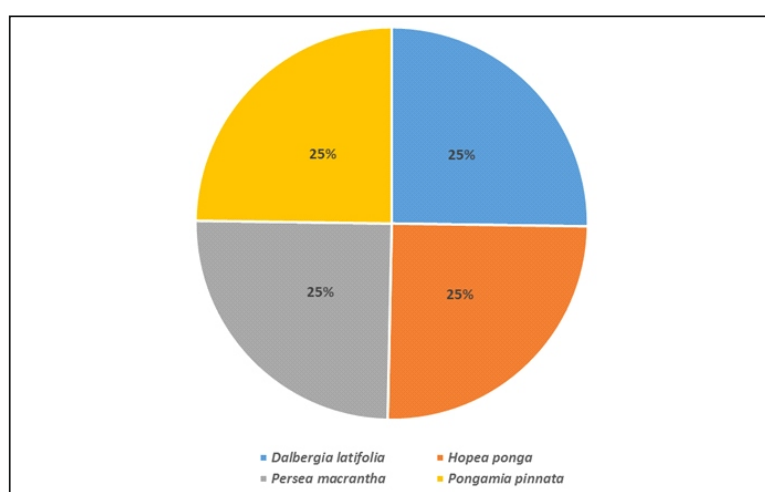
Division	Fire	CAMPA infra- structure	CAMPA Assets	Wild Life infra- structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Ranni	3					3	
Konni	7			1			2
Punalur	2					2	3
Thenmala	2						2
Achenkovil	0				2		2
Thiruvanantha puram	26	1			2		1

I. Compensatory afforestation works

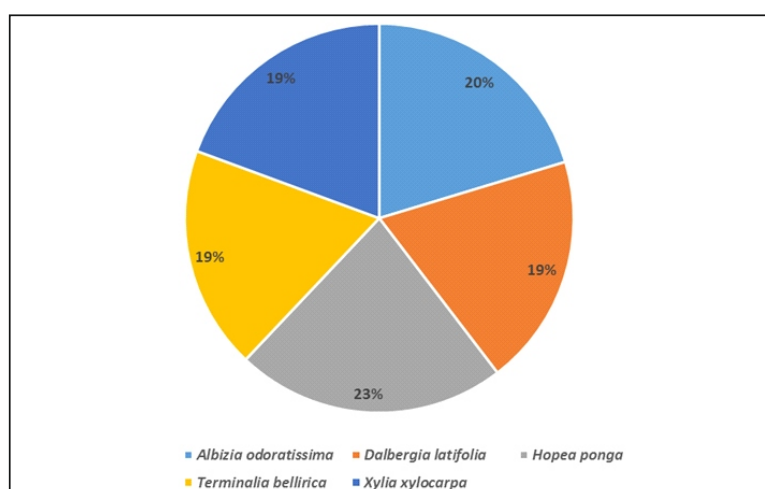
Compensatory Afforestation Works (Creation / Preparatory works).

Location/Range/ Division	Geo coordinates	Work/ Area	Species	Survival %	Remarks
Kulatharapacha/ Pathanapuram/ Punalur	9.07488 76.9833	Gap filling 3 rd year maintenance of 2018, CA Plantation 28.32 ha. Raised 12463 Seedlings	<i>Hopea ponga</i> (Kambagam), <i>Persea macrantha</i> (Uravu, <i>Pongamia</i> <i>pinnata</i> (Ungu, Pungam), <i>Dalbergia latifolia</i> (Rosewood)8	0.79	Maintained well. First Weeding was done after 3 months of planting. 19.2% casualty will be replaced in next year of maintenance. Stem Borer in Pungam Pungam leaf gall Pungam leaf spot were noticed.
Chudalakkunnu/ Pathanapuram/ Punalur	9.0683 76.9720	Gap filling 3 rd year maintenance of 2019 CA Plantation. 4,702 seedlings in 10.20 ha.	<i>Xylia xylocarpa</i> Kadamaram), <i>Terminalia bellirica</i> (Thani), <i>Hopea</i> <i>ponga</i> (Kambagam), <i>Dalbergia latifolia</i> (Rosewood), <i>Albizia</i> <i>odoratissima</i> (Pulivaka, Kannivaka), <i>Artocarpus</i> <i>heterophyllus</i> (Jack fruit)	84.21	Maintained well. Leaf rust disease noted in Terminalia.

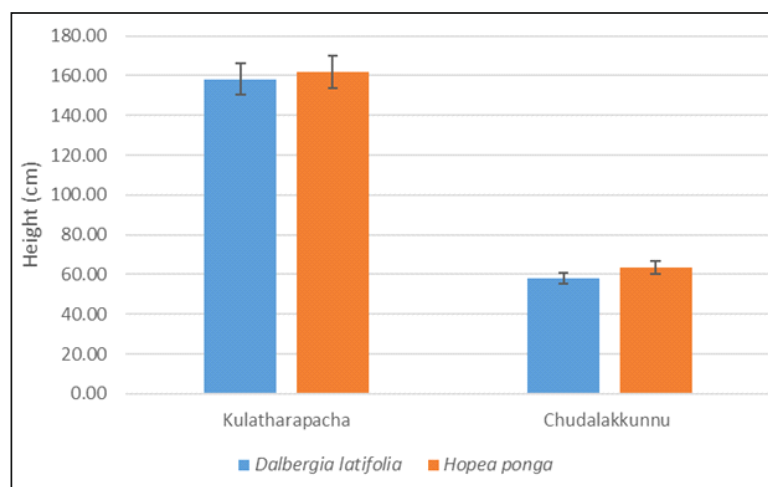
Location/Range/ Division	Geo coordinates	Work/ Area	Species	Survival %	Remarks
Vakalar/ Ranni		Ranni Division (Raising compensatory afforestation area) (Approved in APO 2014-15 and 15-16 but work not carried out)		-	Work not carried out
Vakalar/ Ranni		Ranni Division (Raising compensatory afforestation area-instead of the area diverted for Kanamala Bridge-0.542 ha, 0.202 ha for Microwave tower at Lahai, 0.202 ha for telephone exchange at Pampa, 3.62 ha for Chalakayam Pamparoad to TDB)			Work evaluated. Records and vouchers were verified.



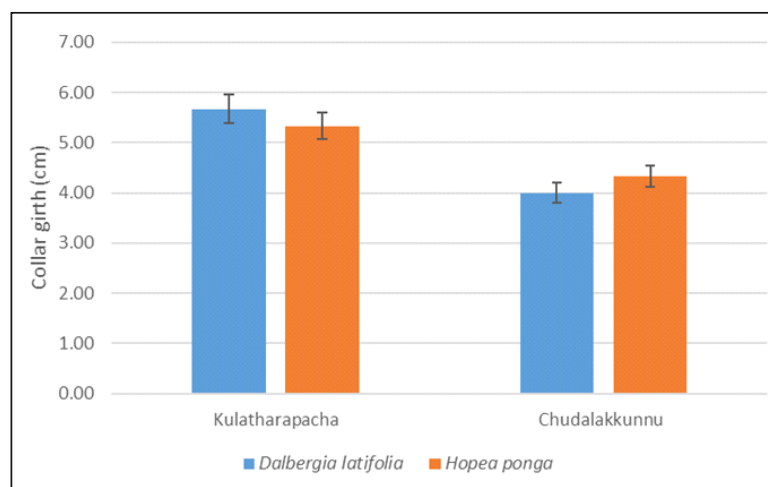
Species composition of the ecorestoration efforts in Kulathurpacha, Punalur Division



Species composition of the ecorestoration efforts in Chudalkunnu, Punalur Division



Average height (cm) of the species across locations in the ecorestoration efforts in Punalur Division (Bar indicates std error)



Average collar girth (cm) of the species across locations in the ecorestoration efforts in Punalur Division (Bar indicates std error)



CA plantation at Vakkalar

II. Catchment Area Treatment Plan Fund Part

1. River Bank Stabilization

Under river bank stabilization activity as per APO 2021-2022, raising and planting Bamboo, reed and other indigenous seedlings along the river belt Mankakyam, Chittar, Thiruvananthapuram was carried out with 4000 bamboo seedlings planted in 20 ha for an amount of Rs. 2.40 lakhs showed 60 % mortality with a average height of 12.1m and color diameter of 26.91 cm. Physical activities, measurements, M-Book, and bills have been verified and found to be correct. However, the plantation journal has not been maintained. Raising and planting Bamboo, reed and other indigenous seedlings along the river belt work estimated for Rs. 5.00 lakhs was not carried out at Aryankavu range, Thenmala Division and at Aryankavu, Thiruvananthapuram was not carried out.



River Bank Stabilization work at Chittar, Thiruvananthapuram

II. Protection of plantations of forests

1. Eco-restoration of Monocultures

a. Eco-restoration in monoculture plantations (Maintenance works)

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Kallar/ Achenkoil	-	-	2013 TP Savakotta Eco-restoration Zone	The remaining balance amount of Rs.6.82264/- was paid for the work conducted during the years 2020-2021 as outlined in the Annual Plan of Operation. Bills and work were verified.

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Savakotta/ Kallar/ Achenkoil	9.1058 77.124639	15 ha-3750 Nos of saplings of <i>Macaranga peltata</i> , <i>Syzigium cumini</i> , <i>Cassia fistula</i> , <i>Tetrameles nudiflora</i> , <i>Carea arborea</i> .	2nd year maintenance of Savacotta 2013 TP Eco- restoration Zone	Maintenance work such as creation of firebreak, vertical trenches etc. were carried out in the 2013 TP Eco-restoration Zone. M-Book, and bills have been evaluated and found to be correct. Plantation journal has not been maintained.
Aruvikkara/ Kallar/ Achenkoil	9.1001 77.1370	15 ha, 7500 sapling of <i>Macaranga peltata</i> , <i>Syzigiumcumini</i> , <i>Cassia fistula</i> , <i>Tetrameles nudiflora</i> , <i>Carea arborea</i>	2010 TP Aruvikkara Eco-restoration Zone	The remaining balance amount of Rs.6.82264/- was paid for the work conducted during the years 2020-2021 as outlined in the Annual Plan of Operation. Bills and work were verified.
Mundomoozhi/ Konni	9.265 76.8964	<i>Madhuca longifolia</i> , <i>Manihot utilissim</i> , <i>Aporosa lindleyana</i> , <i>Calophyllum</i> <i>inophyllum</i> , <i>Melia</i> <i>azedarach</i> , <i>Ziziphus</i> <i>oenopolia</i> , <i>Cinnamomum verum</i> , <i>Syzygium cumini</i> , <i>Terminalia paniculata</i>	2008TP Mundomoozhi Eco-Eco- restoration Zone- 15.5 ha	Physical activities, measurements, M-Book, and bills have been verified and found to be correct. However, the plantation journal has not been maintained.
Kadamancode/ Anchal/ Punalur	8.9091 76.0182	<i>Xylia xylocarpa</i> (Kadamaram), <i>Terminalia elliptica</i> (Maruthu), <i>Phyllanthus emblica</i> (Nelli), <i>Aporosa</i> <i>cardiosperma</i> (Vetti), <i>Macaranga peltata</i> , <i>Casia fistula</i> , <i>Alstonia</i> <i>scholaris</i> (Paala)	1961 TP Eco- Restoration Zone 10.20 ha	86.36% survival rate. Maintained well. Vouchers were verified
Iruthode/ Pathanapuram/ Punalur		<i>Artocarpus hirsutus</i> (Anjili), <i>Hopea ponga</i> (Kambagam), <i>Xylia xylocarpa</i>	1956 TP Eco- Restoration Zone	5 ha82.70% survival rate. Maintained well. Vouchers were verified
Verukuzhy/ Pathanapuram/ Punalur		(kadamaram/ Irul), <i>Terminalia bellirica</i> (Thanni), <i>Schleichera</i> <i>oleosa</i> (Poovan)	1957 TP Eco Restoration Zone 10 ha	85.29% survival rate. Maintained well. Vouchers were verified. Noticed <i>Stem</i> <i>blight disease in Schleicher</i> <i>oleosa</i> and leaf spot in <i>Hopea</i>

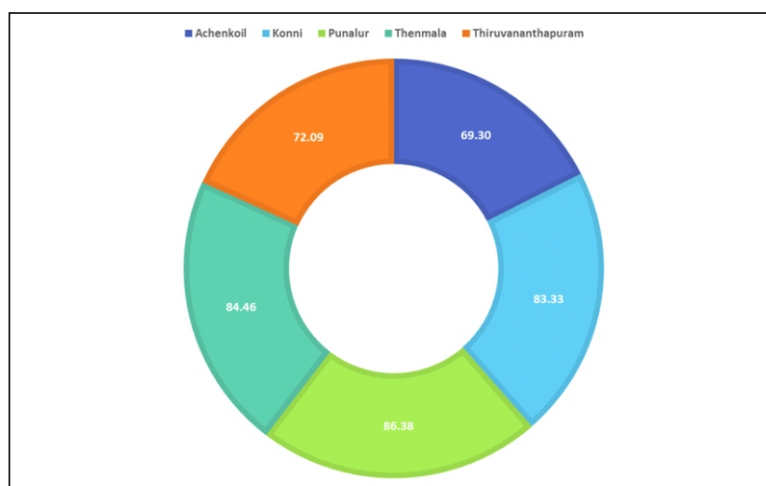
Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Anappettakonkal	9.0093 77.0165	<i>Terminalia bellirica</i> , <i>Neolamarkia cadamba</i> , <i>Schleichera oleosa</i> , <i>Xylia xylocarpa</i> , <i>Syzigiumcumini</i> , <i>Hopea ponga</i> , <i>Phyllanthus emblica</i> , <i>Gmelina arborea</i> and reeds.	Eco-retoration of poorly stocked 2004 TP 20 ha-4,000 Nos	Physical activities, measurements, M-Book, and bills have been verified for Rs. 4.37 lakhs and found to be correct. However, the plantation journal has not been maintained.
Nedungalloorpacha Eco-restoration Zone Thenmala Range/ Thenmala	9.0093 77.0165	<i>Terminalia bellirica</i> , <i>Neolamarkia cadamba</i> , <i>Schleichera oleosa</i> , <i>Syzigiumcumini</i> , <i>Hopea ponga</i> , <i>Phyllanthus emblica</i> , <i>Gmelina arborea</i> and <i>Lagerstroemia reginae</i> .	2 nd Year maintenance of 1999 Eucalyptus Plantation 5 ha- 500 nos	The activities clearing of jungle growth, repairing the platform, replacing the casualty and cleaning the fire line and fire trench was carried out. Physical activities, measurements, M-Book, and bills have been verified and found to be correct. However, the plantation journal has not been maintained.
Chozhiyacode, Kulathupuzha, Thiruvanantha puram	8.8438 77.0604	<i>Dalbergia latifolia</i> , <i>Tetrameles nudiflora</i> , <i>Terminalia arjuna</i> , <i>Phyllanthus emblica</i> , <i>Acacia caesia</i> , <i>Calophyllum inophyllum</i> , <i>Alstonia venenata</i> , <i>Alstonia scholaris</i> , <i>Cassia fistula</i>	1964 TP Chozhiya code Eco-restoration Zone, 20 ha 4,000 Nos saplings	Maintenance, second year weeding and clearing of fire line works carried out were verified, Physical activities, measurements, M-Book, and bills have been verified and found to be correct. However, the plantation journal has not been maintained.

As per APO 2021-2022, under the activity Eco-restoration in monoculture plantations, 2nd year maintenance of Savacotta 2013 TP Eco-restoration Zone was carried out. Under greening the barren hills 3,750 Nos of saplings of *Macaranga peltata*, *Syzigium cumini*, *Cassia fistula*, *Tetrameles nudiflora*, *Carea arborea* were planted. The records, files and vouchers were verified and found correct. The remaining balance amount of Rs.6.82264/- and Rs.1.00905/- was paid for the work conducted during the years 2020-2021 as outlined in the Annual Plan of Operation at Kallar and Aruvikkara. Bills and work were verified.

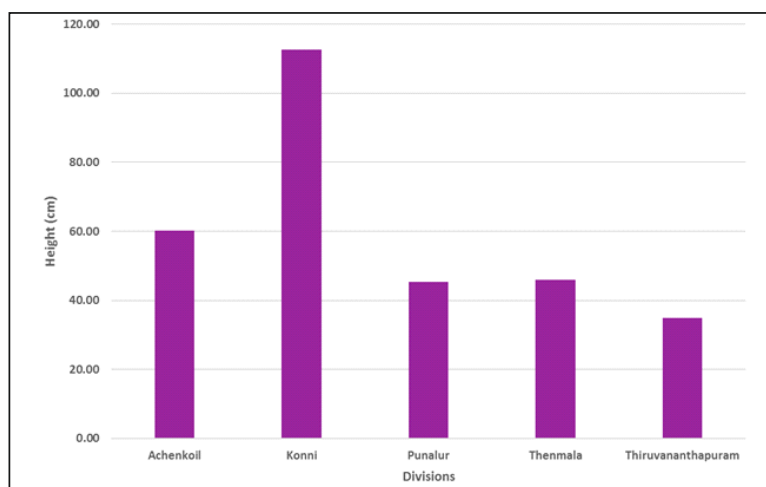
The data pertaining to the following ecorestoration sites are detailed.

1. 2013 TP Savakotta; 2010 TP Aruvikkara
2. 2008 TP Mundomoozhi Eco-restoration Zone
3. 1961 TP Kadamancode Eco- restoration, Punalur

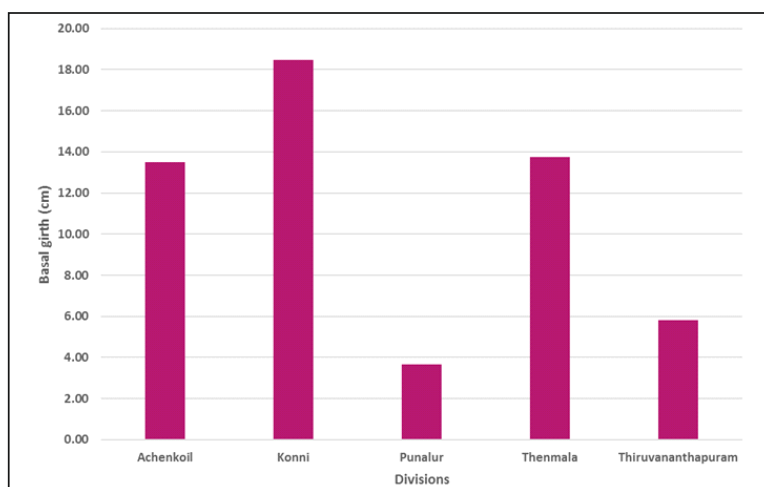
4. 1956 TP Iruthode Eco Restoration Zone, punalur
5. 1957 TP Verukuzhy Eco-Restoration Zone
6. 2004 TP Anappettakonkal, Thenmala division
7. 1997 Eucalyptus Nedungalloorpacha, Thenmala
8. 1964 TP Chozhiyacode Eco-restoration Zone, Kulathupuzha, Thiruvananthapuram



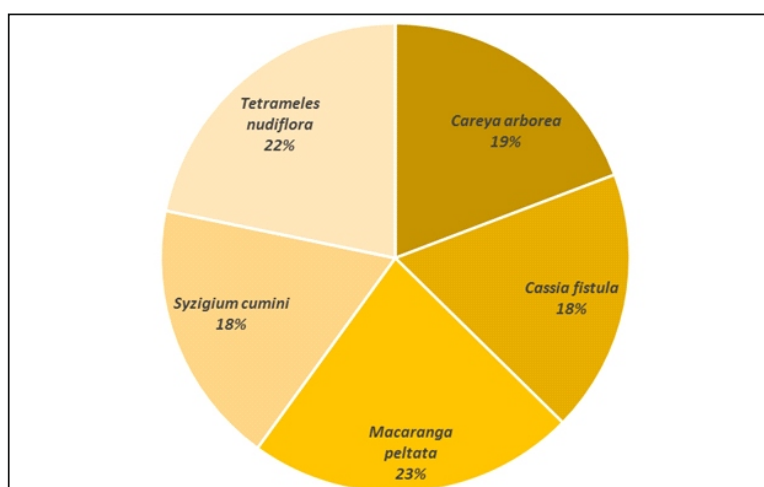
Overall survival rates (%) of ecorestoration efforts across divisions



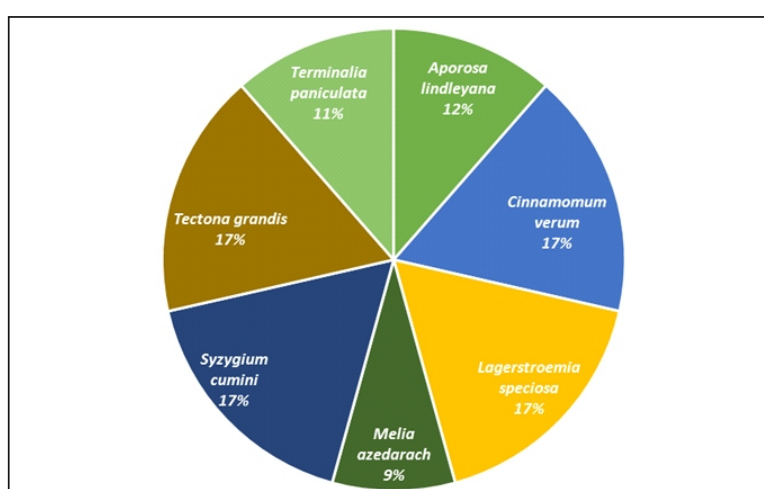
Average height (cm) of the species across divisions in the ecorestoration efforts



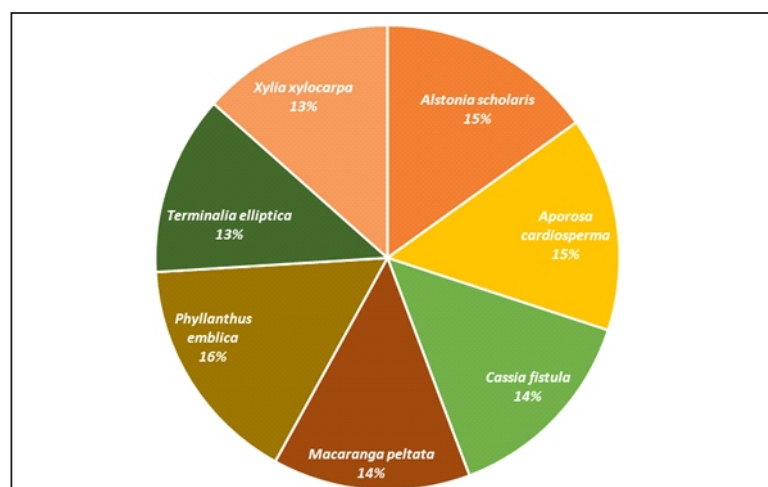
Average collar girth (cm) of the species across divisions in the ecorestoration efforts



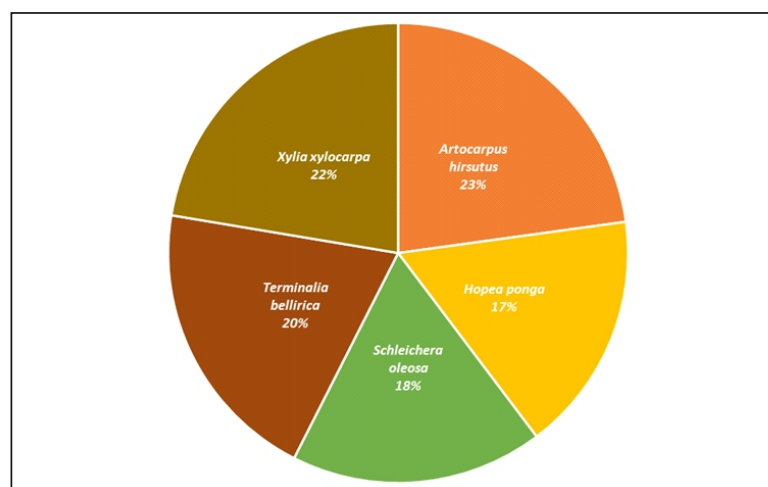
Species composition of the ecorestoration efforts in Aruvikkara, Achenkoil Division



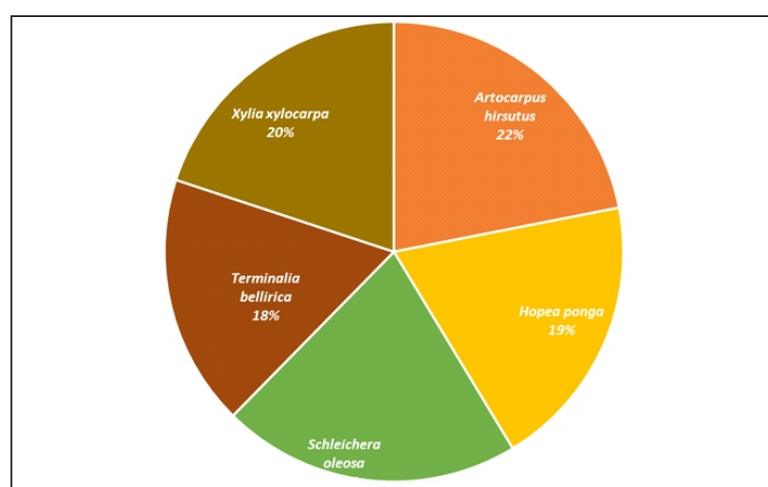
Species composition of the ecorestoration efforts in Mundomoozhi, Konni Division



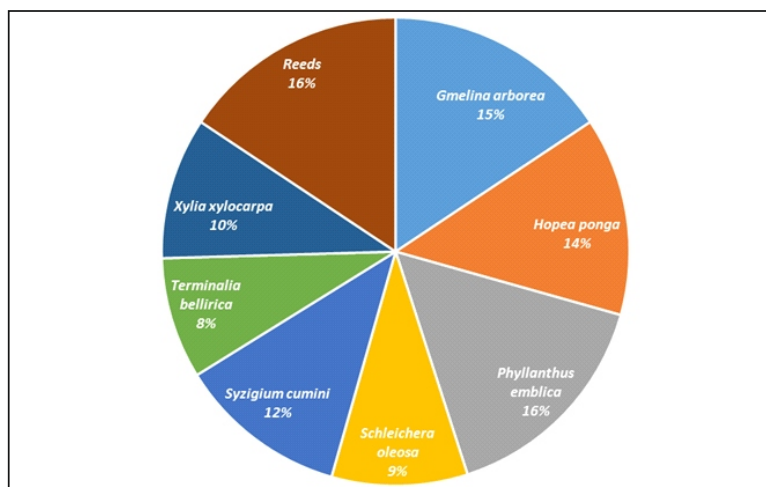
Species composition of the ecorestoration efforts in Kadamancode, Punalur Division



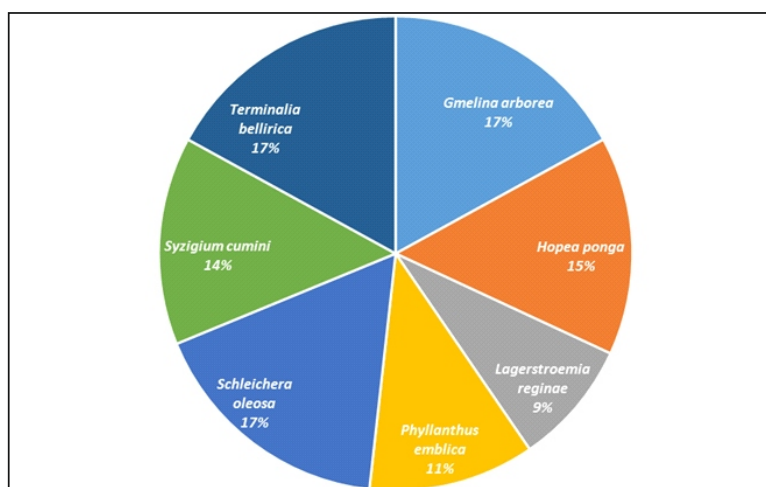
Species composition of the ecorestoration efforts in Iruthode, Punalur Division



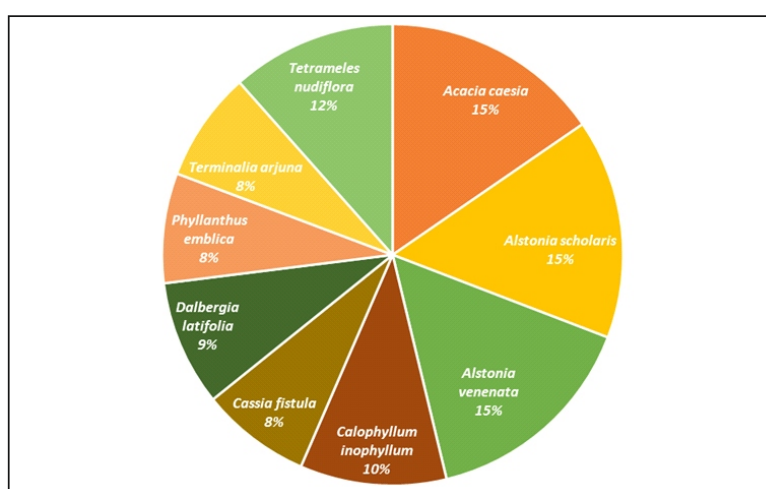
Species composition of the ecorestoration efforts in Verukuzhy, Punalur Division



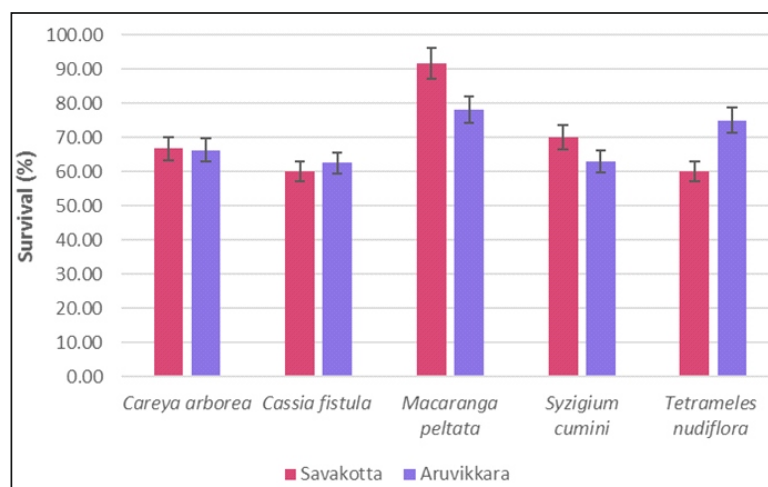
Species composition of the ecorestoration efforts in Anappettakonkal, Thenmala Division



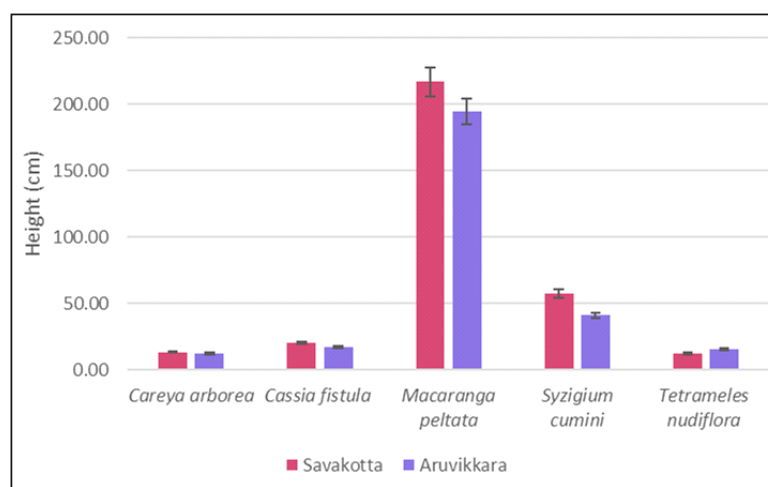
Species composition of the ecorestoration efforts in Nedungalloorpacha, Thenmala Division



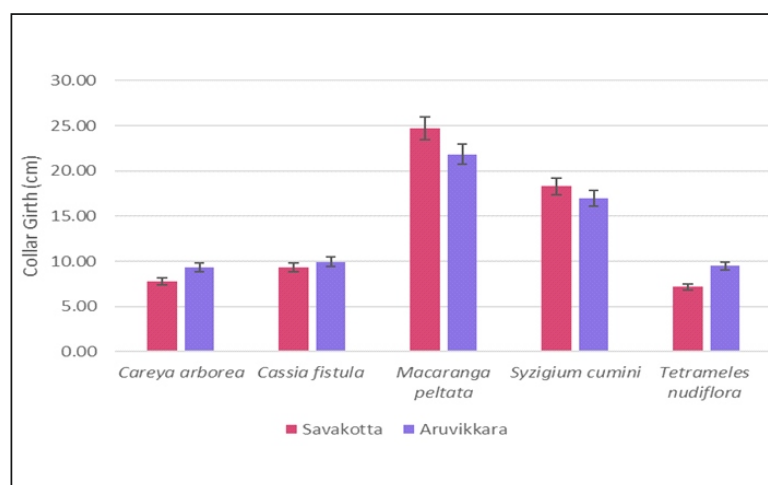
Species composition of the ecorestoration efforts in Chozhiyacode, Thiruvananthapuram Division



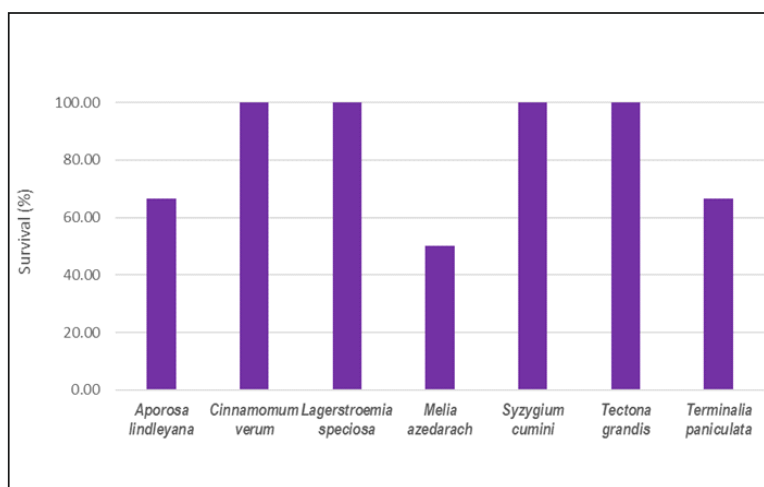
Across site comparison of survival (%) of common species in Achenkoil Division (Bar indicates std error)



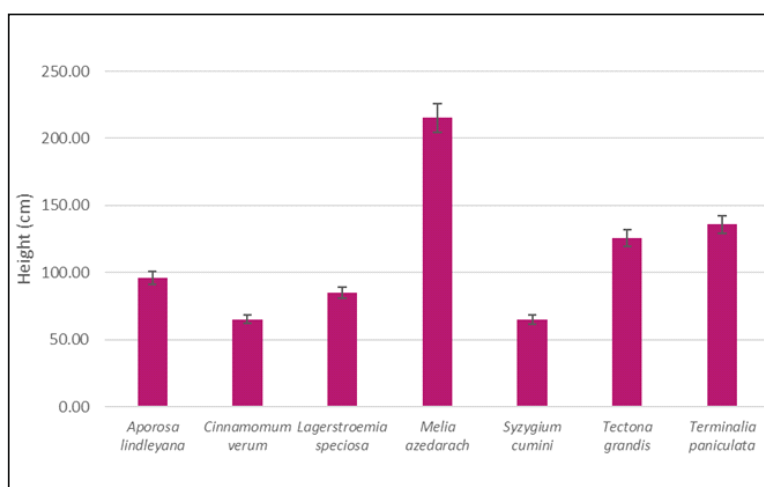
Across site comparison of growth performance in terms of height (cm) of common species in Achenkoil Division (Bar indicates std error)



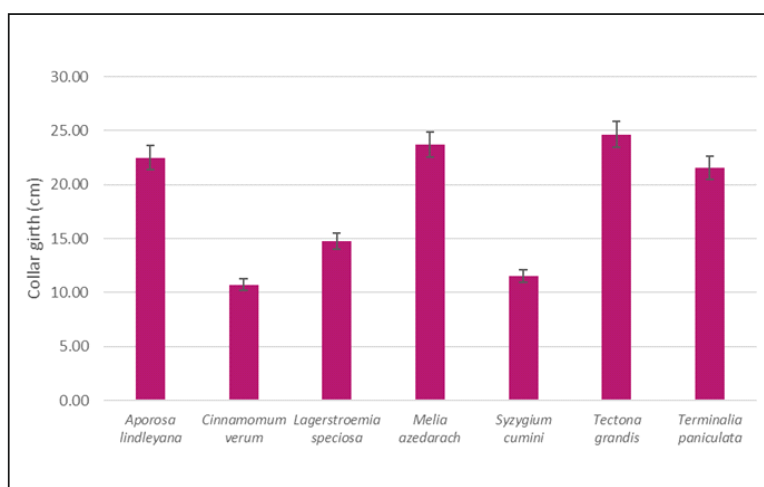
Across site comparison of growth performance in terms of collar diameter (cm) of common species in Achenkoil Division (Bar indicates std error)



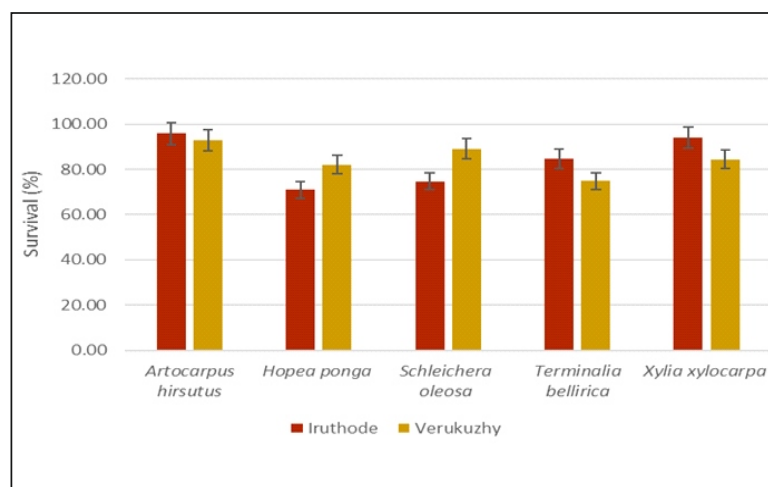
Survival (%) of different species planted in the ecorestoration efforts at Mundomoozhi, Konni Division



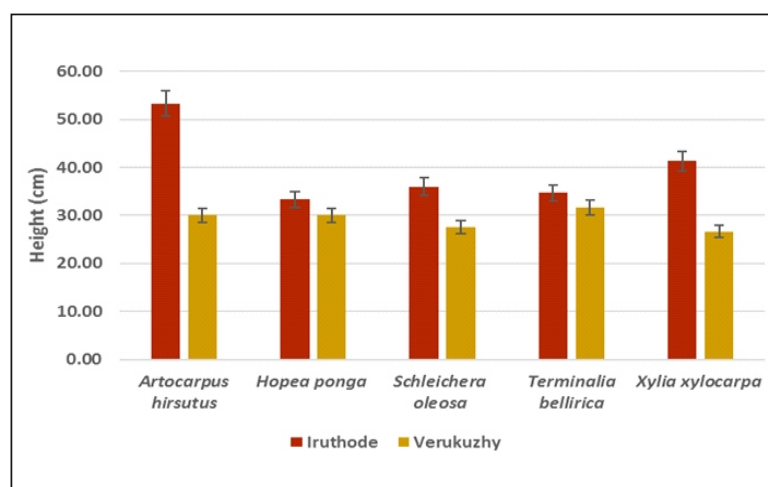
Average Height (cm) of different species planted in the ecorestoration efforts at Mundomoozhi, Konni Division (Bar indicates std error)



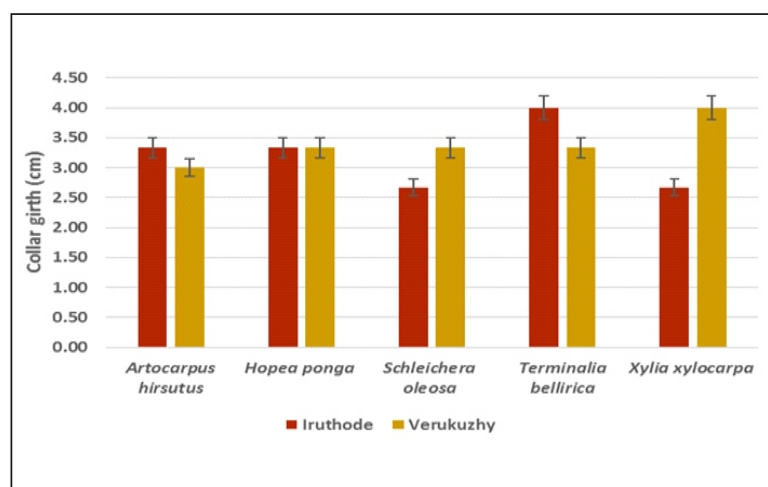
Average Collar Girth (cm) of different species planted in the ecorestoration efforts at Mundomoozhi, Konni Division (Bar indicates std error)



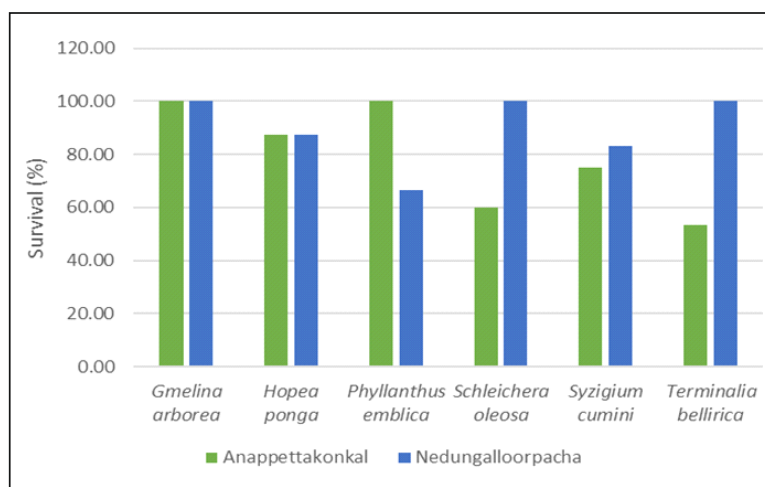
Across site comparison of survival (%) of common species in Punalur Division (Bar indicates std error)



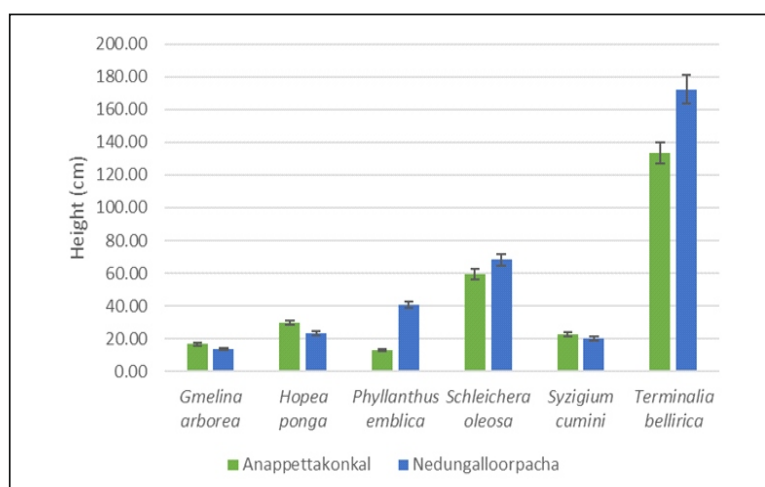
Across site comparison of growth performance in terms of height (cm) of common species in Punalur Division (Bar indicates std error)



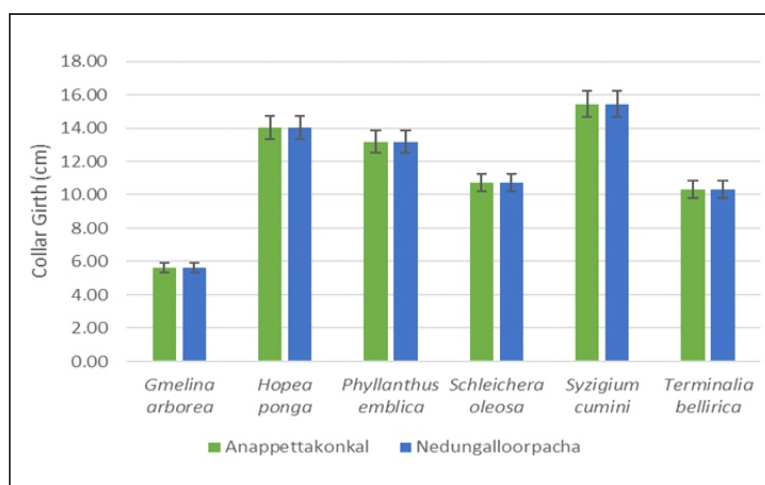
Across site comparison of growth performance in terms of collar girth (cm) of common species in Punalur Division (Bar indicates std error)



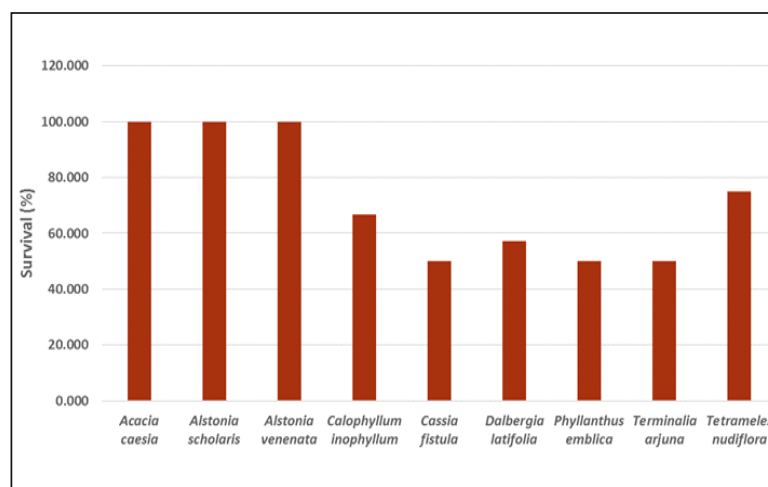
Across site comparison of survival (%) of common species in Thenmala Division



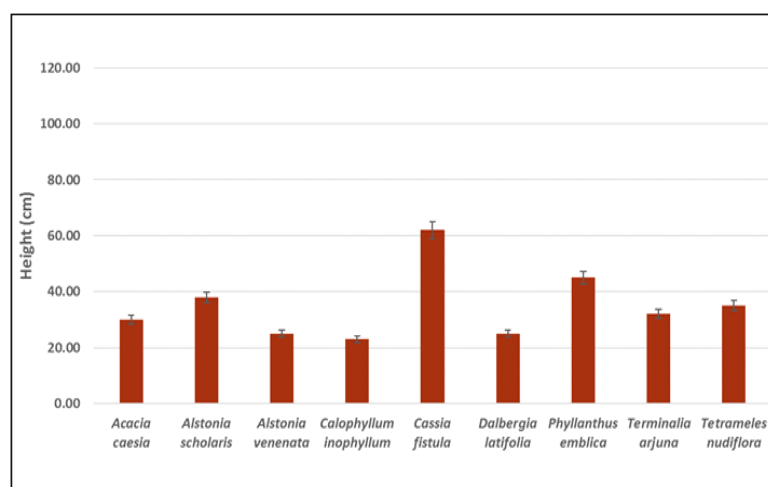
Across site comparison of growth performance in terms of height (cm) of common species in Thenmala Division (Bar indicates std error)



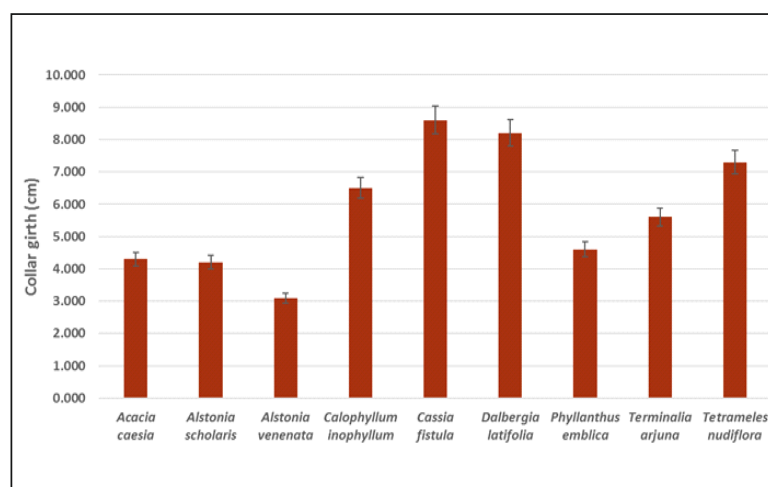
Across site comparison of growth performance in terms of collar diameter (cm) of common species in Thenmala Division (Bar indicates std error)



Survival (%) of different species planted in the ecorestoration efforts at Chozhiyancode Eco-restoration Zone, Thiruvananthapuram Division



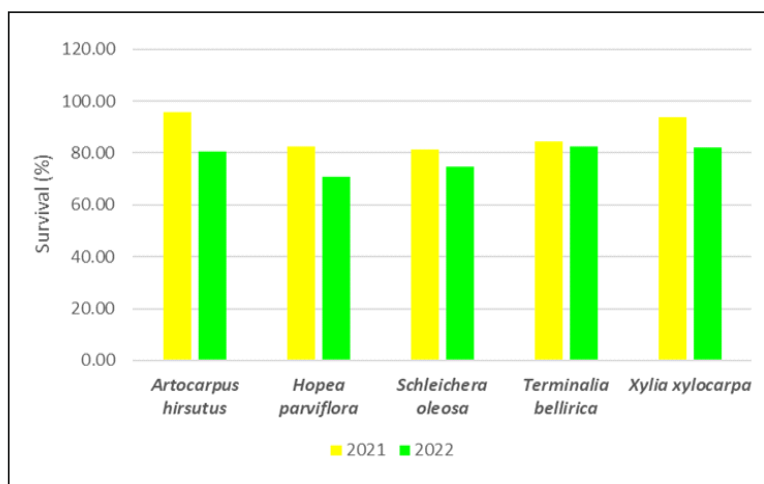
Average Height (cm) of different species planted in the ecorestoration efforts at Chozhiyancode Eco-restoration Zone, Thiruvananthapuram Division (Bar indicates std error)



Average Collar Girth (cm) of different species planted in the ecorestoration efforts at Chozhiyancode Eco-restoration Zone, Thiruvananthapuram Division (Bar indicates std error)

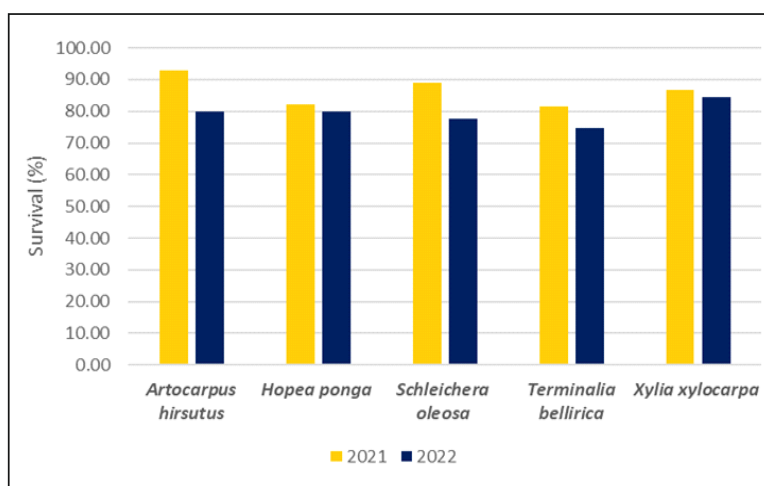
Comparison of ecorestoration efforts across years

A decline in survival rates was observed at Iruthode for most species in 2022 compared to 2021. *Artocarpus hirsutus* showed a marked decline from 96% to 80%. *Hopea parviflora* dropped from 83% to 71%. *Terminalia bellirica* and *Schleichera oleosa* maintained relatively high and stable survival rates across both years.



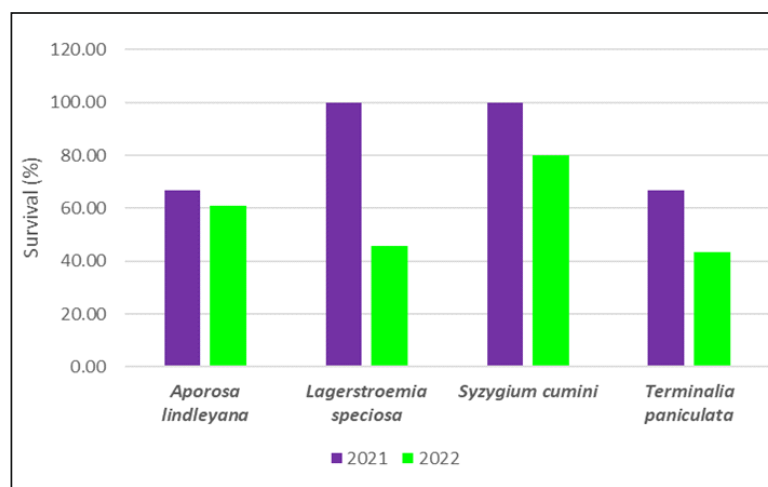
Survival of the species at the ecorestoration site at Iruthode/ Pathanapuram/ Punalur during the M&E 2020-2021 vis-à-vis 2021-2022

All five species monitored showed lower survival in 2022 compared to 2021. *Artocarpus hirsutus* dropped from 92% to 80%, and *Schleichera oleosa* saw a notable drop from 89% to 77%. *Xylocarpa xylocarpa* retained relatively higher survival (85% in 2022).



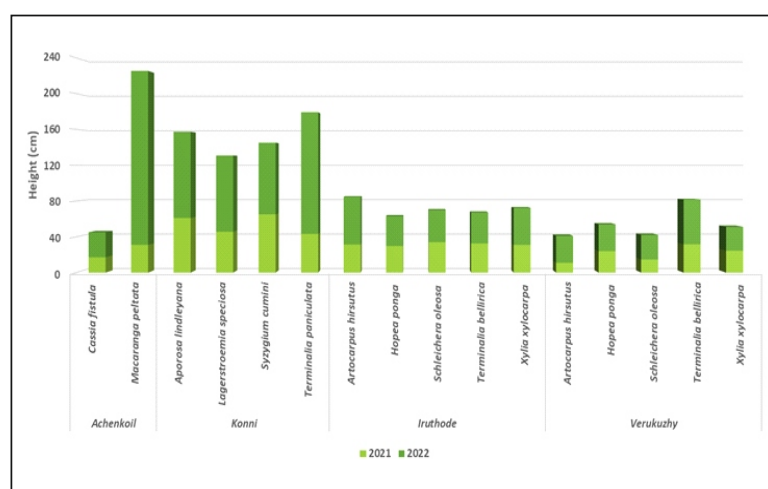
Survival of the species at the ecorestoration site at Verukuzy/ Punalur during the M&E 2020-2021 vis-à-vis 2021-2022

At Mundomoozhi, Konni Division, *Lagerstroemia speciosa* and *Terminalia paniculata* saw drastic drops from 100% and 65% to 45% each. *Syzygium cumini* declined from 100% to 80%, but still retained higher relative performance. *Aporosa lindleyana* had a mild decrease from 67% to 60%.



Survival of the species at the ecorestoration site at Mundomoozhi, Konni Division during the M&E 2020-2021 vis-à-vis 2021-2022

Growth trends are positive across all regions and years, with some species responding significantly better to site-specific conditions. Species like *Schleichera oleosa*, *Terminalia bellirica*, and *Hopea ponga* in Verukuzhy showed moderate increases in height. *Macaranga peltata* (Achenkoil) showed the highest increase, reaching over 200 cm in 2022. *Syzygium cumini* and *Lagerstroemia speciosa* also grew significantly (~160–180 cm) at Konni. While survival rates dipped slightly in 2022 for most species, growth in terms of height generally showed improvement. Species selection, microclimate conditions, and perhaps planting techniques or post-planting care could explain variability. The data emphasizes the need for site-specific and species-specific strategies in ecorestoration efforts.



Average Height (cm) variation of different species planted in the ecorestoration efforts at Iruthode and Verukuzhy in Punalur Division, Mundomoozhi, Konni Division and Savakotta, Achenkoil Division evaluated during 2020-21 and 2021-22



2013 TP Eco-restoration Zone at Savakotta



Eco restoration of 2007 Acacia plantation at Thiruvananthapuram

Species planted in the Compensatory Afforestation Programmes

S. No.	Species	S. No.	Species	S. No.	Species
1.	<i>Alstonia scholaris</i>	9.	<i>Lagerstroemia reginae</i>	17.	<i>Terminalia bellirica</i>
2.	<i>Aporosa cardiosperma</i>	10.	<i>Lagerstroemia speciosa</i>	18.	<i>Terminalia elliptica</i>
3.	<i>Aporosa lindleyana</i>	11.	<i>Macaranga peltata</i>	19.	<i>Terminalia paniculata</i>
4.	<i>Careya arborea</i>	12.	<i>Melia azedarach</i>	20.	<i>Tetrameles nudiflora</i>
5.	<i>Cassia fistula</i>	13.	<i>Phyllanthus emblica</i>	21.	<i>Xylia xylocarpa</i>
6.	<i>Cinnamomum verum</i>	14.	<i>Schleichera oleosa</i>	22.	Reeds
7.	<i>Gmelina arborea</i>	15.	<i>Syzigium cumini</i>		
8.	<i>Hopea ponga</i>	16.	<i>Tectona grandis</i>		

2. Strengthening forest protection and anti-poaching units

Location/Range/ Division	Activity	Remarks
Kallar/ Achenkoil Kanayar/ Achenkoil	Organizing joint patrolling and raids	According to the Physical progress report, this work was reported as carried out. Whereas, the funds were actually spent on an unproposed activity like inter-camp shed maintenance.
Mundomoozhi range/ Konni	Organizing joint patrolling and raids	Conducting interior area perambulation and Ganja Eradication Raid at Kulathupuzha, Onthupacha, Kocharippa, Edappana
Punalur, Mampazhathara, Kazhaturutti, Thenamala, Kalamkunnu/Anchal range/ Punalur	Organizing joint patrolling and raids	Conducting interior area perambulation and Ganja Eradication Raid
Ezhamkulam, Kulathupuzha, Canalbelt, Thekkumala, Kunnumanal/ Anchal/ Punalur	Organizing joint patrolling and raids	Conducting interior area perambulation and Ganja Eradication Raid
Ayiranalloor, Vilakkupara, Moolakayam, Kunnumanal/ Anchal/ Punalur	Organizing joint patrolling and raids	Conducting interior area perambulation and Ganja Eradication Raid
Ayiranalloor, Vilakkupara, Moolakayam, Kunnumanal (Second Raid)	Organizing joint patrolling and raids	Conducting interior area perambulation and Ganja Eradication Raid
Vadasserikkara Range/ Ranni	Organizing joint patrolling and raids	Conducting Ganja Raids and destruction of Ganja cultivation, anti-brewing raids and camps in the interior forest areas of Vadasserikkara Forest Range
Thenmala, Edamon, Kalluvarambu, Kottavasal/ Thenmala	Organizing joint patrolling and raids	Vouchers were verified
Kalluvarambu Section, Vithura section/ Parnduthipally Range/ Thiruvananthapuram	Organizing joint patrolling and raids	Vouchers were verified
Chittar / Kanayar/ Achenkoil	Interior Camp shed maintenance	The maintenance involved the purchase of 2 teak single cots, 1 steel dining table with a glass top (5x3 oval), and 8 chairs. The work has been evaluated and verified the vouchers for the physical achievement.
Sankily/ Kulathupuzha/ Thiruvananthapuram	Interior Camp shed maintenance	The shed was inspected by the evaluation team and records and vouchers were also verified and found correct.

Location/Range/ Division	Activity	Remarks
Edamon, Thenmala, Bedford, Kadamanpara, Kalluvarambu, Chenagiri / Thenmala	Provision for field ration for interior camps	The work was evaluated and verified the vouchers.
Kottavasal, Dharbhakulam, Edappalayam/ Thenmala	Provision for field ration for interior camps	The work was evaluated and verified the vouchers.
Naduvathumoozhi/ Naduvathumoozhi/ Konni/ Mannarappara	Provision for field ration for interior camps	The work was evaluated and verified the vouchers.
Pathanapuram/ Anchal Range (Punnala FS)/ Punalur	Provision for field ration for interior camps	The work was evaluated and verified the vouchers.
Vadasserikkara, Ranni, Anchal/ Ranni	Provision for field ration for interior camps	The work was evaluated and verified the vouchers.
Manachala, Nootianchu, Varayadumotta, Vattappara / Palode Range/ Thiruvananthapuram Kilavanthotam/ Paruthipally Range/ Thiruvananthapuram	Provision for field ration for interior camps	The work was evaluated and verified the vouchers.
Palode, Paruthipally Range/ Thiruvananthapuram	Field survival kits and Field Equipment's	Searchlights, sleeping blankets, and DMS boots, 125 nos 0.315 Riffle catridge, Helmet with front grill life jacket and GUM boot were procured for the division. The work was evaluated, and all the bills were found to be correct.

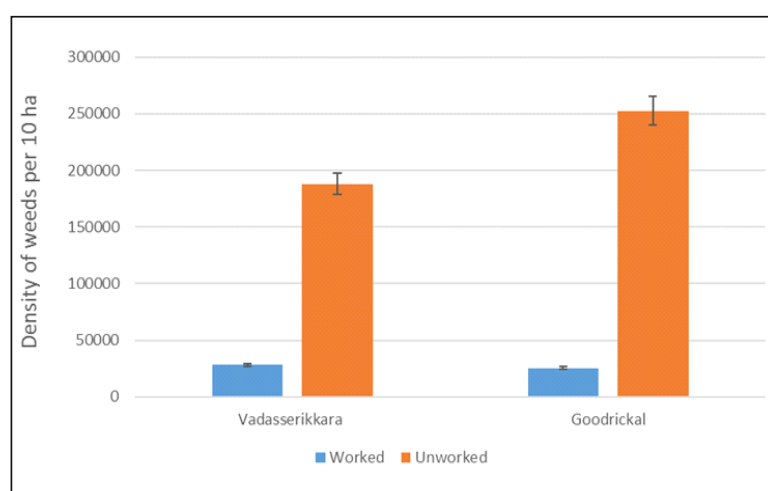


Field survival kits at Thiruvananthapuram

The Interior Camp shed maintenance in two camps at Kulirkadu in Thenmala Division were not carried out. All the other activities mentioned as per the APO of 2021-2022 were physically verified, records perused and found correct.

3. Improvement of Wildlife habitat

As a part of improving the wildlife habitat, weed eradication was undertaken in Punalur and Ranni divisions. The comparison of plot areas between Vadasserikkara and Goodrickal reveals significant differences in weed infestation. In Vadasserikkara, the weed infestation was lower than in Goodrickal. In Goodrickal, the worked plot area was almost ten times free from weed infestation. This indicates that although both locations have made similar efforts in weed eradication, Goodrickal faces a greater challenge. Strategic interventions may be necessary to address the larger unworked areas in Goodrickal and enhance management effectiveness.



Comparison of weed infestation in weed eradicated plot areas in Vadasserikkara and Goodrickal (Bar indicates std error)

Among the different activities listed in the APO, removal of exotic weeds envisaged at Nedungalloorpacha/ Thenmala and bird survey and conservation at Konni, Naduvathumoozhi Mannarappara were not carried out.

4. Forest fire prevention and control

Location/Range/ Division	Activity	Remarks
Adichanpara, Parakkadavu, Mathaimuruppu/ konni	Engaging mazdoor as fire gangs	Vouchers verified
Poonkulanji, Prarthanakulam, Elappakodu, Kudukkathupara and Kochirappa Edappana and Tholipacha fire gang/ Pathanapuram Range/ Punalur	Engaging fire gangs	Rs. 6,81,464.00 Vouchers and records were verified. VSS members were engaged as man mazdoors for fire protection.

Location/Range/ Division	Activity	Remarks
Tholipacha in Ezhamkulam forest station, Vellila, Urukunnu, Madathara/ Anchal range/ Punalur	Engaging fire gangs	Rs. 3,66,479.00 Vouchers and records were verified. VSS members were engaged as man mazdoors for fire protection.
Gurunathamannu/ Vadasserikkara Range/ Ranni	Engaging fire gangs	Camping materials for the use of Interior Camping were procured for Rs. 0.73 lakhs
Chekkonam Section Palode Range/ Thiruvananthapuram Kallar Section Palode Range/ Thiruvananthapuram Thekkumala, Section Kulathupuzha Range/ Thiruvananthapuram	Engaging fire gangs	Vouchers and records were verified. VSS members were engaged as man mazdoors for fire protection.
Mannarappara/ Konni	Firefighting equipment	Chainsaw, torch head light long range torch, Hook, Bottle, shoulder bag, head light etc purchased were verified. The stock register was reviewed and verified.
Vadasserikkara, Ranni, Goodrical/Ranni division	Firefighting equipment	Providing safety equipments, tools and cage for the Rapid Response Team like snake handling kit, long hand glove, monkey trap cage
Kulathupuzha, Palode/ Thrivendum	Firefighting equipment	6 head lamps, 10 water bottles, 10 fire beaters, and 27 backpacks were procured in Kulathupuzha Range and 1 chainsaw, 10 bill books, 10-liter water bottles (10nos), 10 face shields, 10 small hand rack 10 large hand rack, hand gloves, and pickaxes in Palode range. All the purchased materials were physically verified and found to be correct.
North Kumaramperoor, Kumaramperoor, Naduvathumoozhi / Konni	Creation of fire break	Records and vouchers verified
Chudalakunnu, Kulatharapacha/ Pathanapuram range/ Punalur Ezhamkulam, Thozhipacha/ Anchal range Punalur	Creation of fire break for 4 width and 5.2 Km length in each location	Records and vouchers verified
Kannathramurippu area under Rajampara Forest Station in Ranni	Creation of fire break to a width of 5.2m	Records and vouchers verified

Location/Range/ Division	Activity	Remarks
Vakkalar Top/ Vadasserikara/ Ranni	Clearing boundary line for a width of 5.2 m and 6.5 Km length as a fire break	Records and vouchers verified
Vakkalar/ Vadasserikara/ Ranni	Clearing boundary line for a width of 5.2 m and 6.5 Km length as a fire break	Records and vouchers verified
Vadasserikara/ Vadasserikara/ Ranni	Clearing boundary line for a width of 5.2 m and 3 Km length as a fire break	Records and vouchers verified
Ettalamannu – Pulinchal under Gurunathanmannu forest station/ Vadasserikara/ Ranni	Clearing boundary line for a width of 5.2 m and 4 Km length as a fire break	Records and vouchers verified
Kattadi, Aranamudi/ Goodrical/ Ranni	Clearing boundary line for a width of 5.2 m and 6.5 Km length as a fire break	Records and vouchers verified
Mulamkootam and Vilakkupara/ Goodrical/ Ranni	Clearing boundary line for a width of 5.2 m and 6.5 Km length as a fire break	Records and vouchers verified
Valuppara, Kochandymala, Mlampura, Eachipara/ Goodrical/ Ranni	Clearing boundary line for a width of 5.2 m as a fire break	Records and vouchers verified

Efforts for fire prevention and control were taken up in all the areas listed. Awareness campaigns could be conducted only in Konni and Punalur, while it was not taken up in Aryankavu and Kulathupuzha, as per the records.



Fire fighting equipments at Konni



Fire fighting equipments at Vadasserikkara Range, Ranni



Awareness campaign at Konni

Engaging fire gang at Thenmala

S.No.	Activity	Location	Range	Financial Target	Financial achievement
1.	Engaging Fire Gangs	Villumala VSS	Thenmala	2.69	1.94812
2.	Engaging Fire Gangs	Pootottom Pathekkar VSS	Thenmala	2.69	2.30154
3.	Engaging Fire Gangs	Urukunnu MV VSS	Thenmala	2.69	2.15500
4.	Engaging Fire Gangs	Rajathottam VSS	Thenmala	1.53	1.3200
5.	Engaging Fire Gangs	Edappalayam VSS	Thenmala	2.98	2.54290
6.	Engaging Fire Gangs	Karayalarmeth VSS	Thenmala	2.59	1.37920

S.No.	Activity	Location	Range	Financial Target	Financial achievement
7.	Engaging Fire Gangs	Karayalarmeth VSS	Thenmala	1.79	1.50008
8.	Engaging Fire Gangs	Kottavasal VSS	Thenmala	3.24	2.67220
9.	Engaging Fire Gangs	Kadamanpara VSS	Thenmala	2.59	1.96536
				22.79	17.7844

Creation of Fire Break at Thenmala

S.No	Activity	Location	Range	Remarks
3.	Control burning	Thenmala section	Thenmala	Cleared jungle growth on both sides of the road 5.2 m X 4KM. Physical activities, measurements, M-Book, and bills have been verified and found to be correct.
4.	Control burning	Kalluvarambu Section	Thenmala	Physical activities, measurements, M-Book, and bills have been verified and found to be correct.
5.	Creation of fire line at CNK	CNK	Thenmala	Physical activities, measurements, M-Book, and bills have been verified and found to be correct.
6.	Controlled burning	Aryankavu Section	Thenmala	Physical activities, measurements, M-Book, and bills have been verified and found to be correct.

Creation of fire breaks could not be taken up at Kadamanpara, Aryankavu and in the Thenmala, Edamon and Kalluvarambu sections of Thenmala. The fire lines were inspected as per the records and physically verified. The staff informed that the fire lines prevented fire spread, minimizing the number of fire incidents in the sections.

Fireline Id/No. Geo coordinates	Size(Width * Length) in Measurement Book	Actual Size (Width * Length) in field	% variation (+/-)
8.8987 77.0650	W- 5.2 m, 116 mm, L- 2.9 Km	W- 5.2 m 116 mm, L- 2.9 Km	Nil
8.9033 77.0633	W- 5.2 m 116 mm, L- 2.9 Km	W- 5.2 m 116 mm, L- 2.9 Km	Nil
8.9001 77.0641	W- 5.2 m 116 mm, L- 2.9 Km	W- 5.2 m 116 mm, L- 2.9 Km	Nil



Creation of firebreak at Thenmala

5. Human-animal conflict mitigation

Location/Range/ Division	Activity	Remarks
Kalanjoor/Konni	Establishment, operation and maintenance of Animal rescue centre and veterinary treatment facility	Stainless steel tiger gauge (8' length, 5' width, and 4' height) procured was physically verified and the stock register was thoroughly evaluated to ensure accuracy.
Naduvathumoozhy/ Konni	Engaging watchers to mitigate human animal interface	Verified vouchers
Vadasserikkara, Ranni, Goodrical/Ranni division	Engaging watchers to mitigate human animal interface.	Verified vouchers for Rs. 2.51 lakhs
Palode and Paruthipally/ Thiruvananthapuram	Engaging watchers to mitigate human animal interface	Verified vouchers for Rs. 2.64 lakhs
Poochakkulam in Thannithodu FS/ Vadasserikkara/ Ranni	Protective Gears for wildlife conflict mitigation staffs- Headlight, torch, first aid kit, camoflague shoulder bag	The evaluation team inspected the availability of the items and verified the records and vouchers.
Konni	Protective Gears for wildlife conflict mitigation staffs	Searchlights and Garmin GPS units were purchased for the Konni Division, and this work was subsequently evaluated.
Peringammala section Palode range/ Thiruvananthapuram	Protective Gears for wildlife conflict mitigation staffs	Verified records.

Location/Range/ Division	Activity	Remarks
Anchal/ Punalur	Purchase of Equipment's / Ration for RRT	Electronic weighing machine, metal detector for the use of RRT in the Anchal Range, Repair and maintenance of 12 damaged animal Cages and Traps were verified. The stock register and vouchers were reviewed and verified.
Paruthipally/ Thiruvananthapuram	Purchase of Equipment's / Ration for RRT	The work was evaluated, and the purchases included a color camera trap, medicines for animals, a leopard cage (8x4 feet bottom, 6x4 feet top, 4 feet height), snake-catching tools, a portable elephant repeller with electronic sound equipment, a hand cutter, a shield cutter, a tracking bag, and other items. All the materials were physically verified.
Paruthipally/ Thiruvananthapuram	Providing field Equipments and medicines for animal rescue and Veterinary care facilities	Medicines were purchased for animals. Vouchers were verified



Protective Gears at Thiruvananthapuram

6. Soil moisture conservation

a. Gully Plugging – 1961 TP Kadamancode Eco Restoration Zone SMC Works, Anchal Range

Gully plugging				
Gully plugging ID/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth *Length) in field	% variation (+/-)	Present Condition of the structure
8.9092 77.0164	1.5 X 1.75 X 3.0 m	1.5 X 1.6 X 3.0 m	8.5	Good
8.9093 77.0165	2.0 X 1.0 X 4.0 m	1.9 X 1.0 X 4.0 m	5	Good
8.9093 77.0078	2.0 X 1.50 X 11.0 m	2.0 X 1.30 X 11.0 m	13.3	Good
8.9094 77.0166	1.5 X 1.5 X 7.0 m	1.5 X 1.5 X 7.0 m	Nil	Good
8.9093 77.017	21.75 X 1.5 X 6.80 m	1.75 X 1.5 X 6.80 m	Nil	Good
APO Target	Rs. 7,50,000.00			
Total Expenditure	Rs. 2,91,000.00			

b. Gully Plugging – 1956 TP Iruthode Eco Restoration Zone, Pathanapuram Range

Gully plugging				
Gully plugging ID/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth *Length) in field	% variation (+/-)	Present Condition of the structure
9.0653 76.9666	1.0 X 0.60 X 2.0 m	1.0 X 0.53 X 2.0 m	11.6	Good
9.0609 76.9668	1.0 X 0.60 X 2.0 m	1.0 X 0.50 X 2.0 m	16.6	Good
9.0609 76.9676	1.0 X 0.60 X 2.0 m	1.0 X 0.55 X 2.0 m	8.3	Good
9.0606 76.9676	1.0 X 0.60 X 2.0 m	1.0 X 0.60 X 2.0 m	Nil	Good
9.0666 76.9833	1.0 X 0.60 X 2.0 m	1.0 X 0.50 X 2.0 m	Nil	Good
APO Target	Rs. 3,75,000.00			
Expenditure	Rs. 3,25,000.00			

c. Gully Plugging - 1957 TP Verukuzhy Eco Restoration Zone, Pathanapuram Range

Gully plugging				
Gully plugging ID/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth *Length) in field	% variation (+/-)	Present Condition of the structure
9.1315 76.9833	1.0 X 0.60 X 2.0 m	1.0 X 0.60 X 2.0 m	Nil	Good
9.0652 76.9663	1.0 X 0.60 X 2.0 m	1.0 X 0.50 X 2.0 m	16.6	Good
9.0658 76.966	11.0 X 0.60 X 2.0 m	1.0 X 0.55 X 2.0 m	8.3	Good
9.0666 76.9656	1.0 X 0.60 X 2.0 m	1.0 X 0.55 X 2.0 m	8.3	Good
9.0669 76.9157	1.0 X 0.60 X 2.0 m	1.0 X 0.50 X 2.0 m	16.6	Good
APO Target	Rs. 7,50,000.00			
Expenditure	Rs. 5,54,000.00			

d. Contour Trenches - 1961 TP Kadamancode Eco Restoration Zone, Anchal Range

Size of Contour trenches				
Contour trench ID/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth *Length) in field	% variation (+/-)	Present Condition of the structure
8.9847 77.9999	0.5 m X 0.5 m X 1m	0.5 m X 0.5 m X 1m	Nil	Good
8.9095 77.1736	0.5 m X 0.5 m X 1m	0.5 m X 0.5 m X 1m	Nil	Good
8.9095 77.0166	0.5 m X 0.5 m X 1m	0.5 m X 0.5 m X 1m	Nil	Good
8.9091 77.0166	0.5 m X 0.5 m X 1m	0.5 m X 0.5 m X 1m	Nil	Good
8.9099 77.0169	0.5 m X 0.5 m X 1m	0.5 m X 0.5 m X 1m	Nil	Good
APO Target	Rs. 7,50,000.00			
Expenditure	Rs. 2,91,000.00			

e. Creation of Pond - 1961 TP Kadamancode Eco Restoration Zone, Anchal Range

Size of the pond				
Pond ID/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth *Length) in field	% variation (+/-)	Present Condition of the structure
8.894 77.0313	10 m X 2.6 m X 10 m (260 m3)	10 m X 2.6 m X 10 m (260 m3)	Nil	Good
Expenditure	Rs. 52,520.00			

f. Percolation pond in Ambanar FS, Pathanapuram Range

Pond Desiltation					
Pond Desiltation ID/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth *Length) in field	% variation (+/-)	Type of vegetative materials used	Present Condition of the structure
9.0281 76.9966	13.5m X 3m X 3.5m	13.5mX3m X 3.5m	Nil	Lemon grass	Good



Evaluating the gully at Thenmala division

7. Better Connectivity

Location/Range/ Division	Activity	Remarks
Dharbhakulam- Kottavasal, Kottavasal –Rajacoupe, Rajacoupe-Kurissumala/ Thenmala	Maintenance of trek paths/ patrolling routes	Clearing weeds and jungle growth activities were carried out as recorded in M-Book. Physical activities, measurements, M-Book, and bills have been verified and found to be correct.
Priya estate Kulirkadu, Pandyanpara-Kurissumala, Swarnampillakadu- Kurissumala, Choodal to Eettakkanam, Kalluvarambu / Thenmala	Maintenance of trek paths/ patrolling routes	Work was not carried out
Karimpinhottam- Aryankavu/ Aryankavu/ Thenmala	Maintenance of forest road	Vouchers verified
Decentmukku to Amakkulam Road, Kalluvarambu, Nedumpacha to Parambu, Edamon/ thenmala	Maintenance of forest road -3 Ha	Work was not carried out
Mannarappara, Naduvathumoozhi/ Konni	Conducting nature camps	Conducted nature camps at school and college students
Ranni division, Aryankavu, Thenmala/Thenmala	Conducting nature camps	Work was not carried out
Kallar Eco-Tourism Centre Kallar/ Pallode/ Thiruvananthapuram Pallode/ Thiruvananthapuram	Conducting nature camps	Work was not carried out
Aryankavu, Thenmala/ Thenmala	Awareness program	Work was not carried out
Kulathupuzha, Palode, Paruthipally	Awareness program	Work was not carried out

Maintenance of Trek Path / New Trek Path /Patrolling route/ Coupe road

S. No	GPS Reading and Location	Particulars of Work	Length X Width	Expenditure
1.	8.9281 76.9144 Pathanapuram Range	Trek Route maintenance at Pathnapuram Range	3 Km X 3 m	20,000.00

S. No	GPS Reading and Location	Particulars of Work	Length X Width	Expenditure
2.	8.8545 76.9986 Pathanapuram Range	Maintenance of the Trek path from Nattukal to Tholipacha through Kocharippa – Edappana VSS in Anchal Range	2 Km X 3 m	63,500.00
3.	8.8547 76.9962 Anchal Range	New Trek path in Kanchirappara section of Anchal Range (Clearing the trek path to a width of 3 m into 0.15 m depth)	3 Km X 3 m	20,000.00
4.	Pathanapuram Range	Vista clearance of Uppukuzhy – Mampazhathara road in Pathanapuram Range	6 Km X 3 m	92,736.00
5.	9.1897 76.9867 Pathanapuram Range	Coupe road maintenance in Chudalakunnu (Clearing the road to a 5.2 m width) in Pathanapuram Range	5 Km X 5.2m	21,460.00
	APO Target	1,60,000.00		
	Expenditure	2,17,696.00		

S. No	GPS Reading and Location	Particulars of Work	Length X Width	Expenditure
1.	Vadasserikkara Range/ Ranni	Creation of New Trek Path from Mundomoozhy to Valiyakotta Under Thannithods FS	1 Km X 3 m	28,548.00
2.	Vadasserikkara Range/ Ranni	Maintenance of Trek Path from Moonnumukku to Kuthumon Moozhy under Gurunathamannu FS	3 Km X 3 m	85,645.00
	APO Target	10,000.00		
	Expenditure	1,14,193.00		

Maintenance of Forest Road at Karimpinhottam/ Aryankavu/ Thenmala

Fireline Id/ No.	Size (Width * Length) in Measurement Book	Actual Size Actual Size in field	% variation (+/-)	Efficacy of fire line created in terms of number of times fire spread is prevented by the presence of fire line, if any
8.9883 77.0136	W- 3 m L- 1.5 Km	W- 3 m L- 1.5 Km	Nil	Nil
8.9889 77.1644	W- 3 m L- 1.5 Km	W- 3 m L- 1.5 Km	Nil	Nil
8.9893 77.1660	W- 3 m L- 1.5 Km	W- 3 m L- 1.5 Km	Nil	Nil

Under this activity, maintenance of trek path and forest connecting road for the teak and softwood plantation sub activities were executed well. The documents and vouchers pertaining to these activities were verified and found correct. Evaluation team suggested for regular annual maintenance of trek paths.



Maintenance of forest road in Thenmala division

Participation of V.S.S in plantation/protection programme The evaluation team had interaction with Odappara VSS in Ambanar Forest Station They observed that

- ◆ Engaging VSS members in Compensatory Afforestation
- ◆ Involved in the creation of fire break, gully plug construction and weeding operations
- ◆ Working plan prepared for engaging VSS members in planting
- ◆ Distributing gas cylinders to residents.
- ◆ Supplying rations to VSS members.
- ◆ Providing medical supplies and organizing medical camps.
- ◆ Hiring local individuals for plantation operations and creating fire lines.
- ◆ The department primarily relied on contractors to complete the majority of the work.

II. Maintenance of assets created

In addition to the sixteen different activities in the circle under eight components, infrastructure development to provide assistance to tribal VSS was also undertaken. The circle implemented all the activities listed in the APO.

Sr. No.	Asset	Responsibility	Status (Well maintained/ Not maintained)
1.	A eco shop was created for the sale of Aloe Vera soap	Forest Department and VSS members	Well maintained

Infrastructure development at the CAMPA office

1.	Procurement of Office Stationary item, State CAMPA office	The work was evaluated, and the purchases included 10 units of A4 copier paper, cartridge refilling, an HP toner cartridge, and binding for three books.
2.	Procurement of Desktop Computers, State CAMPA office	The work was evaluated, and the purchases included a desktop with an Intel processor, an A4 multifunction printer, and a 5 KVA UPS.
3.	Procurement of Computer Printers, State CAMPA office	The work was evaluated, and the purchases included a desktop with an Intel processor, an A4 multifunction printer, and a 5 KVA UPS.
4.	Procurement of Office Furniture, State CAMPA office	The work was evaluated, and the purchases included 12 revolving chairs, 2 executive chairs, 2 visitor chairs, 1 additional executive chair, and 1 file storage rack. All the materials were physically verified and found to be correct.

IV. Work Evaluated Not Included in APO

3.1. Plantation boards

S. No	Year	Range	Particulars of Works	Total Expenditure
1.	2021-2022	Pathanapuram	Making, Writing and Installation of plantation board at 2018 CA plantation Kulatharapacha and 2019 CA plantation Chudalakunnu	Rs.19,118.00

3.2. Infrastructure of Interior Camping Stations

S. No	Year	Range	Particulars of Works	Total Expenditure
1.	2021-2022	Pathanapuram range	Purchasing furniture to strengthen the infrastructure of interior camping stations	Rs. 2,67,000.00

3.2. Infrastructure of Interior Camping Stations

S. No	Year	Range	Particulars of Works	Total Expenditure
1.	2021-2022	Anchal Range	Purchase of Ertix 10 GPS – 5 No'S	Rs. 53,100.00

Under the "Not less than 60%" Interest Fund category (Part-A), several activities were planned but not executed in Thiruvananthapuram Division, including offsetting costs for Compensatory Afforestation (Rs. 10 lakhs), sitting fees for members (Rs. 1 lakh), and salaries for the CEO and Deputy CEO (Rs. 25 lakhs). However, activities such as salary payments to the Project Manager cum Accountant and Computer Operator were completed, with verified records. These salaries

amounted to Rs. 8.25 lakhs out of the allocated Rs. 13 lakhs. Additionally, Rs. 0.68 lakhs were spent on travel and monitoring, out of an allotted Rs. 5 lakhs. Procurement of Laptop, Photocopier and Hiring of staff car was not taken up as envisaged.

During the period, an amount of Rs. 319.872 lakhs was allotted to the circle, of which 62.94% financial achievement was recorded.

Wildlife Circle, Palakkad (2021-22)

The evaluation covered five divisions of the circle. They include

1. Aralam
2. Wayanad
3. Parambikulam
4. Peechi
5. Silent Valley

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Protection of Plantations of Forests	1. Strengthening forest protection and anti-poaching units.	Aralam Wayanad Parambikulam Peechi Silent Valley
	a. Interior Camp Shed Maintenance	
	2. Improvement of Wildlife habitat	
	a. Maintenance of Vayal (marshy grasslands which are source of fodder for herbivores).	
	b. Removal of Exotic Weeds	
	3. Forest fire prevention and control habitat	
	a. Engaging Fire Gangs through participatory forest management	
	b. Fire Fighting Equipments	
	c. Creation Of Fire Break	
	4. Human-animal conflict mitigation	
	a. Establishment, Operation and Maintenance of Animal Rescue Centre and Veterinary Treatment Facility.	
	5. Better Connectivity	
	a. Maintenance of Forest Roads	
	b. Maintenance of trek path	

Coverage of sites in Wildlife Circle, Palakkad

Division	Fire	CAMPA infra-structure	CAMPA Assets	Wild Life infra-structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Aralam	2						
Wayanad	2						2+2
Parambikulam	5	3					
Peechi	6	2	1				
Silent Valley National Park Wildlife	1	3					

I. Protection of Plantations of Forests

1. Strengthening forest protection and anti-poaching units

Location/Range/ Division	Activity	Remarks
Muduverichal/ Orukomban/ Parambikulam	Interior Camp shed maintenance	The evaluation team inspected the dimensions, physical existence of Campshed and GI roof sheeting for kitchen, tile laying, plinth protection all over the building, bathroom renovation and painting and observed that the Campshed was maintained well. The bills and records were verified.
Mannarkad/ Bhavani/ Silent Valley	Interior Camp shed maintenance	The invertor charge controller to interior camps under Panthanthode Antipoaching campshed, Bhavani Rage has been verified. The bills and records were verified.
Varayanpara/Peechi division	Interior Camp shed maintenance	Maintained well. Metal camp cots and camping stools were found to be good. The bills and records were verified.
Chimmony/ Peechi WL	Interior Camp shed maintenance	Artistic painting work with bamboo designs was carried out on a circular duplex shed and pillars of Vavla APC. Bills and records were verified.
Kavala FS/ Chimmony / Peechi WL	Interior Camp shed maintenance	In order to provide drinking water facility to Kavala FS 150-meter-deep bore well was dug near the Kavala Forest Station and found no water. Hence, not in use.
Olakara/ Peechi	Interior Camp shed maintenance	The cost of renovation of various Anti poaching camp sheds carried out under Olakara forest Peechi-Vazhani Wildlife Sanctuary during FY-2021-22 and the bills were settled during FY-2022-23.

As per APO 2021-2022 Interior camp shed activity was carried out in Peechi, Silent Valley and Parambikulam divisions. Artistic painting work with bamboo designs was carried out on a circular duplex shed and pillars of Vavla APC. The dimensions and the physical existence of the shed were verified. The cost of renovation of various Anti poaching camp sheds carried out under Olakara forest Peechi-Vazhani Wildlife Sanctuary during FY-2021-22 and the bills were settled during FY-2022-23. Four water tanks of 500 L capacity and accessories were provided for water supply to staff quarters in Muthalamada, Sungam range, Parambikulam division. The bills and records were verified. The payment for the work was made in the FY 2022-2023.



Campshed at Muduverichal/Orukomban/ Parambikulam



Campshed at Panthanthode, Silent Valley division

2. Improvement of Wildlife habitat

Location/Range/ Division	Activity	Remarks
Kakkerry/Tholpetty Range/ Wayanad	Maintenance of vayals-No work carried out	The evaluated team observed that the vyal is maintained without any exotic weed like <i>Lantana camara</i> , Eupatorium and Senna. Bills and records are verified and found to be correct.
Sulthan Bhathery range/ Wayanad	Maintenance of vayals	Entirely eradicated exotic weeds such as Eupatorium and <i>Lantana camara</i> and has good grass vegetation. Bills and records are verified and found to be correct.

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Irutti/ Aralam	11.9656 75.8193	1978,1979 Teak Plantation	Removal of exotic weeds	Eupatorium and other weeds were uprooted by manual destruction method. Records verified.
Irutti/ Aralam	11.7179 75.1833	Kariumkappu- Valavu of Narikkadavu	Removal of exotic weeds	<i>Chromolaena odorata</i> and other weeds were uprooted by manual destruction method. Records verified.
Kottiyoor/ Aralam	11.8678 75.9212	-	Removal of exotic weeds	<i>Lantana camara</i> , <i>Eupatorium</i> sp., <i>Mikania</i> sp. and other weeds were uprooted by manual destruction method. Records verified.

As per APO 2021-2022 under the activity Improvement of Wildlife habitat, the exotic weeds such as *Lantana camara*, *Eupatorium* sp., *Mikania* sp. *Chromolaena odorata* and other weeds were uprooted by manual destruction method. The evaluation team verified the bills and records and found correct. *Xanthium strumarium*, an invasive weed, poses significant environmental damage in the Chinmony Wildlife area, necessitating continuous effective removal and management.

Maintenance of adjacent vyal

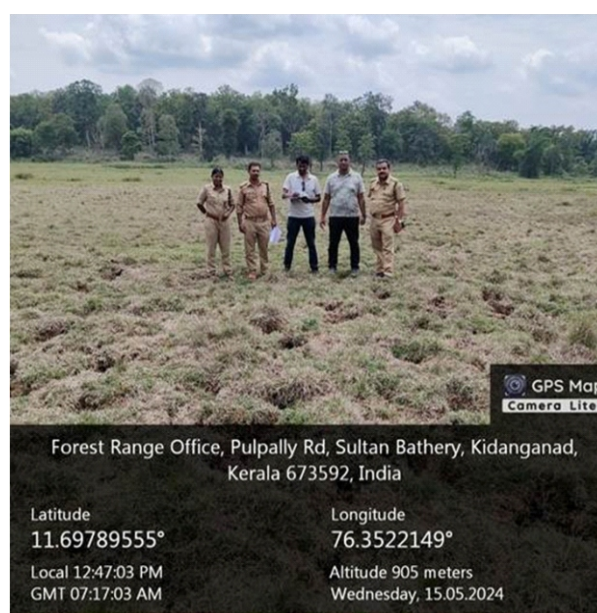
The evaluated vyal (Arakunji) under Ottipara section of Sulthan Bhathery range appears to have entirely eradicated exotic weeds such as Eupatorium and *Lantana camara* and has good grass vegetation. Foot prints of elephant and deer proves animal movement and a place for herbivorous. Bills and records are verified and found to be accurate.



Exotic weed removal in Chinmony Wildlife area, Peechi



Maintenance of vayal in Sulthan Bhathery range/ Wayanad



Maintenance of adjacent vayal in Ottipara, Sulthan Bathery range, Wayanad

3. Forest fire prevention and control habitat

Location/Range/ Division	Activity	Remarks
Kottapadam/ Silent valley Karimala Forest range/ Parambikulam	Engaging mazdoor as fire gang in emergency situations	Protection watchers engaged in various APCs for Fire line cleaning, watching, patrolling.
Muthanga, Suthan bathery, Kurichiad and Tholpetty/ Kurichiyat/ Wayanad	Engaging mazdoor as fire gang in emergency situations	Fire watchers requested for few more fire fighters with firefighting equipment may be deployed for efficient and quick response to forest fires.

Location/Range/ Division	Activity	Remarks
Sulthan Bathery Range/ Wayanad	Purchase of firefighting equipment	Firefighting equipments like, fire beater, knife, crew bar, axe, power saw were verified.
Kurchiyat/ Wayanad	Purchase of firefighting equipment	Firefighting equipments like a Fire beater, blower, Chain Saw, Water Cans and Billhook Machete were available for firefighting activities. Bills and records are verified and found to be accurate.
Karimala/ Parambikulam	Purchase of firefighting equipment	Evaluated the availability of the firefighting equipments and found the equipments like blowers, bush cutters, chain saws, burger rakes, hand rakes, spades, axes, showers, fire beaters, and fire extinguishers were readily available and well maintained. The bills and records were verified
Muthlamada/ Parambikulam	Creation of Fire Break	Maintained well with minimum weeds, verified the records.
Tholpetty/ Wayanad WL	Creation of Fire Break	Maintained well with minimum weeds, verified the records.

The evaluation team interacted with the gang watchers Shri. T. Babu, Shri. C. Babu, Shri. R. Rajesh, Shri. K.R. Arun and Shri. C. Jinu engaged in various APCs for Fire line cleaning, watching and patrolling in Kottapadam, Silent Valley division. The records were verified and found correct.

Firefighting equipments provided to staffs and anti- poaching watchers at Peechi vazhani forest range. The evaluation team verified the physical existence and bills and records related to the firefighting equipments and found correct.

- 1) Camp cots (5 Nos.) Pillows (7Nos.), Beds (7 Nos.), Plastic chairs (10 Nos.)
- 2) Fire breaker- (6 Nos.)
- 3) Water cans (20L)- (2 Nos.)
- 4) Water can (5L)- (10 Nos.)
- 5) Bill hook- (10 Nos.)
- 6) Long-range torch- (4 Nos.)
- 7) Headlight- (10 Nos.)

The evaluation team who had interaction with the fire gang members at Kurichiyat Forest Range, Wayanad observed that a few fire watchers with minimum firefighting equipments were engaged in fighting activities. Hence the team recommended to provide few more fire watchers, firefighting and safety equipments.

Fire line						
Fire line Id/No.	Geo coordinates	Size (Width * Length) in M Book	Actual Size (Width * Length) in field	Location	% variation (+/-)	Efficacy of fire line created in terms of number of times fire spread is prevented by the presence of fire line, if any
1	10.414 76.8022	5 m	5.3 m	Muthlamada/ Parambikulam	+6	Maintained movement registers with the cooperation of villagers in forest protection following SOP procedure. Well protected with regular monitoring and no grazing.
2	10.4152 76.7868	5 m	5.2 m		+4	
3	10.4158 76.7375	5 m	5.3 m		+6	
4	10.4093 76.7437	5 m	5.2 m	Muthlamada/ Parambikulam	+4	Maintained well with minimum weeds. The bills and records were verified and found correct.
5	10.4104 76.7358	5 m	5.5 m		+10	
7	10.4224 76.8178	5.2 m *4.1 Km	6 m *4.1 Km	Venkoli top to Kallipara along the interstate boundary/ Parambikulam	+15.38	Maintained well with minimum weeds. The bills and records were verified and found correct.
8	10.4224 76.8178	5.2 m *4.1 Km	6.1 m *4.1 Km		+17.31	
9	10.4230 76.8175	5.2 m *4.1 Km	5.8 m *4.1 Km		+11.54	
10	10.4248 76.7971	5.2 m *5.2 Km	6.0 m *5.2 Km	Thottapura to Poomala through Echippara EDC in CWLS, Peechi	+15.38 +3.85	Maintained well and found to be fire protective. The bills and records were verified and found
11	10.4240 76.4632	5.2 m *5.2 Km	5.4 m 5.2 Km		+7.69	
12	10.4344 76.4608	5.2 m *5.2 Km	5.6 m *5.2 Km			
13	10.6231 76.3073	5.2m 0* 5Km	6.0m * 5 Km	Dharbakundu Pacha through Kakkinikkad EDC in PVWS, Peechi	+ 15.38	Maintained well and found to be fire protective. The bills and records were verified and found correct.
14	10.6214 76.3086	5.2m * 5Km	5.7m * 5 Km		+9.62	
15	10.6188 76.3098	5.2m *5Km	6.3m * 5 Km		+21.15	
16	10.5528 76.4113	5.2 m * 3 Km	5.7 m * 3 Km	Kallipara-Anawari through Anawari EDC in PVWS, Peechi	+ 9.62	Maintained well and found to be fire protective. The bills and records were verified and found correct.
17	10.5593 76.4104	5.2 m * 3 Km	5.5 m * 3 Km		+5.77	
18	10.5494 76.4034	5.2 m * 3 Km	5.8 m * 3 Km		+7.69	

Fire line						
Fire line Id/No.	Geo coordinates	Size (Width * Length) in M Book	Actual Size (Width * Length) in field	Location	% variation (+/-)	Efficacy of fire line created in terms of number of times fire spread is prevented by the presence of fire line, if any
19	11.8039 76.2481	25m *11.5 Km	30.5m *11.5 Km	State border to Thekkuvvara, Wayanad	+22	Maintained well and found to be fire protective. The bills and records were verified and found correct.
20	11.8039 76.2405	25m *11.5 Km	27.7m *11.5 Km		+10.8 +20	
21	11.8142 76.2181	25m* 11.5 Km	30.0m *11.5 Km			



Evaluation of Fire break at Bavali section under Tholpetty Range, Wayanad



Firefighting equipments at Peechi-vazhani forest range.



Firefighting equipments at Sulthan Bathery range, Wayanad WL.

4. Human-animal conflict mitigation

As per APO 2021-2022 under the activity establishment of operation and maintenance of animal rescue center and veterinary treatment facilities, Construction of Animal Hospice Centre and Palliative Care at Kurchiyat. Wayanad division was completed during 2020-2021. Animal Hospice Centre and Palliative Care and observed was maintained well. The evaluation team inspected the sketch and dimensions as mentioned in the Measurement (M) book and the bills and records were verified. The balance payment of Rs. 53.36 lakhs was made during 2021-2022.



Animal Hospice Centre and Palliative Care at Kurchiyat

Desilting waterhole 1978 Teak plantation under Ottipara section in Sulthanbathery, Wayanad

Pond Desiltation					
Pond Desiltation ID/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth *Length) in field	% variation (+/-)	Type of vegetative materials used	Present Condition of the structure
1.	18.5m*1.3m* 24.6m	18.5m*1.3m* 24.6m	0		Good

The physical existence and sketch and dimensions of the pond work carried out for Rs.76,000/- was verified with the Measurement (M) book and found correct. Bills and records were verified.

5. Better Connectivity

Location/Range/ Division	Activity	Remarks
Anawari to Payattupara/ Peechi, Thottapura – Kannanpara/ Chimmony WLS/ Peechi, Valiyavara/ Chimmony/ Peechi WL	Maintenance of forest road	Maintained well. M book details and bills were verified

Maintenance of trek path

Location/Range/ Division	Geo coordinates	Area	Remarks
Chavachithodu crossway to S. Valavu in Narikkadavu Forest Station in Aralam WL	11.9312 75.8682	3.8 m	Appeared to be frequently used and well-maintained. The marking stumps were also seen along the trek path. M book details, bills were verified and found to be accurate.
	11.9296 5.8691	3 m	
	11.9307 75.8726	3.2 m	
Chelachuvadu to Pothurumi in Narikkadavu Forest Station in Aralam WL	11.9300 75.8745 11.9291 75.8753 11.9285 75.8756		Appeared to be frequently used and well-maintained. The marking stumps were also seen along the trek path. M book details, bills were verified and found to be accurate.
Anavai to Havlock of Anavai FS/ Bhavani Range/ Silent Valley	11.1345 76.5115 11.1344 76.5100 11.1345 76.5087	1.22 Km length and Width varied from 3.2 to 3.8 m	Appeared to be frequently used and well-maintained. The marking stumps were also seen along the trek path. M book details, bills were verified and found to be accurate
Pothuvapadam to Neelikkal/ SVNP range/ Silent Valley	11.0641 76.5375	6 Km length and 3 m width	Appeared to be frequently used and well-maintained. M book details, bills were verified and found to be accurate

Location/Range/ Division	Geo coordinates	Area	Remarks
Poochipara to Poochola/ SVNP Range/ Silent Valley	11.1030 76.4185	2 Km length, 1.5 m width	Appeared to be frequently used and well-maintained. M book details, bills were verified and found to be accurate
1963 TP to Kattalappara Thandu	10.4338 76.4505	-	Appeared to be frequently used and well-maintained. The marking stumps were also seen along the trek path. M book details, bills were verified and found to be accurate
Thottupura to Kattapara/ Chimmony/ Peechi WL	10.42527 76.4658	-	Appeared to be frequently used and well-maintained. The marking stumps were also seen along the trek path. M book details, bills were verified and found to be accurate

As per APO 2021-2022 under the activity Better Connectivity the trek paths in Silent Valley and Aralam divisions were maintained well and appeared to be frequently used. The dimensions were verified along with Mbook. Files and bills pertaining to the maintenance of trek path activity were verified and found to be accurate.



Maintenance of trek path in Aralam division

An additional work taken up in the APO was Maintenance of trek path/patrolling route across Thekkali river near Koochimudi APC. A concrete chappath build across Thekkali river near Koochimudi APC under Elathode section of Sungam Range, Parambikulam having the dimensions of 15.2 m in length and 4.2 m in width was evaluated and found good. The bills and records were verified and found to be accurate.

During the period, an amount of Rs. 292.57 lakhs was allotted to the circle, of which 73.65 % financial achievement was recorded.



Maintenance of concrete chappath build across Thekkali river near Koochimudi APC

Field Director Project Tiger, Kottayam (2021-2022)

The evaluation covered four forest divisions of the circle. They include

1. Munnar WL
2. Idukki WL
3. Periyar Tiger Reserve East
4. Periyar Tiger Reserve West

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Protection of Plantations of Forests	1. Eco-restoration of Monocultures a. Eco-restoration in monoculture plantations (Maintenance works)	Munnar WL Idukki WL Periyar Tiger Reserve (PTR) East Periyar Tiger Reserve (PTR) West
	2. Strengthening forest protection and anti-poaching units. a. Organizing joint patrolling and raids along inter-divisional and inter-state forest boundaries b. Interior camp shed maintenance	
	3. Improvement of Wildlife habitat a. Removal of exotic weeds b. Bird survey and conservation	
	4. Forest fire prevention and control habitat a. Engaging Fire Gangs through participatory forest management b. Firefighting equipments	

Component	Particulars of work	Division
	c. Fire awareness campaign	
	d. Creation of fire break	
	5. Human-animal conflict mitigation	
	a. Construction and maintenance of one animal rescue center for tiger including facility for veterinary hospital.	
	6. Soil and moisture conservation (Digging/ Desilting of water holes)	
	7. Better connectivity	
	a. Maintenance of trek paths/ Patrolling routes	

Coverage of sites in Field Director Project Tiger, Kottayam

Division	Fire	CAMPA infra-structure	CAMPA Assets	Wild Life infra-structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Munnar	3	2					
Idukki		1					
Periyar Tiger Reserve East	3	1		1			3
Periyar Tiger West	16						8

I. Protection of Plantations of Forests

1. Eco-restoration of Monocultures

a. Eco-restoration in monoculture plantations (Maintenance works)

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Uppupara/ Azhutha/ PTR West	9.4772 77.0989	9.75 ha 5 ha	1962 Eucalyptus plantation	Girdling around trees at a height of 1 meter from base was made. In an average of 10 x 10 m plot, girdling done in 6 trees and in which 5 were dried.
Thondiyar/ Vallakadavu/ PTR East	09.3143 77.0751	5 ha	Eucalyptus plantation Avg Height: 40m to 50m Avg Girth: 105cm to 210cm	Eucalyptus trees were subjected to girdling. 2500 trees started drying. Vouchers and files were verified.



Eco restoration in Eucalyptus plantation in PTR East division

As per APO 2021-2022 under the activity Eco-restoration of Monocultures, eco-restoration work was carried out in 14.75 ha 1962 Eucalyptus plantation in Uppupara, Azhutha range in PTR West division and 5 ha Eucalyptus plantation in PTR East division. Girdling around trees at a height of 1 meter from base was done and allowed the trees to dry. In an average from a 10 x 10 m plot 5 trees dried out of 6 trees. The evaluation team inspected the plantation and verified records and vouchers.

2. Strengthening forest protection and anti-poaching units.

Location/Range/ Division	Activity	Remarks
Azhutha and Pamba/ PTR West	Organizing joint patrolling and raids	Records and vouchers were verified and found correct

The joint patrolling and raids were conducted in Azhutha and Pamba ranges in the year 2021-22. An amount of Rs. 1,26,677/- was spent against the sanctioned amount of Rs. 1,51,000/-. The estimates, sanction orders and expenditure details were verified and found correct.

Location/Range/ Division	Geo coordinates	Activity	Dimension (m)	Remarks
Upputhara/ Vagavanam/ Idukki Wildlife Sanctuary	9.7260 76.9572	Interior Camp shed maintenance	10 x 6 x 5	Camp shed constructed during 2021-2022 contains G+ 1 floors Kitchen, office room and other room and tiled walls are in condition good. Guest in the first floor and the assets seen in the rooms are also in good condition. An amount of Rs. 7.09 lakhs has been utilized against the allotted amount of Rs.8.00 lakhs. The M-book entries and bills were verified.

As per APO 2021-2022 the camp shed constructed at Vagavanam in Idukki WLS was maintained well. The camp shed was facilitated with basic amenities such as lights fans, table, chairs, cot with bed and other basic amenities. The shed is useful for the frontline staff for anti-poaching.

Elephant Proof Trench

The entire camp shed was surrounded by trench to avoid elephant intrusion. All the trenches were inspected and found good in condition. The camp shed were renovated twice during the FY 2021-22. The respective entries in the M-book (No.08/2021-22) were verified. These activities were taken up during 2021-22 in the circle, the circle implemented all the activities listed in the APO. Overall, an amount of Rs. 7.09 lakhs was allotted to the circle during the period of which 100% fund has been utilized.



Camp shed at Vagavanam/Idukki WL/Idukki WLS



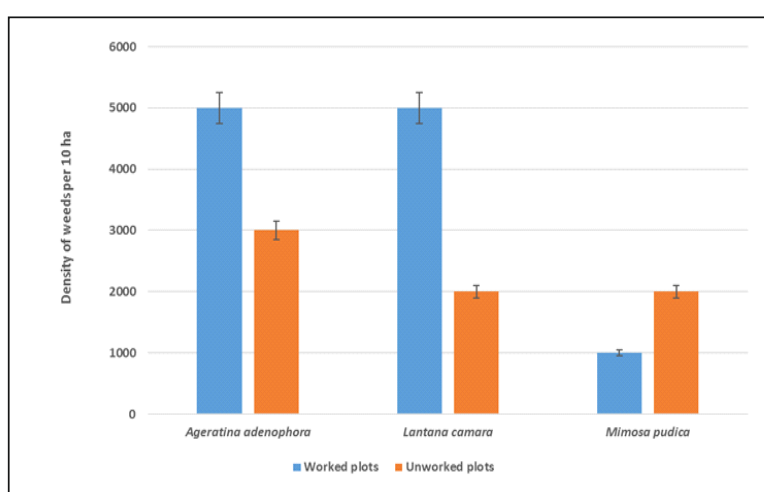
Evaluation team inspecting the camp shed in Idukki division

3. Improvement of Wildlife habitat

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Kumarakom/ Azhutha/ PTR West	-	-	Bird Survey and conservation	Vouchers verified

Bird survey activity was conducted in 2021-22 at Kumarakom section of Azhutha range by the students. An amount of Rs. 22,309/- was spent against the sanctioned amount of Rs. 22,100/-. The estimate, sanction and bills for the expenditure were verified and found correct.

a. Removal of Exotic Weeds at Upputhara, Vagavanam, Idukki Wildlife Sanctuary



Exotic Weeds density at Upputhara, Vagavanam, Idukki Wildlife Sanctuary (Bar indicates std error)

The evaluation team observed that the vayals were maintained by removing the exotic weeds and used as fodder for wild animals especially for deer and elephants. All the plots were maintained very well with frequent removal of weeds and proper monitoring. Herbaceous species diversity increased due to open space and eradication of weeds. However, in the unworked plot, due to higher density of shrub species in this area, palatable herbaceous species was less in diversity. This suggests increasing the are coverage for weed removal to attract larger populations of herbivores. The M-book entries and the respective bills were also verified.



Removal of exotic weeds in Vagavanam, Idukki division

4. Forest fire prevention and control habitat

Fire break at PTR West				
Location	Size (Width * Length) in Measurement Book	Actual Size (Width * Length) in field	% variation (+/-)	Efficacy of fire line created in terms of number of times fire spread is prevented by the presence of fire line, if any
Vamanakulam to Kozhikkanam/ Pamba/ PTR West	5.2 m x 6 Km	5.2 m x 6 Km	Nil	No fire incidents reported during the period.
Nirappu to Kozhikkanam/ Pamba/ PTR West	5.2 m x 6 Km	5.2 m x 6 Km	Nil	
4 th mile APC/ Pamba/ PTR West	5.2 m x 10 Km	5.2 m x 10 Km	Nil	

As per APO 2021-2022, creation of firebreak work was carried out in PTR West division assured no fire incidents reported during the period. The measurements and vouchers were verified.

a. Engaging fire protection Mazdoor/Fire gang

Fire protection Mazdoor were engaged in various places of Pamba and Azhutha ranges of Periyar West division during the summer season. An amount of Rs. 8,17,000.00 was sanctioned and an amount of Rs. 6,01,191.00 was spent. No fire incidents were reported during the time. The estimate, sanction orders and details of wages paid to labours were verified and found correct.

b. Fire awareness campaign

Two fire awareness campaigns were conducted in in Azhutha range and an amount of Rs. 20,000/- was sanctioned for each programme. An amount of Rs. 35,075/- was spent for the two programmes. The estimate, sanction and bills for the expenditure were verified and found correct.

c. Purchase of firefighting equipments

Firefighting equipments viz., power saw, brush cutter etc. were purchased for RRT in Azhutha range. The estimate, sanction and bills for the expenditure were verified and found correct.

5. Human-Animal Conflict Mitigation

Construction and maintenance of one animal rescue center for Tiger including facility for veterinary hospital. The facilities include:

1. Solar Fencing
2. Full construction of Cage
3. Civil construction of Build area
4. Animal Hospital
5. Electrical Connection for the whole facility
6. CCTV Facility for monitoring

All the facilities were physically inspected by the team. Files and vouchers were verified and found correct.



Evaluation team inspecting animal rescue centre at Thekkady range, PTR East

6. Soil moisture conservation

Pond Desiltation at Uppupara Section/ Azhutha/ PTR West 2021-2022					
Pond Desiltation Id/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth * Length) in field	% variation (+/-)	Type of vegetative materials used	Present Condition of the structure
1	13 m x 1 m x 15 m	13 m x 1 m x 15 m	Nil	NA	Structure is in good condition.
2	29 m x 1 m x 15 m	29 m x 1 m x 15 m	Nil	NA	Structure is in good condition.

As per APO 2021-2022 pond Desiltation work was carried out at Uppupara Section at Azhutha range in PTR West. The 2 ponds already available near Jollymala plantation area were damaged by elephants. These ponds were re-constructed under CAMPA and at present the ponds are in good condition and water was available during the visit of evaluation team. The pond with water was used by animals especially by elephants.

Three ponds constructed under CAMPA at Vanchivayal 1st Kavala were verified and found in good condition now and water was available during the visit. The animals used the pond regularly especially elephant was indicated by the presence of elephant dung.

Pond Desiltation					
Pond Desiltation Id/No.	Size (Width * Depth *Length) in Measurement Book	Actual Size (Width * Depth * Length) in field	% variation (+/-)	Type of vegetative materials used	Present Condition of the structure
Vellakamaly, Bit I Idukki section	10.6 m x 0.30m x 10.6 m = 33.78 m ³	10.6m x 0.30m x 10.6m = 33.78 m ³	Not seen	NA	Good
Vellakamaly Bit II Idukki section	17.5m x 0.30m x 22.5m = 118.12m ³	17.5m x 0.30m x 22.5m = 118.12m ³	Not seen	NA	Good
Anjilithandu	9.90m x 0.30m x 9.70m =28.80m ³	9.90m x 0.30m x 9.70m =28.80m ³	Not seen	NA	Good

As per APO 2021-2022, construction of Pond for desilting water hole at Vellakamaly, Bit I, Vellakamaly, Bit II, Anjilithandu, Idukki section activities such as Clearing of ground level vegetation grasses and weeds for 54m², earth work for excavation for 52.02m³, wood fencing surrounding the pond, concrete work etc., were carried out. Activities, Measurement, Items, — Book are verified and found it's correct.

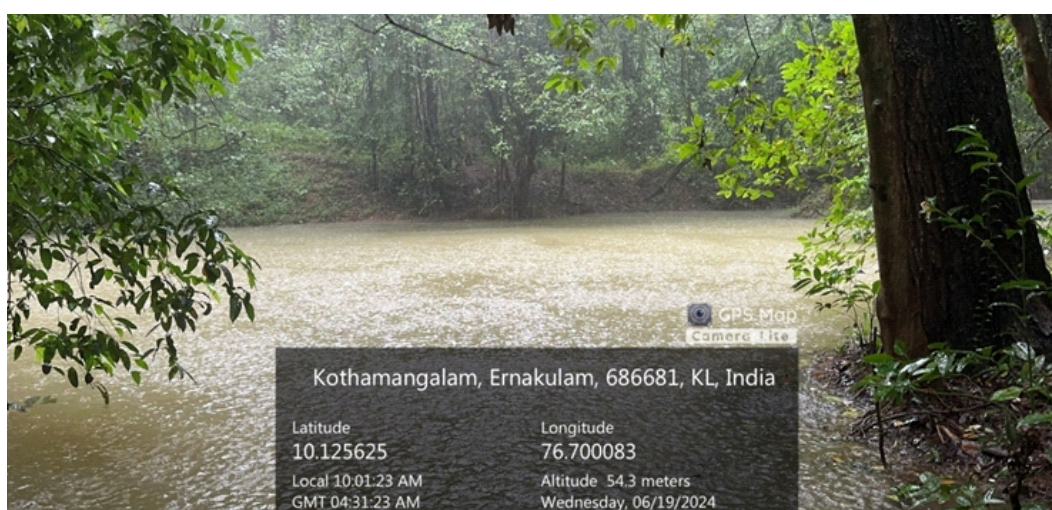
The work specified in the APO for the year 2021-22 was carried out in Vagavanam by availing fund from others due to lack of CAMPA fund. It is verified that the works mentioned in the APO were carried out properly.



Desilting water hole at Vellakamaly

Pond Desiltation in Thattekkad Bird Sanctuary					
Pond Desiltation Id/No.	Size (Width * Depth * Length) in Measurement Book	Actual Size (Width * Depth * Length) in field	% variation (+/-)	Type of vegetative materials used	Present Condition of the structure
Mahagony Check dam Idukki section	8.5 m x 1.4 m x 18 m = 214.2 m ³	8.5 m x 1.4 m x 18 m = 214.2 m ³			Good
Anachatthapara Water hole Idukki section	10 m x 0.9 m x 10.8m = 97.2 m ³	10 m x 0.9 m x 10.8 m = 97.2 m ³			Good

Construction of pond for desilting water hole at Mahagony Check dam, Anachatthapara Water hole, Idukki section activities such as clearing of ground level vegetation grasses and weeds for 54m², earth work for excavation for 52.02m³, wood fencing surrounding the pond, concrete work etc., were carried out. Activities, Measurement, Items, M-Book were verified and found it's correct.



Desilting water hole at Mahagony Check dam, Anachatthapara Water hole, Idukki section

7. Better Connectivity

Location/Range/ Division	Activity	GPS coordinates	Remarks
Uppupara to Seethakulam Uppupara to Poonkavanam/ Azhutha/ PTR West	Maintenance of trek paths/patrolling routes	9.4903 77.9277	Weeding and removal of dead branches for 5.8 km. Vouchers were verified.
Zero point to Jollymala/ Azhutha/ PTR West	Maintenance of trek paths/patrolling routes	9.4832 77.0871	Weeding and removal of dead branches for 2.1 Km. Vouchers were verified.
Thavalam to Sannidhanam/ Azhutha/ PTR West	Maintenance of trek paths/patrolling routes	9.4660 77.8836	Weeding and removal of dead branches for 6 Km. Vouchers were verified.
Uppupara to 4 th mile/ Pamba/ PTR West	Maintenance of trek paths/patrolling routes	9.4660 77.8836	Weeding and removal of dead branches for 9.85 Km. Vouchers were verified.
Jollymala to 3rd mile/ Azhutha/ PTR West	Maintenance of trek paths/patrolling routes	9.4829 77.1020	Weeding and removal of dead branches for 7.0 Km. Vouchers were verified.

Trek paths in PTR West			
Id/No.	Size (Width * Length) in Measurement Book	Actual Size (Width * Length) in field	% variation (+/-)
Uppupara to Seethakulam/ PTR West	5.8 Km x 3 m	5.8 Km x 3 m	Nil
Zero point to Jollymala / PTR West	2.1 Km x 3 m	2.1 Km x 3 m	Nil
Thavalam to Sannidhanam / PTR West	6 Km x 3 m	6 Km x 3 m	Nil
Uppupara to 4 th mile/ PTR West	9.85 Km x 3 m	9.85 Km x 3 m	Nil
Jollymala to 3rd mile/ PTR West	7 Km x 3 m	7 Km x 3 m	Nil
Kokkara to Anakode/ PTR East	2.5 Km x 3 m	2.5 Km x 3 m	Nil

Under this activity, maintenance of trek path was executed well. Trek paths were continuously used by the staff of Forest department for various purposes. Some of the trek paths, especially Thavalam to Sannidhanam were used by the pilgrims of Sabarimala temple. Weeding and clearing including removal of dried trees and dead branches were also carried out. Vouchers were verified. Physical activities, measurements, the documents and vouchers pertaining to these activities were verified and found correct. The trek paths were regularly used by staff of Forest department for various purposes and the trek path from Thavalam to Sannidhanam was used by the pilgrims of Sabarimala temple.

During the period, an amount of Rs. 175.84 lakhs was allotted to the circle, of which 87.67 % financial achievement was recorded. Among the circles, the highest financial achievement was observed in FDPT Kottayam, following the Eastern Circle, Palakkad owing to the maximum execution of activities as per APO 2021-2022.

Agasthyavanam Biological Park (ABP) Circle, Thiruvananthapuram (2021-2022)

The evaluation covered both Shendurney and Thiruvananthapuram Wildlife divisions. Eleven different activities have been undertaken in the circle during the year 2021-2022. The distribution of activities as follows:

Component	Particulars of work	Division
Protection of Plantations of Forests	1. Strengthening forest protection and anti-poaching units.	Shendurney, Thiruvananthapuram Wildlife divisions
	a. Organising joint patrolling and raids along inter-divisional and inter-state forest boundaries	
	b. Interior Camp shed maintenance	
	c. Field Ration for Interior Camps.	
	2. Improvement of Wildlife habitat	
	a. Removal of exotic weeds	
	3. Forest fire prevention and control habitat	
	a. Engaging fire gangs through participatory forest management	
	b. Awareness campaigns	
	c. Firefighting equipments	
	d. Creation of fire break	
	4. Human-animal conflict mitigation	
	a. Engaging watchers to mitigate human animal conflict	
	5. Soil and moisture conservation	
	6. Better connectivity	
	a. Maintenance of forest roads	
	b. Maintenance of trek paths/ Patrolling routes	
	c. Nature camps for schools and colleges	

Coverage of sites in Agasthyavanam Biological Park Circle, Thiruvananthapuram

Division	Fire	CAMPA infra-structure	CAMPA Assets	Wild Life infra-structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Shendurney	3						
Thiruvananthapuram Wildlife	3	1					

1. Strengthening forest protection and anti-poaching units.

Location/Range/ Division	Activity	Remarks
Kalluvarambu/Thenmala/ Shendurney	Organizing joint patrolling and raids	Carried out in 3 ranges. Provisions and groceries were procured. Vouchers verified and found correct
Peppara/ Thiruvananthapuram	Organizing joint patrolling and raids	Inter divisional and interstate boundaries at Athirumala, Thodayar Section, Peppara. Bills physically verified.
Pandimotta, Idimuzhangan para/ Eattapadappu/ Shendurney	Interior Camp shed maintenance	Maintained well and M-book not provided
Mukkothivayal Anti Poaching CampShed/ Peppara/ Thiruvananthapuram	Interior Camp shed maintenance	Construction of store cum kitchen works, Bills, vouchers are verified. But M-book not provided.
Karalakadu Anti Poaching CampShed, Peppara	Interior Camp shed maintenance	Construction of kitchen and extension of campshed. Bills, vouchers are verified and found its correct. But M-book not provided.
Pandimotta / Eattapadappu/ Shendurney	Provision for field ration for interior camps	Bills and vouchers verified



Campshed maintenance at Pandimotta, Eattapadappu range in Shendurney



Idimuzhangan Para Camp shed

Cement concrete works at the inner-side, structural steel work, ridge coping, cement plaster, providing and fixing precoated galvanized iron profile sheets, trenching work etc were made. The evaluation team physically inspected the camp sheds and bills, vouchers and found correct. But M-book not verified, since it has not been provided.



Construction of store cum, Kitchen at Mukkothivayal Anti Poaching CampShed, Peppara Forest Range (before initiation of work)



View of Mukkothivayal Anti Poaching CampShed, after completion of the work

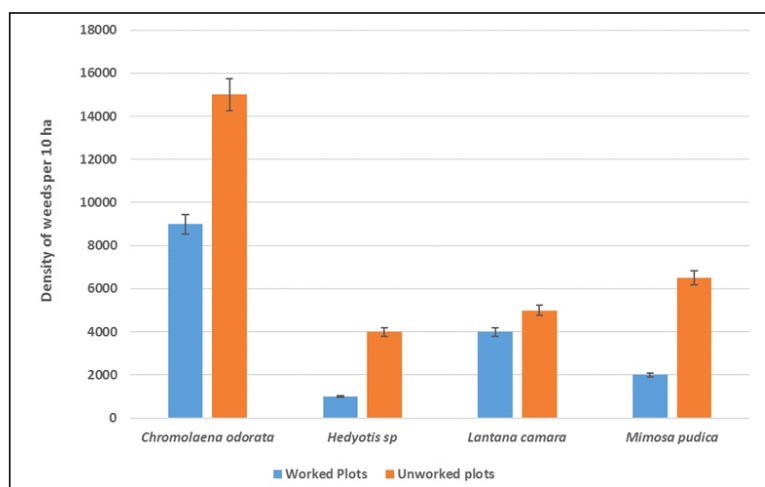


Karakladu Anti Poaching CampShed, Peppara - construction of kitchen and extension of the campshed

As per APO 2021-2022 construction of kitchen and extension of the campshed work was carried out at both divisions under ABP circle. The activity was verified through inspection of records and found correct. M-book was not provided for inspection.

2. Improvement of Wildlife habitat

Location/Range/ Division	Activity	Remarks
Kalamkunnu / Thenmala / Shenduruney WL	Removal of exotic weeds Carried out in 3 ha .	Physically verified by field inspection.
Karai area, Peppara/ Thiruvananthapuram	Removal of exotic weeds Carried out in 3 ha .	Physically verified by field inspection.



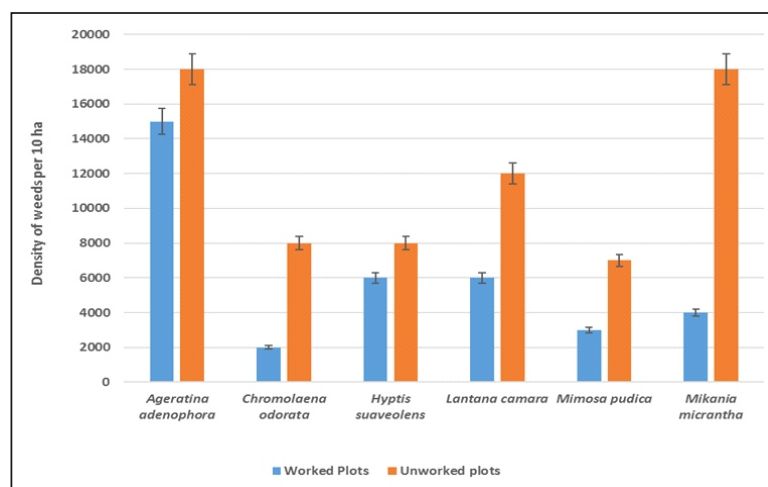
Comparison of weed density in treated and untreated area at Kalamkunnu, Thenmala range, Shenduruneey WL (Bar indicates std error)

Activities under this component included removal of *Lantana camara* and *Chromolaena odorata*, *Mikania micrantha* and other non palatable grasses. It was found that treatment was very effective with a reduction in *Lantana*, *Chromolaena* and *Mimosa*.

- ◆ This treatment is very much effective to protect the area which is the main food source for wild elephants and buffaloes.
- ◆ In forthcoming year the same kind of treatment may be implemented in other areas which will help in protecting the forests and improve the wildlife habitats.



Removal of exotic weeds at Kalamkunnu, Shenduruneey WL



Comparison of weed density in treated and untreated area at Karai area, Peppara range, Thiruvananthapuram (Bar indicates std error)

Activities:

- ◆ Removal of *Mikania micrantha* and *Lantana camara*.
- ◆ It was found that treatment was very effective and hardly few Mikania and Lantana, were observed.
- ◆ This treatment is very much effective to protect the area which is the main food source for wild animals.
- ◆ In forthcoming year the same kind of treatment may be implemented in other areas which will help in protecting the forests and improve the wildlife habitats.
- ◆ It was noticed that in the following species i.e. *Wrightia tinctoria*, *Calycopteris floribunda* and *Clidemia hirta* were recorded common in the treated areas.

3. Forest fire prevention and control habitat

Location/Range/ Division	Activity	Remarks
Kalamkunnu / Thenmala / Shendurune WL	Purchase of firefighting equipment	Physically verified the equipments and vouchers and found correct
Peppara/ Thiruvananthapuram	Purchase of firefighting equipment	Fire fighting equipments were purchased and distributed to different Range offices and to Camp sheds of the division. The estimate submitted for procuring equipments to Peppara Range was verified with list of equipments and estimates.
Thenmala /Shendurune WL	Creation of fire break	Creation of Fire break, for the distance of 2Km with 1.5 m width. M-book not provided. Maintained well.
Attayar, Athirumala Section/ Peppara/ Thiruvananthapuram	Creation of fire break	Creation of Fire break, for the distance of 9Km with 2.6 m width. M-book not provided. Maintained well.

Location/Range/ Division	Activity	Remarks
Podiyam, Athirumala Section/ Peppara/ Thiruvananthapuram	Fire awareness campaign	Files, Vouchers were verified and found correct. M-book not provided
Ettappadappu/ Thenmala/ Shenduruney	Engagging Fire Gangs	Files, Vouchers were verified and found correct. M-book not provided

KERALA FOREST AND WILDLIFE DEPARTMENT
THIRUVANANTHAPURAM WILDLIFE DIVISION
PEPPARA WILDLIFE SANCTUARY

Estimate for the cost of conducting fire awareness campaign at Podiyam in Athirumala section of Peppara Wildlife Sanctuary during 2021-22

BH: CAMPA DR(WL)/2452/14/2021/22

Sl.	Particulars of work	Rate	Qty	Unit	Amount
1	Cost of providing food and light refreshment for the participants	125.00	80	member	10000.00
2	Cost of printing banner, notice etc.	LS	LS	LS	1700.00
	TOTAL				12500.00

Rupees Twelve Thousand Five Hundred Only

Asst. Wildlife Warden
Peppara Wildlife Sanctuary

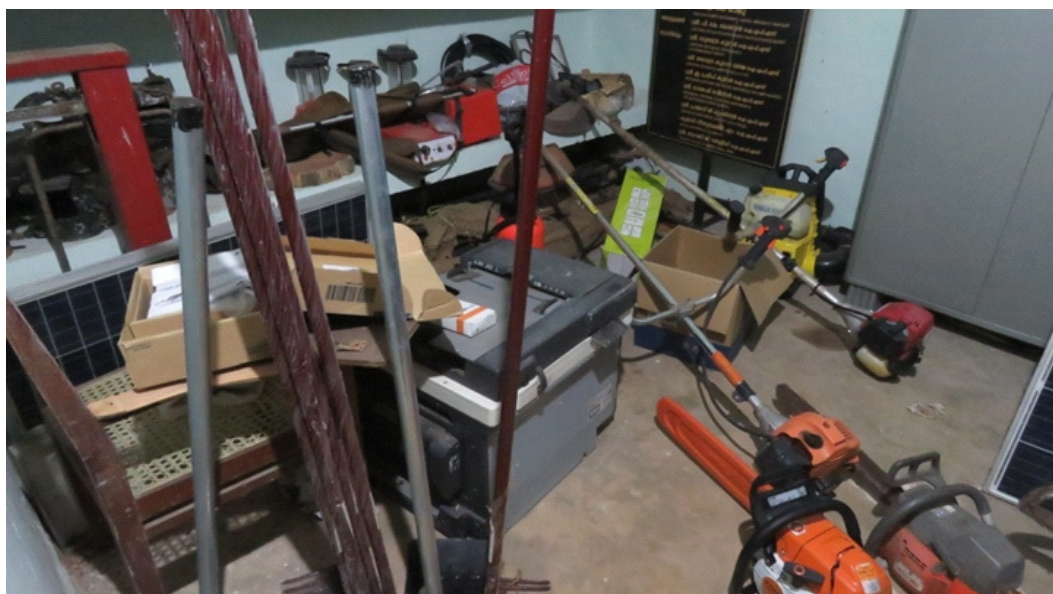
Sanctioned for Rs 12500 (Rupees Twelve Thousand and five hundred only)

Wildlife Warden
Thiruvananthapuram



Fire fighting equipments available at Peppara Forest Range

Fire fighting equipments were purchased for both Senduruney and Thiruvanthapuram WL Divisions and distributed to different forest ranges. The evaluation team verified the estimate submitted for procuring equipments to Kallukunnu Range with list of equipments and estimates and found correct.



Fire fighting equipments at Thenmala /Shenduruney WL



Fire break at Kalamkunnu, Shenduruneey WL Division

4. Human animal conflict mitigation

Location/Range/ Division	Geo coordinates	Activity	Remarks
Ettappadappu/ Thenmala/ Shenduruneey	8.9530 77.0021	Engagging watchers to mitigate human animal conflict	Files, Vouchers were verified and found correct. M-book was not provided.

The activity was verified through files and Vouchers and found correct. M-book was not provided.

5. Soil Moisture Conservation

Gully plugging				
Gully plugging ID/No.	Size (Width * Depth * Length) in Measurement Book	Actual Size (Width * Depth * Length) in field	% variation (+/-)	Present Condition of the structure
Kunddhirkkachal at Kalamkunnu/	M-Book not provided. Physically verified.	4m x 3m x 7m	Nil	Good

The gully at Kunddhirkkachal at Kalamkunnu, Thenmala was physically verified by the evaluation team. Documents and structures were verified physically. The dimensions were measured and confirmed with the vouchers/records.

6. Better connectivity

Location/Range/ Division	Geo coordinates	Area	Activity	Remarks
Mannanthar to Pallivasal/ Thenmala/ Shenduruney	8.0030 77.0027 to 8.9136 77.0152	Length:7.0 Km Width 2.5m	Maintenance of forest road	Files, Vouchers were verified and found correct. M-book not provided.
Kottoor/ Peppara/ Thiruvananthapuram	8.0055 77.0015	Length:3.0 Km Width 2.5 m.	Maintenance of forest road	Files, Vouchers were verified and found correct. M-book not provided. Noticed very good natural regenerations in the forest road
Kalamkunnu, Ettappadappu/ Thenmala/ Shenduruney	8.8926 77.0043	Length:3.5 Km Width 1.5 m	Preparation and maintenance of trek paths	Files, Vouchers were verified and found correct. M-book not provided.
Karalakadu/ Peppara/ Thiruvananthapuram	8.8926 77.0043	Length: 3.5 Km Width 1.5 m.	Preparation and maintenance of trek paths	Files, Vouchers were verified and found correct. M-book not provided.
Thenmala, Kattilappara/ Thenmala/ Shenduruney	-	-	Conducting Nature Camps to School and College children	Conducted two nature camps. Files, Vouchers were verified and found correct.
Peppara/ Thiruvananthapuram			Conducting Nature Camps to School and College children	Conducted two nature camps. Files, Vouchers were verified and found correct.

Under the activity better connectivity, the activities Preparation and maintenance of trek paths, forest roads and conducting nature camps were carried out. The roads and trek paths were maintained well. Natural regenerations observed in the forest road at Peppara. Files, Vouchers were verified and found correct.



Maintenance of Mannanthar to Pallivasal forest road in Thenmala



Natural regeneration observed in the forest road at Peppara/ Thiruvananthapuram



Maintenance of trek path at Kalamkunnu



Maintenance of Trek Path, Karalakadu, Peppara



Conducting Nature Camps to College children at Thenmala

During the period, an amount of Rs. 90.60 lakhs was allotted to the circle, of which only 51.08 % financial achievement was recorded.

Social Forestry Central Region Ernakulam (2021-22)

The evaluation covered four divisions of the circle. They include

1. Palakkad
2. Thrissur
3. Ernakulam
4. Idukki

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Catchment Area Treatment Plan Fund Part	River Bank Stabilization	Thrissur, Idukki
Protection of Plantations of Forests	1. Improvement of Wildlife habitat a. Bird survey and conservation b. Sea turtle conservation	Palakkad, Thrissur, Ernakulam, SF
	2. Forest fire prevention and control habitat a. Engaging fire gangs through participatory forest management b. Firefighting equipments c. Awareness campaigns d. Creation of fire break	
	3. Human-Animal conflict mitigation a. Establishment, Operation and Maintenance of Animal Rescue Centre and Veterinary Treatment Facility	

Component	Particulars of work	Division
	4. Better Connectivity a. Nature camps for schools and colleges b. Infrastructure development in tribal Colony and Setting up District Permanent Nurseries.	

Coverage of sites in Social Forestry Central Region Ernakulam

Division	Fire	CAMPA infra-structure	CAMPA Assets	Wild Life infra-structure	Wild Life assets	Plantation Creation/ maintenance	Eco restoration Creation/ maintenance
Palakkad							
Thrissur							
Ernakulam	3			1			
Idukki							

I. Catchment Area Treatment Plan Fund Part

1. River Bank Stabilization at Idukki division

Location/Range/ Division	Activity	Remarks
Paremavu/ Kattapana SF range/ Idukki division	Establishment of temporary nursery facilities to produce Bamboo seedlings in Paramavu by engaging contractor	Produced 15,000 bamboo seedlings in the nursery and distributed to various Govt. departments and organizations for planting. Govt. Departments-2325 Forest Dept-2825 Private institutes-202 NGOs-6218 Educational Institutes-1612
Venkidangu/ SF Range Thrissur / Thrissur division	Setting up of temporary facilities for raising Mangrove seedlings at Venkitangu.	5,000 mangrove seedlings rose in the nursery through the contractor and seedlings are planted at Peringad, Venkitangu grama panchyath during 2022-2023.

As per APO 2021-2022 established temporary nursery facilities for Rs. 1.61 lakhs to produce 15,000 bamboo seedlings through engaging watchers for Rs. 2.00 Lakhs at Kattapana SF range/ Idukki division. The seedlings were distributed to various government departments, the forest department, private institutes, NGOs, and educational institutes. Established temporary facilities at Venkitangu, Thrissur division and rose 5,000 mangrove seedlings. The seedlings were later planted in Peringad Venkitangu Gramapanchayath. The evaluation team verified the vouchers and found correct. Measurements and inspections of nursery sites were conducted to ensure effective implementation and resource utilization.



Temporary facilities created for raising Mangrove seedling at Venkitangu, Chettuva

II. Protection of Plantations of Forests

1. Improvement of Wildlife Habitat

Location/Range/ Division	Activity	Remarks
Munakadavu, Chavakkadu/ SF Range Chalakudy Range/ Thrissur division	Conducting pelagic bird survey in Munakadavu, Chavakkadu sea	Records and vouchers were verified.
Kazhimbram, Chavakkadu/ SF Range Chalakudy Range/ Thrissur Div.	Conducting pelagic bird survey in Kazhimbram beach, Chavakkadu.	Records and vouchers were verified.
Blangad- Andanthode SF Range Chalakudy Range/ Thrissur division.	Sea turtle conservation awareness class and turtle walk is conducted at Blangad- Andanthode	Records and vouchers were verified.
Blangad- Andanthode SF Range Chalakudy Range/ Thrissur division.	Sea turtle conservation awareness class and turtle walk is conducted at Blangad- Andanthode	Records and vouchers were verified.
Punnayur village/ Chavakkadu beach/ Chalakudy SF range/ Thrissur division.	Engaging man mazdoor for the protection of sea turtle eggs in Blangad, Andathode, Panchavady, Akalad, Munakkadavu areas in Chavakkadu beach	Records and vouchers were verified.
Akalad beach/ SF Range Thrissur / Thrissur division	Setting up of cages and making sea turtle hatching facilities at Akalad beach	Records and vouchers were verified.
Panchavady beach/ SF Range Thrissur / Thrissur division	Setting up of cages and making sea turtle hatching facilities at Panchavady beach	Records and vouchers were verified.
Akalad beach/ SF Range Thrissur / Thrissur division	Setting up of iron cages for the protection of sea turtle hatching at Munakkadavu and Blangad beach	Records and vouchers were verified.

1. Pelagic Bird Survey

- Organized pelagic bird surveys in Munakadavu Chavakkadu and Kazhimbram beach, involving multiple stakeholders to study and document bird species along the coastal region.

2. Sea Turtle Conservation

- Conducted awareness classes and turtle walks at Blangad-Andanthode. Engaged labour for the protection and hatching of sea turtle eggs at various locations, including Punnayur village and Akalad beach. Set up cages and created hatching facilities at beaches like Panchavady and Munakkadavu, ensuring the protection of Olive Ridley turtles.



Sea turtle egg hatchery at Panchavady beach, Chavakkad

2. Forest fire prevention and control operations

Location/Range/Division	Activity	Remarks
Karippad/ NSC KaladyRange/ Ernakulam division	Conducting fire awareness program at Karippad Forest section office.	Vouchers were verified
NSC Kalady Range/ Ernakulam division	Conducting fire awareness program NSC Kalady range office	Vouchers were verified
Karippad/ NSC Kalady Range/ Ernakulam division	Purchase of firefighting equipment's for Karippad Forest section office.	Vouchers were verified
NSC Kalady Range/ Ernakulam division	Purchase of firefighting equipment's for NSC Kalady range office, First Aid kit	Vouchers were verified

Location/Range/ Division	Activity	Remarks
Kurusumudi forest section office / NSC Kalady Range/ Ernakulam division	Purchase of brush cutter	Vouchers were verified
Maniyampara/ Kurusumudi forest section/ NSC Kalady Range/ Ernakulam division	Engaging fire gang/ protection watchers for creating fire breaks in Maniyampara, Kurisumudy, Adivaram, Potta, Pattamppara forest areas under Kurusumudi Forest Section.	Fire break of 3–4-meter width was made on both sides of pathway to the Kurusumudy pilgrimage site. M book record was not maintained. Verified records and vouchers.
Kapprikkad / NSC Kalady Range/ Ernakulam division	Engaging fire protection watchers for creating fire breaks in Kapprikkad forest areas under NSC Kalady range	Fire break of 3–4-meter width was made on both sides of pathway at NSC Kalady. M book record was not maintained. Verified records and vouchers.
Kurussumudy forest section/ NSC Kalady Range/ Ernakulam division	Engaging fire protection watchers for creating fire breaks in Kurussumudy forest areas under NSC Kalady range	Fire break of 3–4-meter width was made on both sides of pathway to the Kurussumudy pilgrimage site. M book record was not maintained. Verified records and vouchers.

As per APO conducted fire awareness programs at various locations, including Karippad and NSC Kalady range offices. These programs aimed to educate the public and forest staff about fire prevention and safety measures. Financial targets were partially met, with significant expenditures on printing materials and miscellaneous costs. Minor firefighting equipments were purchased for Karippad and NSC Kalady range offices, and a brush cutter for Kurusumudi forest section office. These acquisitions were essential for enhancing fire preparedness and response capabilities. Fire protection watchers were engaged to create fire breaks in forest areas under NSC Kalady range, for making 3-4-meter-wide fire breaks on both sides of pathways to the Kurussumudy pilgrimage site.



Minor firefighting equipment's purchased in NSC Kalady Range



Fire break created in Kurussumiudi pilgrimage pathway by engaging fire gangs in Kurussumudy forest section

3. Human-Animal Conflict Mitigation

a. Establishment, Operation and Maintenance of Animal Rescue Centre and Veterinary Treatment Facility

Location/Range/ Division/ GPS	Activity	Remarks
Ahayaranyam/ NSC Kalady Range/ Ernakulam division	Engaging man mazdoor for night zoo keeping at Abhayaranyam Zoo	Vouchers and records were verified
Ahayaranyam/ NSC Kalady Range/ Ernakulam division	Engaging man mazdoor for night zoo keeping at Abhayaranyam Zoo	Vouchers and records were verified
Ahayaranyam/ NSC Kalady Range/ Ernakulam division	Purchase of medicines for the treatment of rescued animals at Abhayaranyam Zoo	Vouchers and records were verified

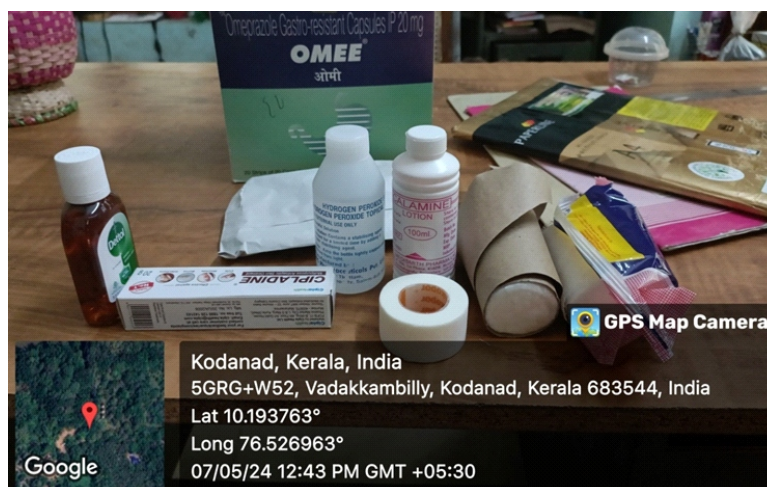
Man mazdoor were engaged for night zoo keeping at Abhayaranyam Zoo and purchased medicines for treating rescued animals. These efforts ensured the well-being of animals under the division's care.

As per APO under the activity better connectivity, conducted multiple one-day nature awareness camps at various locations, including KVK in Edakkazhiyur and Nature Awareness Centre at Kuthiran forest section. These camps were targeted at school and college students, with a total of 117 participants across the sessions.

Infrastructure Development in Tribal Colony and Setting up District Permanent Nurseries

The evaluation team inspected the dimensions of the construction and other works as follows.

- ◆ District Permanent Nursery (DPN) Works at SF Palakkad for an amount of Rs. 21.6 lakhs.



Medicines purchased for treatment of rescued animals in Abhayaranyam under NSC Kalady Range

4. Better connectivity

Location/Range/ Division	Activity	Remarks
Edakazhiyur/ SF Range Thrissur Range/ Thrissur division	Conducted one day nature awareness camp at KVVK in association with Seethi Sahib memorial H.S.S student in Edakkazhiyur.	Beneficiaries: 47 school students, Vouchers were verified
Irinjalakuda/ SF Range Thrissur Range/ Thrissur division	Conducting one day nature awareness camp for Christ college students in Nature awareness centre at Kuthiran forest section	Beneficiaries: 35 College students, Vouchers were verified
Irinjalakuda/ SF Range Thrissur Range/ Thrissur division	Conducting one day nature awareness camp for Christ college students in Nature awareness centre at Kuthiran forest section	Beneficiaries: 55 College students, Vouchers were verified

- ◆ Constructed Live Plant Library at DPN, Palakkad. Maintenance works at Vallikode, including the Live Plant Library, installing a booster pump, providing a three-phase line connection, supplying and fixing PVC gutter pipes, and constructing a permanent compound wall were carried out.
- ◆ Purchased essential equipment such as a water purifier, weighing machine, rose canes, and sprayer.
- ◆ Engaged in making a WBM road and performed plumbing works for irrigation at DPN Vallikode.
- ◆ Procured minor fire fighting equipment and engaged watchers for the nursery.
- ◆ Records and vouchers were verified.

Overall, the Social Forestry Division in NSC Kalady made substantial progress in fire prevention, wildlife rescue, and public education. The activities, particularly the fire awareness campaigns,

firefighting equipment procurement, and the establishment of fire breaks, played a crucial role in promoting sustainable forestry practices and ensuring the safety of forest areas. During the period, an amount of Rs. 56.46 lakhs was allotted to the circle, of which only 72.26 % financial achievement was recorded.



Construction of Live Plant Library at DPN, Palakkad



Construction of road facilities in DPN nursery, Vallikode, Palakkad

Social Forestry Northern Region Kozhikode (2021-22)

The evaluation covered five divisions of the circle. They include

1. Kasargod
2. Kannur
3. Wayanad
4. Kozhikode
5. Malappuram

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
	1. Infrastructure Development in Tribal Colony and Setting up District Permanent Nurseries	SF Kasargod

1. Infrastructure Development in Tribal Colony and Setting up District Permanent Nurseries

The evaluation team inspected the dimensions of the construction and other works as follows.

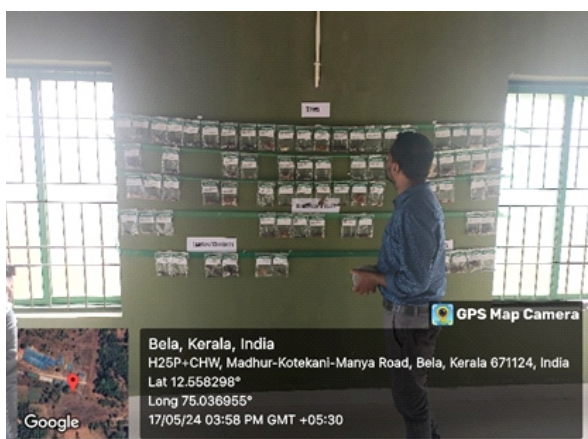
District Permanent Nursery at Bela, Kasargod division

Location / Range / Division	Activity	Dimensions (m)	Remarks
Bela, Kasargod/Kasargod SF range/ Kasargod	Construction of Rain shelter- 2 Nos	L-25 m, B-10 m 2 Numbers	Verified record and vouchers of the work completed during 2020-2021 and the payment made in 2021-2022.
Bela, Kasargod/ Kasargod SF range/ Kasargod	Construction of Office cum Laboratory building	L-12 m, B-8 m	Verified record and vouchers of the work completed during 2020-2021 and the payment made in 2021-2022.
Bela, Kasargod/ Kasargod SF range/ Kasargod	Construction of Septic tank	L-1.5 m, B-1.5m, D-2.5m	Verified record and vouchers of the work completed during 2020-2021 and the payment made in 2021-2022.
Bela, Kasargod/ Kasargod SF range/ Kasargod	Construction of Compound wall	L-406 m, H-1.5 m	Verified record and vouchers of the work completed during 2020-2021 and the payment made in 2021-2022.
Bela, Kasargod/ Kasargod SF range/ Kasargod	Electrification and plumbing works in various 5 buildings	-	Verified record and vouchers of the work completed during 2020-2021 and the payment made in 2021-2022.
Bela, Kasargod/ Kasargod SF range/ Kasargod	Purchase of Bio-Shredder Machine	-	Verified record and vouchers of the work completed during 2020-2021 and the payment made in 2021-2022.

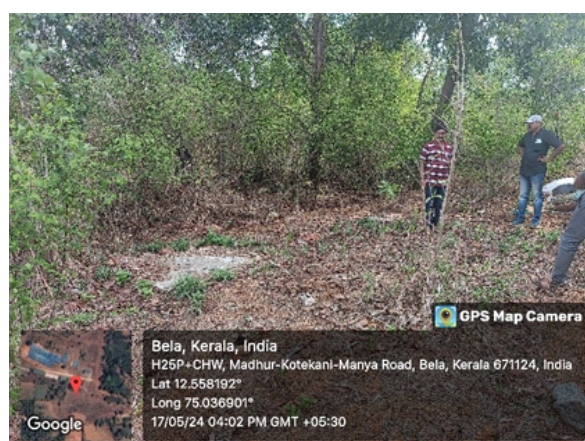
As per APO 2021-2022 under the activity Infrastructure Development in Tribal Colony and Setting up District Permanent Nurseries works such as rain shelter construction, office cum laboratory building, peptic tank construction, compound wall construction, electrification and plumbing and procurement of Bio-shredder machine were executed in District Permanent Nursery at Bela, Kasargod division during 2020-2021 and the payment for Rs.15.96 lakhs for the same was made in 2021-2022. They evaluation team inspected the various works executed at DPN, Bela as in Mbook and verified the records and vouchers for the payment made during 2021-2022. During the period, an amount of Rs. 62.85 lakhs was allotted to the circle, of which 73.13 % financial achievement was recorded.



Measurements of Office cum Laboratory building was taken during the visit and cross checked with M book at DPN, Bela, Kasargod



Team inspection of Compound wall construction under CAMPA fund.



Electrical and Plumbing works of various building at DPN, Bela and Septic tank work inspection by the team



Inspection and working status of Bio Shredder Machines at DPN, Bela



Visit to the Rain Shelter structure used for raising the seedlings of forestry species at DPN, Bela

Social Forestry Northern Region, Kollam (2021-22)

The evaluation covered five divisions of the circle. They include

1. Alappuzha
2. Kottayam
3. Pathanamthitta (PTA)
4. Kollam
5. Thiruvananthapuram

Following activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Division
Protection of Plantations of Forests	1. Improvement of Wildlife habitat a. Sea Turtle Conservation	Kollam, Pathanamthitta
	2. Forest fire prevention and control habitat a. Awareness Campaigns	
	3. Human-Animal Conflict Mitigation a. Protective Gears for wildlife conflict mitigation staffs.	
	4. Better Connectivity a. Nature Camps for Schools and Colleges b. Awareness Program	
	Infrastructure Development in Tribal Colony and Setting up District Permanent Nurseries	Pathanamthitta

1. Improvement of Wildlife habitat

Location/Range/ Division	Activity	Remarks
Thanni Beach/ Kollam SF range/ Kollam	Turtle eggs conservation during March 2022.	Records and vouchers were verified.
Thanni Beach/ Kollam SF range/ Kollam	Olive ridley turtle conservation utilizing NMR Watchers for during March 2022.	Records and vouchers were verified.
Thanni Beach/ Kollam SF range/ Kollam	Construction of Hatchery unit for conservation of Olive Ridley Turtle at Thanni Beach during March 2022.	Records and vouchers were verified.
Thanni Beach/ Kollam SF range/ Kollam	Awareness programme for public and School Students of C.V. Memorial L P School on Turtle conservation at Thanni Beach on 09.03.2022	Records and vouchers were verified.

2. Forest fire prevention and control operations

Location/Range/ Division	Activity	Remarks
Anchal/ Kollam SF range/ Kollam	Fire Awareness Camp for 60 public at Sanjeevani Vanam, Kulathupuzha on 16.03.2022	Vouchers were verified
Sasthamcotta/ Kollam SF range/ Kollam	Fire Awareness Camp for 50 scout students at Rajagiri, Sasthamcotta on 21.03.2022.	Vouchers were verified
Kadakkal/ Kollam SF range/ Kollam	Fire Awareness Camp for 60 GHSS School Students, Kadakkal on 21.03.2022.	Vouchers were verified

Location/Range/ Division	Activity	Remarks
Anchalumoodu/ Kollam SF range/ Kollam	Fire Awareness Camp for 42 public and office staff at Anchalumoodu under SF Range, Kollam on 25.03.2022.	Vouchers were verified
Achenkovil/ Kollam SF range/ Kollam	Fire Awareness Camp for 100 public and VSS members at Achenkovil on 19.03.2022.	Vouchers were verified
Eliyarakkal/SF range Pathanamthitta/ Pathanamthitta	Fire Awareness class for 140 Forest Staffs and Public on 15.03.22.	Vouchers were verified
Laha/SF range Ranni/ Pathanamthitta	Fire Awareness class and plastic waste removal for 68 Forest Staffs and public on 16.03.22.	Vouchers were verified

3. Human-Animal Conflict Mitigation

Location/Range/ Division	Activity	Remarks
SF Pathanamthitta/ Pathanamthitta	Purchase of Mountain Hiking shoes and Backpack for field staffs of SF Range Ranni and PTA Division	Vouchers and records were verified
SF Pathanamthitta/ Pathanamthitta	Purchase of Mountain Hiking shoes and Backpack for field staffs of SF Range Ranni and PTA Division	Vouchers and records were verified

4. Better connectivity

Location/Range/ Division	Activity	Remarks
Kadakkal/ Kollam SF range/ Kollam	Nature camp for 185 School Students of Kadakkal Govt. HSS School on 21.03.2022	Vouchers were verified
Kollam SF range/ Kollam	International Forest Day Awareness Camp for 60 public on 19.03.2022	Vouchers were verified

As per APO 2021-2022 under the activity Infrastructure Development in Tribal Colony and Setting up District Permanent Nurseries, District Permanent Nursery (DPN) was made in Vazhappara for an amount of Rs. 15.96 lakhs. Various activities includes the purchase of equipment, construction, and maintenance work were undertaken to enhance the nursery infrastructure. Key works included the construction of a retaining wall, renovation of a vehicle shed, plumbing and pipeline works, and provision of sound systems and electrification for the interpretation center. The evaluation tem physically inspected the DPN and measurements were made and inspected various works including the retaining wall at DPN Vazhappara and infrastructure improvements. Records and vouchers were verified and found correct.

5. Infrastructure Development in Tribal Colony and Setting up District Permanent Nurseries Setting Up of District Permanent Nursery, Vazhappara

Location/Range/ Division	GPS Location	Activity
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.1166 76.8606	Purchase of Brush Cutter , Stationery articles
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.1164 76.8608	Balance work of labour shed at DPN, Vazhappara includes floor tile work, door, aluminium window and painting
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.1167 76.8608	Renovation work of vehicle shed for storeroom includes gate, roof side. Construction of retaining wall
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.1163 76.8609	Improving access to toilet block
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.1163 76.8609	Additional work for compost unit cum potting media mixing unit includes side covering, boards
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.11639 76.8609	Pipeline and plumbing works for the water supply to nursery and main building
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.11639 76.8609	Fixing name boards at main entrance and various building
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.11660 76.8607	Providing sound systems to Front Office cum Interpretation centre includes Amplifier, Mike, Cables, Speakers
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.1166 76.8607	Providing additional electrification at Interpretation centre includes electrical goods
Vazhappara/ SF Pathanamthitta/ Pathanamthitta	9.1166 76.8607	Improving access to front office includes side pathways.

Overall Social Forestry Division in Pathanamthitta made significant strides in promoting environmental conservation and awareness. The division effectively utilized financial resources to conduct educational programs, infrastructure improvements, and conservation efforts, contributing to the preservation of local ecosystems.

During the period, an amount of Rs. 20.90 lakhs was allotted to the circle, of which 86.60 % financial achievement was observed. Maximum activities were executed in this circle as per APO 2021-2022.



Evaluation team taking measurements of retaining wall at DPN, Vazhappara with M book



Team inspection and measurements of road and compost unit at DPN, Vazhappara



Name boards at main entrance and various buildings and water drainage structure were inspected



Overhead water tank for supply of water to entire nursery and renovation work at labour camp



Visit to Front office cum interpretation centre and inspected sound and electrification works



Vehicle shed converted to Storeroom Nursery handling of various forestry tree species

Working Plan and Research (2021-2022)

The evaluation covered the working plan and research divisions of the circle. They include

1. Kokhokode Working Plan Division
2. Palakkad Working Plan Division
3. Munnar Working Plan Division
4. Punalur Working Plan Division
5. Kollam Working Plan Division
6. Thrissur Research division

The evaluation team evaluated the working plan and research division of the circle and observed that as per APO 2021-2022 work has not been undertaken in the circle.

Recommendations

The implementation of the CAMPA (Compensatory Afforestation Fund Management and Planning Authority) Annual Plan of Operation (APO) for the year 2021–22 involved a diverse array of interventions across multiple forest divisions, addressing a range of thematic components related to afforestation, soil and moisture conservation (SMC), infrastructure development, and capacity building. Upon review, it is evident that the majority of activities were executed with a high degree of diligence and effectiveness. The outcomes reflect a commendable effort by the Forest Department in advancing its conservation mandate. However, for continuous improvement and to ensure the sustainability of interventions, several key recommendations and suggestions are offered. These are aimed at enhancing ecological relevance, increasing efficiency, improving monitoring mechanisms, and ensuring long-term benefits.

1. Species Selection Based on Floristic Composition and Site Conditions

One of the most crucial aspects of any afforestation/reforestation/restoration or plantation programme is the selection of species appropriate to the ecological and edaphic conditions of the site. It is recommended that species selection be strictly guided by the native floristic composition of the respective forest type, along with a thorough assessment of the prevailing soil conditions. This approach not only ensures higher survival and growth rates but also supports the restoration of natural forest ecosystems. Introducing exotic or ecologically incompatible species may lead to unintended consequences such as poor survival, altered soil properties, or even invasion by aggressive species. Therefore, afforestation strategies should prioritize native and site-specific species that can contribute to biodiversity restoration and ecosystem services in the long term.

2. Promotion of Decentralized Local Nurseries

To ensure the timely availability of healthy and site-suitable planting materials, it is suggested that decentralized local nurseries be established and encouraged. These nurseries can be tailored to produce forest type-specific seedlings and planting stocks, thereby enhancing the ecological appropriateness of plantations. Localized nurseries have the added advantages of reducing transportation costs, creating employment opportunities at the grassroots level, and involving local communities in forest regeneration efforts. Involving Joint Forest Management Committees (JFMCs), Self Help Groups (SHGs), and tribal cooperatives in nursery management may further enhance ownership and accountability.

3. Extended Maintenance and Watch and Ward Support

One of the recurring challenges observed in planting programmes is the lack of adequate maintenance support beyond the initial 2-3 years. It is recommended that maintenance and watch and ward operations be extended to at least 4 to 5 years. This extended period is crucial for the proper establishment of plantations, especially in areas with difficult climatic or soil conditions. Activities under this component should include regular watering (as required), weeding, soil working, and replacement of casualties. Provision of adequate and consistent maintenance budgets should be integrated into the CAMPA APOs.

4. Increase in Watchers Based on Plantation Area

To strengthen on-ground protection and monitoring, it is proposed that the number of watchers or protection staff be proportionally increased in accordance with the size and spread

of plantation areas. Often, a single watcher is made responsible for large tracts of plantation, making it difficult to ensure effective protection from grazing, fire, or human interference. A rational and proportional deployment of watchers will ensure more rigorous surveillance and better plantation success. Watchers should also be adequately trained and equipped with basic tools for fire prevention and first aid.

5. Provision for Periodic Maintenance of SMC Structures

Soil and moisture conservation (SMC) structures such as check dams, contour trenches, gully plugs, and percolation pits play a pivotal role in sustaining afforestation efforts, particularly in dry and erosion-prone areas. However, many of these structures are subject to significant wear and tear, especially in regions experiencing recurrent heavy rains or floods. It is recommended that CAMPA APOs include specific provisions for the periodic maintenance and repair of SMC structures. A scheduled inspection and repair protocol should be instituted to ensure that the functionality of these structures is retained over the years, thereby sustaining soil stability and moisture regimes critical for plantation success.

6. Repair and Upkeep of Buildings and Infrastructure

Buildings and infrastructure assets such as watchtowers, field stations, and interpretation centres constructed under CAMPA need regular upkeep to remain functional and safe. During field inspections, it was observed that some of these structures had begun to deteriorate due to lack of maintenance. It is therefore recommended that a fixed maintenance and renovation schedule be drawn up for all such assets. Provisions for minor repairs, painting, roof work, and plumbing should be incorporated into the budget under infrastructure maintenance components. Where necessary, comprehensive refurbishing can be undertaken to extend the useful life of the buildings.

7. Avoiding Plantations in Core Forest Areas with High Wildlife Activity

In areas where wildlife movement is intense, particularly within core zones of protected forests, it becomes exceedingly difficult to monitor and maintain plantations. In such scenarios, it is recommended to avoid the establishment of conventional plantations. Instead, manual seeding using seed ball technology may be employed. Seed balls, when made with locally collected seeds of native species, offer a low-impact method of encouraging natural regeneration. This technique also aligns well with the ecological needs of wildlife habitats and reduces human-wildlife conflict during plantation maintenance. As with other afforestation efforts, it is critical that the seeds used in this method correspond to the native floristic profile of the site to ensure ecological balance and compatibility.

8. Capacity Building of Frontline Staff

The success of CAMPA initiatives largely depends on the skills and knowledge of the frontline staff responsible for field-level execution. In this context, capacity building and training programmes should be organized regularly, with a special focus on seed handling, nursery technologies, and propagation techniques for native and endangered tree species. These trainings will enhance technical competence, reduce seedling mortality, and improve nursery management standards. Emphasis should also be laid on record-keeping, GPS-based monitoring, and field documentation, which are essential for transparent and data-driven project evaluations.

Conclusion

The CAMPA APO 2021–22, with a financial achievement of 64%, has yielded promising results, contributing significantly to the state's forest conservation goals. The department's proactive efforts in planning, coordination, and field-level execution reflect a robust institutional framework capable of driving large-scale afforestation and ecosystem management programmes.

The activities also underscores the importance of strengthening backward linkages—such as strategic planning, capacity building, and infrastructure development—which form the basis for effective on-ground implementation. Simultaneously, enhancing forward linkages ensures that the ecological, social, and economic benefits of these efforts extend well beyond the project cycle, contributing to long-term sustainability and resilience.

As with any large-scale programme, continuous evaluation and feedback-based refinement are essential. The above recommendations aim to address some of the key gaps and challenges identified during the course of implementation. By adopting these suggestions, future CAMPA operations can become more scientifically grounded, ecologically sound, and operationally efficient. Strengthening local participation, improving monitoring, and ensuring timely maintenance will further consolidate the department's achievements and contribute to the sustained success of forest conservation efforts across the state.