



NEWS
LETTER

KERALA

2012

May - June 2012

Mruthika

Newsletter of WWF - India, Kerala State Office

FROM THE STATE DIRECTOR'S DESK

In the month of April, myself and my colleague Sivakumar was invited to attend the three day 'Workshop on Education for Sustainable Development (ESD)' organized by WWF-India for its network members from across the nation. We were very much interested in the theme of the workshop, looking forward to learn on the concepts and approaches of ESD because throughout the past years, our main area of work in Kerala has been in Environment Education (EE), and ESD is considered as the predecessor of EE. But the most exciting aspect was that the venue of the workshop was Ranthambore Tiger Reserve. The three days workshop gave us much insight into the concepts, tools and techniques of ESD and how it can be accommodated into our curriculum. EE is more of a concept whereas ESD is about the approach. EE is more of a subject whereas ESD is an approach which can be adopted to any subjects. The pedagogy adopted by the Training Team from Sweden was less of classroom and more of activity sessions and that too on a totally participatory basis. We had the good opportunity to visit the Ranthambore Fort, see the biodiversity around, hear about its associated historical stories and legends and enjoy the scenic beauty in the background of the late evening. On the second day early morning, were taken for a Tiger Safari into the Ranthambore TR which was actually the most excited part of the workshop and what we have all been waiting for, some with regard to photography and for others the unique opportunity to see the Tiger in the wild. Towards the end of our trip, we were indeed treated to the site of the Majestic Tiger in the wild. But the excitement was rather mixed with disappointment on seeing how much the big cat is under pressure from tourism, even though we claim it to be regulated or ecotourism. The animal, once it was sighted by one tourist vehicle, the information is

conveyed to the others through walkie-talkies and ultimately the animal is surrounded from all four sides by tourist vehicles, some on photography – both amateurs and professional, some on documentary video making, some looking through their binoculars etc etc. There is a flurry of vehicles, tourists and activities around the animal, that the animal really loses its charm. If we look carefully, you will easily understand that the animal is very much under stress, since you have ventured into its territory and is not giving the big cat its needed space and freedom of movement. We need to respect the wildlife in its true sense, give it its own space and freedom and enjoy it. On our way back from Ranthambore to Delhi, we got a bonus of visiting the Keoladeo National Park which has the Bharatpur Bird Sanctuary famous for the Sarus Crane. Since the time of our visit was during the afternoon, sighting of Sarus Crane was very unlikely. But we were fortunate enough to see two pairs of Sarus Crane silently walking along and pecking and feeding on the grass slightly away from the road. We enjoyed the scene to our heart's content and also captured enough on camera. We could also sight many other wildlife in and around the area. By evening, we got back to Delhi and from there back to Kerala. A week's trip to Ranthambore and Keoladeo opened us to the vast variety of natural settings and associated biodiversity that we have in our country. This is all more of what we know. Then just think about all of biodiversity that we do not know about. As the saying goes "what we know, we love, and what we love, we protect". Let us take an effort to go around, see, understand and know the natural blessings around us, by knowing them, let us start loving them and thereby protecting them.

Renjan Mathew Varghese,
State Director

IMPORTANT NEWS ON ENVIRONMENT AND NATURE

GLOBAL

Nepal launches drones to combat poachers

Conservationists in Nepal are to send drone aircrafts into the skies in the battle to save the Himalayan nation's endangered tigers and rhinos from poachers. WWF

Nepal said it had successfully tested two unmanned 'conservation drones' earlier in Chitwan National Park, in Nepal's southern plains, home to a number of world's rarest animals. The remote-controlled aircraft, being used for the first time in Nepal, would monitor the animals and poachers via cameras and GPS to capture images and video. The aircraft, with a two-metre wing span and a range of 25 kilometres, can stay in the air for 45 minutes, flying at an altitude of up to 200 metres. (Source: <http://articles.timesofindia.indiatimes.com>, June 20, 2012)

NATIONAL

There were 32 tiger deaths this year: Jayanthi Natarajan

As many as 32 tigers have died this year, even as latest official data showed an increase in the population estimates of the big cats. Of these, 18 were natural deaths, Environment and Forests Minister Ms. Jayanthi Natarajan said. She said poaching was one of the reasons. Other reasons include man-animal conflict. "The wild tiger continues to remain endangered the world over. Threats to the wild tiger and its habitat are due to several factors like poaching, illegal trade catering to a demand for the body parts and derivatives of the tiger, loss of habitat due to extractive industries, infrastructure and revenge killings," she said. (Source: *The Hindu*, May 16, 2012)

SC stays Cheetah reintroduction project

A Forest Bench of the Supreme Court comprising of Justice K.S. Radhakrishnan and C.K. Prasad restrained the Central Government from going ahead with the Rs. 300 crore project in the wake of questions being raised about a 'totally misconceived' venture that was pushed without consulting the National Board for Wildlife (NBWL). Adv. P.S. Narasimha, the *amicus curiae* in the Lion Relocation case, has filed an application seeking a stay on the implementation of the same. He pointed out that the proposal for reintroduction of cheetah has not been placed before the Standing Committee of the NBWL, nor was a considered decision taken in this regard. He has stated in an application that scientific studies show that the African Cheetahs and Asian Cheetahs are completely different, both genetically and also in their characteristics. It was also pointed out that the reintroduction of the Cheetah was against IUCN guidelines on translocation of wildlife species. (Source: *PA Update*, June 2012)

STATE

Rare damselfly sighted in forest

A rare and threatened damselfly of South India, *Myristica Sapphire (Calocypha laidlawi)* has been sighted in the Myristica Swamps within the Kulathupuzha Reserve Forests by a team of butterfly enthusiasts. An adult damselfly can be identified, usually, by looking at the wings. When at rest, the wings of most of these insects are held parallel to the body. The enthusiasts, C. Sushanth, Arya Meher, and Neha Waikar came across the damselfly while they were on their monthly butterfly and dragonfly monitoring exercise inside the Kulathupuzha forests. This damselfly is endemic to the south Western Ghats and it breeds in streams flowing through the Myristica swamps. (Source: *The Hindu*, May 14, 2012)

About 89 invasive plant species present a threat to Kerala's biodiversity

Kerala's plant biodiversity faces a severe threat from 89 alien invasive species, which were recorded in a survey by the Kerala State Biodiversity Board. Of these, 19 presents a high risk; many were found displacing and destroying a large number of native species, causing environmental and economic loss. Around 40 per cent of the varieties belonging to Brazil, Trinidad, Costa Rica, Chile, and Mexico were believed to have reached the State mostly through timber and food grain imports, said K.V. Sankaran, Director of the Kerala Forest Research Institute which conducted the survey and risk assessment. The list comprises 11 trees, 39 herbs, 24 shrubs, and 15 climbers. The high risk species include *Acacia mearnsii* (Black wattle), *Antigonon leptopus* (Mountain rose), *Arundo donax* (Giant reed), *Chromolaena odorata* (Siam weed), *Ipomoea cairica* (Kolambipoo), *Mikania micrantha* (Dhritharashtra pacha), *Mimosa diplotricha* (Anathottavadi), *Prosopis juliflora* (Sali) and *Sphagneticola trilobata* (Singapore daisy). While some species were brought for agriculture and forestry, some others inadvertently reached the State. With the years, they have established and spread, displacing the natural vegetation, including medicinal plants, and reduced the availability of fodder. Pollinating insects usually preferred these species as they produced more pollen grains and nectar than the native ones. The resultant fall in the pollination rate of the native plants would affect the local biodiversity and its regeneration. Dr. Sankaran reckons that the quarantine measures at seaports and airports should be made stringent to control the arrival of invasive varieties. Imported timber should be treated with pesticides as the wood would carry seeds and eggs of plants and insects. (Source: *The Hindu*, May 30, 2012)

Tigers find a safe haven in Wayanad Wildlife Sanctuary

The Wayanad Wildlife Sanctuary, known as the habitat of the Asiatic Elephant, has become a safe haven for tigers. A recently concluded tiger monitoring conducted by the Forest Department and WWF-India in the Sanctuary spread over 344.44 sq. km., has revealed that it may house 80 tigers including 10 cubs, the largest population of tigers in South India, after Karnataka's Bandipur Tiger Reserve. Camera trapping, where individual tigers are identified from photographs showing their unique stripe patterns, was the primary method used to count the tiger population. The healthy habitat and topography of the Wayanad Sanctuary help tigers to flourish there. The Sanctuary is an integral part of the forest block in the Nilgiri Biosphere Reserve. The proximity of the Sanctuary to the Bandipur and Muthumalai Reserves proved significant in protecting the big cats. (Source: *The Hindu*, June 5, 2012)

EXPERT'S TALK

'CONSERVATION OF RIVERS AND LAKES IN KERALA'

Jeevan Rajeev, NUALS Kochi &
Renjan Mathew Varghese, WWF-India



INTRODUCTION

Kerala has 44 rivers, of which 41 originate from the Western Ghats and flow towards west into the Arabian Sea. The river Cauvery originate in Kerala and flows east into the neighboring States. These rivers and streams flowing down from the Western Ghats either empty themselves into the backwaters in the coastal area or directly into the Arabian Sea. The important rivers from north to south are Valapattanam, Chaliar, Kadalundipuzha, Bharathapuzha, Chalakudy, Periyar, Pamba, Achancoil and Kalladayar. The main rivers which start from the Western Ghats are the Bharatapuzha, the Periyar, the Meenachil, the Pampa, the Manimala etc. Other than these, there are 35 small rivers and rivulets flowing down from the Ghats. The presence of a large number of rivers has made Kerala rich in water resources, which are being harnessed for power generation and irrigation. Backwaters are one of the most alluring and economically valuable features of Kerala. These include lakes and ocean inlets which stretch irregularly along the coast. The biggest backwater is the Vembanad Lake with an area of 260 sq.km. Second comes the Ashtamudi which covers an area of 55 sq.km. Sasthamkotta Lake is the largest natural fresh water lake of the State. It extends over an area of 4 sq.km. The Pookkot Lake in Wayanad and Vellayani Lake in Thiruvananthapuram are also very important as they are freshwater lakes. The deltas of the rivers interlink the backwaters providing excellent inland waterways along the lower and coastal areas of the State. Backwaters serve as hot spots of Kerala tourism.

MAJOR ISSUES FACED BY LAKES AND RIVERS

Sand Quarrying and River Bank Agriculture - Such activities lead to bank erosion, lowering of water table and create several environmental problems. Ground water level in some of the watersheds has gone down by nearly one meter in the last two decades.

Pollution - The lakes and rivers is the receptacle for a multitude of waste from various sources like industrial effluent discharge, domestic waste, municipal sewage, agricultural runoff, waste from resorts and house boats etc are the major types of pollutants in the lake.

Reclamation - The reclamation and encroachment of the lakes and rivers has been the most visible human intervention. High population density around the water bodies leads to over exploitation and encroachments. Even though the reclamation for agriculture has gone down, conversion by tourism industries and other developments are still rampant.

Solid Waste Dumping - People consider wetlands as a waste sink where they can dump all their rubbish. Starting from plastic bottles and carry bags up to even human waste are dumped into the lakes and rivers.

Exponential Proliferation of Aquatic Weeds - The major aquatic plants of our water bodies include the invasive macrophytes, *Eichhornia* and *Salvinia*. They cause serious ecological issues creating a eutrophic condition in water. Excessive use of fertilizers in paddy fields provides rich nutrient supply for their survival. These weeds proliferate very rapidly and spread over the entire surface of the water. Reduction of wetland diversity in both flora and fauna due to dominance of these invasive weeds has already occurred in many areas. These weeds deplete the dissolved oxygen content in water and prevent the exchange of gases and causes choking.

Decline of Fishery - The closure of the barrage and prevention of salinity intrusion has created new ecological problems in Vembanad Lake. The periodical tidal flow is completely altered. The physical and biological continuity of the lakes and rivers with the coastal waters has been disrupted. This has stimulated the decline of fishery wealth and species diversity.

General - The waste from the resorts and boats are directly discharged into the lakes and rivers without any treatment. Massive illegal conversion of lake side region into buildings and other related constructions are happening on a daily basis. The clustering of resorts on the banks of the lakes and rivers has denied access to the water front for the general public. The plying boats damage the fishing nets of the fishermen community. The replacement of dense mangrove forests on the banks of lakes by granite walls has adversely affected the ecology of the system.

CRITICAL EVALUATION OF THE SITUATION

Kerala is known as the land blessed by rain. But the State is as water-starved as many other rain shadow regions of the country. Despite getting 3,000 millimetre rain annually, Kerala's water situation is precarious. The amendments passed by the Assembly empowered the Local Self-Government Institutions (LSGIs) to play a significant role in preventing such wanton destructive acts as well as encroachment upon river banks and illegal sand-mining too. It also called for a coordinated effort by the civic bodies, the Police, Health and Revenue Departments. The secretaries of civic bodies were thus delegated the powers to file police complaints against those who violated the rules so that the offenders could be brought to book without delay. But effective steps have not yet been taken as most of them are still not aware of the powers delegated to them.



INSTITUTIONS AND ACTS IN WATER CONSERVATION

The various institutional mechanisms that we have under the government and semi-government machinery include:

- State Pollution Control Board (PCB)
- Water Resources Department
- Jananidhi - Kerala Rural Water Supply and Sanitation Agency
- Kerala Public Works Department, Government of Kerala
- Department of Irrigation, Government of Kerala

Realising the need to conserve water and protect our water resources, over the past many years, State and Central Governments have passed many laws and legislations including:

- Kerala Conservation of Paddy Land and Wetland Act, 2008
- Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001

- The Environment (Protection) Act, 1986
- The Water (Prevention and Control of Pollution) Act, 1974
- Regulatory Framework for Wetlands Conservation

RECOMMENDATIONS & SUGGESTIONS

WHAT GOVERNMENT CAN DO

Considering the need of the hour and the urgency, the Government should:

- Amend the Kerala Municipality Act 1994 (Sec 340) & Kerala Panchayat Raj Act 1994 (Sec 219)
- Amend the Wildlife (Protection) Act, 1972, Indian Forest Act, 1927, Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986
- Constitute the State River Authority
- Ban on fishing of juveniles
- Fishery enhancement schemes and ranching programs in shallow waters in and around the lakes and rivers
- Regulation on the mesh size of the fishing net and banning of unscientific fishing methods
- Regulation on the time and period of extraction
- Control over illegal dredging
- Strict control of pollution
- Proper treatment of waste from hotels and resorts
- Regulation on number of houseboats
- Collection and treatment of houseboat waste
- Development of walkway along waterfront
- Promotion of the cultivation of salt resistant varieties
- Initiative from Govt. to bring the fallow land back to production

WHAT NGOS CAN DO

International NGOs like International Water Management Institute (IWMI), World Conservation Union (IUCN), Wetlands International and others can cooperate in the action by the government through:

- Awareness among People
- Scientific carrying capacity and impact studies
- Workshop and Seminar with Stakeholders

WHAT CORPORATES CAN DO

Corporates also have a active role to play, especially through their CSR mandate by:

- Funding the various projects and programmes of NGOs and government departments related to wetland conservation
- Promote employment opportunities for the local population

WHAT SCHOOLS CAN DO

Students can help in conservation programs like:

- They can help in cleaning up the streams and river beds by picking up plastic bottles from banks.
- They can help in habitat restoration and mangrove afforestation for providing the breeding ground

WHAT CELEBRITIES CAN DO

They can also contribute by

- Being a part of the various awareness programs
- Initiating nature conservation programs.
- Being brand ambassadors of the programs.

CONCLUSION

Water scarcity is an acute problem of today which is likely to worsen in the future. There are many concerns in the world today, and water scarcity is currently in the backseat. Our world can only address so many problems at a time, and we tend to put them off until the need to find a solution becomes dire. All the research and projections we have found show that this will indeed be a dire situation in as early as 20 years from now. Children are already dying in large numbers in poverty-stricken regions due to preventable waterborne illness, and the destruction of natural ecosystems is greatly reducing fresh water biodiversity. These effects will continue to snowball until a viable global solution is implemented. As the situation stands now, it is impossible to end with an answer, only another question. What will our children drink?

CHILDREN'S CORNER

Identify the beaks...hi....here are 12 beaks, find their owners.....



Identify these birds through their beaks



Answers

1. Cormorant, 2. Open bill, 3. Spoon bill, 4. Heron, 5. Snipe, 6. Sandpiper, 7. Plover, 8. Stork, 9. Darter, 10. Ibis, 11. Kingfisher, 12. Sunbird

MEMBER'S CORNER

My Introduction to Bird Watching

Mrs. Elizabeth Thomas, Ernakulam

The 'World Migratory Bird Day 2012' celebrations were held in Kochi on 17th May. Seeing the news report about this, I turned up for the seminar at 10.00 am at NIPM House, Kochi. The seminar speakers included Mr. Vishnupriya Kartha, Mr. A.K. Sivakumar and Mr. C. Hari Kumar. In his talk on 'Bird Migration' Mr. Sivakumar mentioned all the features of bird migration - such as it being a regular event and that the birds follow a regular pathway and typical landmarks. Mr. Vishnupriyan gave a colourful talk about birds that migrate to Kerala with slides of around 50 of these beautiful birds.



After the lunch interval, Mr. Hari Kumar introduced the topic 'Bird Watching'. He described each aspect of 'WHICH' used to identify birds as well as the role birds have in sustaining life in the eco-system. It was a very educational hour interspersed with activities related to the different species of birds. The session ended with details of the bird watch program for the next day at Mangalavanam Bird Sanctuary on Saturday 18th May at 6.30am. We were given instructions on what to bring and how to get there. All left looking forward eagerly to the next day.

Bird watching began after all gathered together at the main gate. The Racket Tailed Drongo was the first to greet us. We were able to identify 14 species of birds, some by their calls. It was very exciting for a first timer like myself. After a group discussion of all the birds we saw, we left the bird sanctuary at 9.30 am for our next destination. We reached Puthuvypeen beach by around 9.45 am. On the way there, we spotted another 6 species of birds including Indian Shag. At the beach, we were able to see Seagulls and watch them in flight. Many in the group were able to take great pictures of the birds. The bird watching session ended by 11.30 am.

There was an exhibition of bird photographs and interactive quiz sessions organized on 19th at the Childrens Park, Kochi. Unfortunately, I was not able to participate but I am

confident that it would have been well organized as the activities of the previous two days. We thoroughly enjoyed the program and look forward to more bird watching sessions. Thanks to all the organizers for a job well done.

SPECIAL FEATURE



Elephants running amok during temple festivals

Every year we have festivals associated with our temples all across the State and many more cultural programmes also. And now we see that elephants running amok leading to loss of lives and properties are becoming a regular incident. The recent incident at Koodalmanikyam is witness to this and the similar incident had happened in the same premises last year also leading to multiple loss of lives. Why don't we as a responsible society seriously reconsider our options and come up with some permanent and acceptable solutions? Are our religious beliefs and associated rituals so blind that we accept sacrificing lives rather than modifying them as deemed required? What we really need to understand is the hard fact that such a large mammal as elephant, which is really wild in nature, but has been captured and trained by man, is still not meant for festivals and cultural events. But then the claim is made that since many years we have been using elephants for such activities. But then why can't we make a radical change and free these giants of this torture of being transported from one festival location to the other on foot or in crammed lorries over many days, not being fed properly with adequate food and water, having to stand amidst huge crowds, burning torches and fireworks for long hours, being improperly treated by drunk mahouts etc. And unfortunately the Musth period in elephants coincides with the festival session in our State. Private elephant owners in the vested interest of making maximum money rent out these giant mammals to the maximum possible extent. Even though the Kerala Forests and Wildlife Department has instituted the Elephant Task Force/ Squad and is implementing the Captive Elephant Management Rules which makes it necessary for the respective forest officials to issue Fitness Certificate for elephants to be used in public functions etc, the recent unfortunate incidents at Thrissur and Koodalmanikyam proves that they are still to be enforced in its full essence.

Renjan Mathew Varghese

CONSERVATION — CAUGHT ON CAMERA



Sarus Cranes at the Keoladeo National Park, their favourite home



A Tigress of Ranthambhore Tiger Reserve

Photos : A.K. Sivakumar

ACTIVITIES OF WWF-INDIA KERALA STATE OFFICE

World Migratory Bird Day 2012

World Migratory Bird Day (WMBD) 2012 was observed at Ernakulam with a series of events from 17th to 19th May 2012. This three day programme was a joint initiative of WWF-India, Cochin Natural History Society (CNHS), George Eden Memorial Charitable Trust and Fireflies of Ernakulam organised with the support of Kerala State Biodiversity Board. The first event, the awareness sessions and workshop on bird identification was held at the NIPM Hall at Ernakulam North on 17th May 2012 with an attendance of around 50 nature enthusiasts of the City from different walks of life including housewives. The awareness session was inaugurated by Sri.Vinod Malayilethu, Co-ordinator, WWF-India's Marine Programme. The technical session on 'Migratory Birds and People' was led by Sri. A.K. Sivakumar, Senior Education Officer of WWF-India with a series of examples of birds from our culture, arts, life, agriculture, academics and so on. The session on 'Migratory Birds of Kerala' was led by Sri. V.P. Vishnupriyan Kartha of CNHS. The post lunch workshop on 'Bird Identification'



was led by Sri. C. Harikumar who is a very keen bird watcher and is a regular resource person of WWF-India. On 18th, the second day, the participants took part in a bird watching trip within Mangalavanam Bird Sanctuary and Puthuvypin beach from 6.30am to 11.30am. Fourteen species of birds were sighted within the bird sanctuary.



An exhibition of 100 photographs of Migratory Birds of Kerala along with photographs by participants were exhibited at the Audio Visual Hall of the Children's Park, Ernakulam on 19th, the third day. An interactive quiz and documentaries exclusively on birdlife was also held.

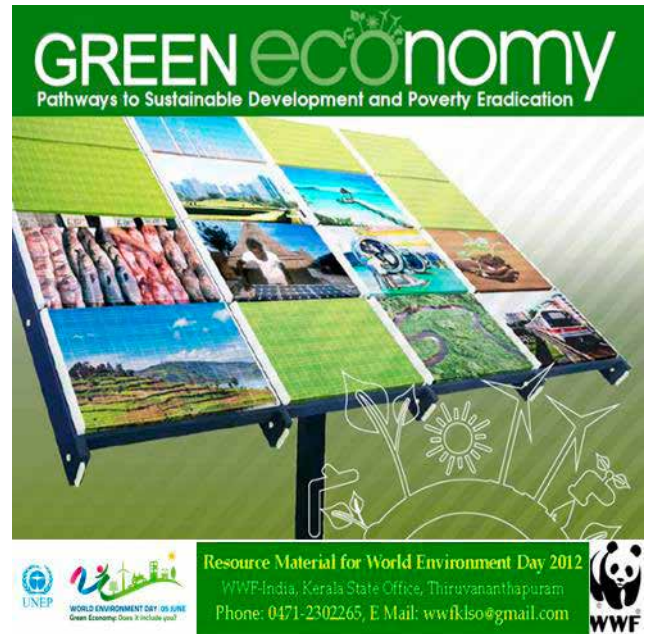


International Biodiversity Day

Mr. A.K. Sivakumar, Senior Education Officer was invited to lead a session on 'Biodiversity profile of Kerala, a special focus to Sasthamkotta Lake' on 22nd May 2012 at Basелиos Mathews II College of Engineering on the banks of Sasthamkotta Lake, the largest freshwater lake of Kerala and one of the 25 Ramsar Sites of India. The session was part of the Biodiversity Day observation by Kerala State Biodiversity Board and was attended by around 150 people including school and college students, local nature enthusiasts and likeminded people.

World Environment Day 2012

WWF-India, Kerala State Office observed World Environment day 2012 in various ways at various places with a variety of activities;



CD ROM on Green Economy – WWF-India, Kerala State Office prepared a CD-ROM on Green Economy which included a multimedia presentation and its note in connection with WED 2012. The CD was sent to all Nature Clubs and they were requested to conduct awareness sessions locally. Several schools and colleges made use of the same and sent activity reports to us.

Exhibition in association with CMFRI – in association with CMFRI, Cochin organized an exhibition at Gowreeshashramam, Cherai, Ernakulam with talks, live painting, recitation, oyster farming in a green way etc. There was an exhibition on Marine and Coastal Ecosystems arranged by WWF-India.



Cycling from Kochi to Goa – Mr. Depalan S., Naturalist of Club Mahindra, Munnar went on cycling from Kochi to Goa starting on 5th June 2012 in association with WED observation of WWF-India in Kochi. He was provided with a multimedia presentation on Green Economy and a Quiz on Environment by WWF-India. He interacted with the WWF-India affiliated Nature Clubs on his way to Goa.



Awareness Session and Painting Competition – JCI Cochin conducted a single day WED programme with half day session on Green Economy and painting competition for students of Ernakulam on 10th June 2012.



Friday Forum

Friday Forum, the monthly open forum for school students to discuss and share the environment related issues was held at Museum Auditorium, Thiruvananthapuram on 8th June 2012 on the topic 'Solid Waste Management'. Sri. Shibu K. Nair from Thanal led the session and follow up activities also were discussed. Around 250 students from 7 institutions attended the Friday Forum.



Monsoon Camp

A two day Monsoon Camp was organised at Nature Study Centre at Kaprikkadu near Kodanad Elephant Rehabilitation Centre. The camp that was led by Senior Education Officer and Sri. C. Harikumar was attended by 20 nature enthusiasts. The first day was to explore the Kodanad Elephant Rehabilitation Centre lying on the banks of River Periyar. The baby elephants of 1 and 1.5 years old was the most interesting attraction. There was a lot of information to gather on the life of an elephant. The second day was a nature walk to the 'Paniyeri Poru' where seven small tributaries of Periyar join together and make a poru (war) between them. On the way, the campers enjoyed the sightings of many birds. The team also had two occasions to enjoy the sweet jack fruits on the way which is a seasonal fruit of Kerala.



Session on Water birds of Kerala

The Senior Education Officer conducted a session on 'Water Birds of Kerala' at Museum Auditorium, Thiruvananthapuram on 23rd June 2012 in connection with the Annual Induchoodan (the pioneer of Ornithology in Kerala) Commemoration of Warblers and Waders.

EDITORIAL BOARD

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