

WORKSHOP ON 'ECOLOGY AND CONSERVATION OF ANDAMAN & NICOBAR BIODIVERSITY'

Andaman & Nicobar Islands is known for its extraordinary geological features, exceptional range of rich biodiversity, endemic flora and fauna, and threatened species. SACON is one of the premier scientific institutions to work in Andaman and Nicobar Islands for the last two decades.

As part of its Silver Jubilee Celebrations, SACON organized a two-day workshop on 'Ecology and Conservation of Andaman and Nicobar Biodiversity' in Port Blair on 24th and 25th November 2016. The workshop deliberated upon various aspects of ecology and conservation of biodiversity of Andaman & Nicobar Islands. SACON had invited researchers / scientists from all over the country to this workshop who have worked or have been working on the biodiversity of this Union Territory and they shared the rich experience of their valuable research work.

The programme was conducted in the auditorium of Regional Medical Research Centre, Indian Council of Medical Research, Dolly Gunj, Port Blair. Dr. Alok Saxena, Principal Chief Conservator of Forests, Andaman and Nicobar Islands lauded the positive role SACON has played in the conservation of Andaman Nicobar ecology while inaugurating the workshop. Shri. M. S. Negi, Chief Wildlife Warden and PCCF of Andaman and Nicobar Islands, who was the Guest of Honour, highlighted the importance of many research projects that were executed by SACON in natural resource conservation of Islands and invited all scientists to take a proactive role. While Dr. K. Sankar, Director, SACON welcomed the gathering and delivered a talk on "Research activities and accomplishments (1990-2016) in Andaman and Nicobar Islands by SACON", Dr. Vijayachari, Director, Regional Medical Research Centre gave the felicitation address.

During the inaugural session of the workshop SACON released two publications namely;

1. Social organization, behaviour and phylogeography of *Macaca fascicularis umbrosa* in the Nicobar Islands, India.
2. A Compendium on SACON's research work in Andaman & Nicobar Islands.

Total of 18 papers were presented in four technical sessions viz.

- 1) Conservation and Management of Forests and Wildlife in Andaman and Nicobar Islands
- 2) Conservation of Birds in the Andaman and Nicobar Islands
- 3) Coastal and Marine Ecosystems and



Dr. K. Sankar, Director, SACON delivering welcome Speech



Dr. Alok Saxena delivering the keynote address



Talk by Shri. M.S. Negi, Guest of Honor



Felicitation address by Dr. Vijayachari, Director, Regional Medical Research Centre, ICMR, Port Blair



Dr. Ravichandran, CCF, delivering a talk in the workshop

From the Director's Desk

The current issue of SACON newsletter is the 'Alumni Special' wherein four articles have been contributed by our former SACON Alumni on spot-billed pelicans, vultures, exotic weeds - wildlife association and experience on getting closer to nature. Apart from these, the activities of the centre in the last three months such as the Silver Jubilee workshop at Andaman and Nicobar Islands, Salim Ali Nature Awareness Competition and the Silver Jubilee lecture series have also been highlighted in this edition

SACON has become a full-fledged Wi-Fi campus during this period which is the need of hour. Infrastructural developments such as laying new tarmac roads and construction of a car/two-wheeler shed is in progress. Two new buildings- a post-graduate hostel and a laboratory block are coming up in the next quarter on campus. Our next task is to keep the campus 'environment friendly' by recycling the canteen food waste and creating facilities for solid and liquid waste management.

All this is achievable only through the active cooperation and support of our staff and faculty members. I take this opportunity to thank you all for achieving the desired targets on time.

Dr. K. Sankar

Director

4) Conservation Education, by scientists from SACON, nine other organizations, and NGO's. The workshop was attended by over 100 delegates and participants. The workshop discussed a wide range of wildlife and conservation issues related to Andaman and Nicobar Islands. After the technical sessions, a discussion meeting of participants highlighted the major research gaps and conservation and education issues in the islands.

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ARE SPOT-BILLED PELICANS IN TAMIL NADU REALLY IN PERIL?

Of the eight species of Pelicans (American White Pelican *Pelecanus erythrorhynchos*, Australian Pelican *Pelecanus conspicillatus*, Brown Pelican *Pelecanus occidentalis*, Dalmation Pelican *Pelecanus crispus*, Eastern (Great White) Pelican *Pelecanus onocrotalus*, Peruvian Pelican *Pelecanus thagus*, Pink-backed Pelican *Pelecanus rufescens*, and Spot-billed Pelican *Pelecanus philippensis*), the Spot-billed Pelican alone comes and breeds in large numbers in Tamil Nadu. When the IUCN assessed the status of the Spot-billed Pelican in the

year 1993, the global population of Spot-billed Pelican was estimated to be <10,000 individuals. Accordingly, the IUCN designated the species as vulnerable in 1994 and retained the species in the same status till 2002 as the population showed no increase. From 2002 onwards, due to the constant conservation efforts of Birdlife International and Governments of various countries, the population started recovering gradually. At one stage, surprisingly it moved from <10,000 individuals to a healthy global population of 20,000 individuals in 2006, gaining the near threatened status in 2007. In 2006, The Indian population was just above 5,000 individuals in the south and ca.3,000 in Assam. The population of Spot-billed Pelican has reached amazing figures such as 3487, 4019, 3654, and 3912 in the years 2010, 2011, 2012 and 2013 respectively in Tamil Nadu alone.

However, life has not been easy for the species. While the number continues to increase, the environment for these birds to really flourish is impacted by habitat encroachment, fishing, tourism, and poaching. Besides, competition for nest sites, drought and predation also often threaten the species. Are Spot-billed Pelicans in Tamil Nadu really in peril? Yes. The pelican would certainly face a downfall in the very near future as above mentioned threats are constantly growing abreast. Currently, the Spot-billed Pelican utilizes as many as 54 sites in Tamil Nadu (Karaivetti, Venganur, Adaiyar, Periyakulam, Periyakulam-sulur, Chinnakulam-sulur, Singanallur, Kuniyamuthur lake, Selvapuram Lake, Perur, Ukkadam, Veeranam Lake, Wellington Reservoir, Bhavnisagar Dam, Vedanthangal, Edayur, Pallikaranai, Kalavai lake, Annamalaicherry, Kattankulathur-Karikilli, Kilkattalai, Muttukadu, Theroor, Vembanoor, Putherry, Vandioor, Kunnathur, Point Calimere, Great Vedaranyam Swamp, Periakannai, Sakkarokotai, Kanmai, Chitrangudi & Kanjirankulam, Gulf of Mannar, Melaselvanur-Keelaselvanur, Kottamangalam, Kalimangalam, Ervadi, Vettangudi, Athirampattinam, Pattukkottai near, Palaverkkadu, Koonthangulum, Venthakulam, Vaduvor, Muthupettai lagoon, Udayamarthandapuram, Chervaikaran madam & Kovampallam, Kaliveli tank, Yedayanthittu Estuary, Kullur Sandai-Reservoir, Watrap Periakulam, Viraka Smuthrakulam, and Vembakottai Dam) and of which, 10 are protected under the category Sanctuary (Bird), one under the Marine National Park, and one under the Reserved Forest by the Forest Department of Tamil Nadu. Hence, these sites receive high level of protection. On the contrary, all the other wetlands (45), being free from legal protection, are vulnerable to anthropogenic pressure. It is practically difficult to bring all those identified

wetlands under the control of the forest department as many of them failing to fit into the prescribed criteria for becoming a Protected Area. Pallikaranai marsh has been one of the largest foraging sites for Pelicans during the breeding season. However, the area was reduced to about 600 ha from an earlier extent of 4000-5000 ha and recently to 420 ha. Although the government of Tamil Nadu (Gazette notification GO. Ms. No. 52, dated 9 April 2007), declared a part of the Pallikaranai marsh (317.00 ha) as a Reserved Forest (under section 4 of the Tamil Nadu Forest Act, 1882), rejuvenation of this wetland ecosystem in a sustained manner is an urgent need to preserve the Pelican population. Although, the pylons present amidst the marsh have largely been used as resting sites by Pelicans, mortality of Pelicans due to electrocution also happens.



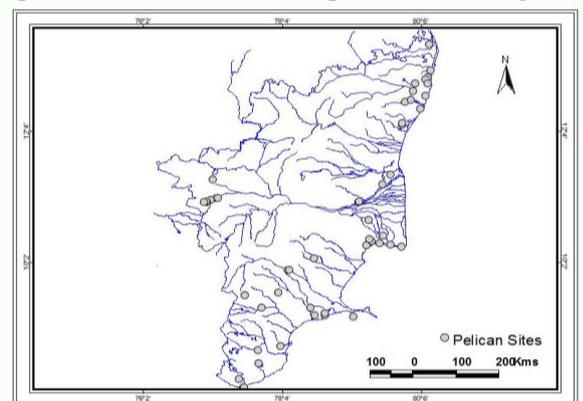
There are currently four relatively stable large breeding colonies in Tamil Nadu: Vedanthangal Bird Sanctuary, Koonthangulam Bird Sanctuary, Karaivetti Bird Sanctuary, and Karikilli Bird Sanctuary. Among the breeding sites, more number of breeding pairs are found recently in Vedanthangal Bird Sanctuary as compared to other sites. Koonthangulam is the second largest holder of Pelican breeding colony in Tamil Nadu followed by Karaivetti, and Karikilli. The people around the Koonthangulam shows an extraordinary affection towards the birds by not using crackers during the entire breeding season, sharing their own spaces with the birds to nest, and tolerating all sorts of disturbances created by birds while breeding. One cannot expect such an attitude among the people wherever Pelican breeds. And, of concern, is the change in attitude of local's support to Pelicanries in other areas due to increasing human related

pressures and other reasons. This has resulted in disinterest in the protection of the species, loss of nesting trees and over exploitation of foraging grounds affecting Pelicans.

February to April being the crucial months of growing the young ones of Pelicans, proper steps need to be taken to sustain the water level for its conservation at least in the breeding sites. The Pelicans arrive mostly after the arrival of majority of the other water birds and thus they are often left with few numbers of trees to nest in the wetlands. As nesting trees are not sufficient enough to support all the members of the birds during the breeding season, erection of artificial nest poles or stages would invite more number of Pelicans in addition to planting of trees for the long term survival of Pelicans.

Unlike other water birds, Pelicans arrive in November and stays up to June to rear the chicks. After February, the water level in majority of the wetlands dips significantly below the required level for them to perform the regular activities. Hence, Pelicans move in large numbers with immature juveniles to new wetlands with required water level. Often such sites are detrimental to their sustenance as Pelicans are not used to the new environment and related threats. As these wetlands are free from protection, Pelicans are often killed by the poachers.

Another crucial issue is the changeover from traditional organic agriculture to the chemical based farming. It adversely affects the fishing grounds where the breeding Pelicans go to feed. The excess chemicals that get washed away into nearby water bodies is a serious threat to aquatic ecosystem. Many of the irrigation tanks are choked with aquatic weeds making it difficult for the Pelicans to land in the water for fishing. In addition, the pesticides often cause mortalities in fish population.



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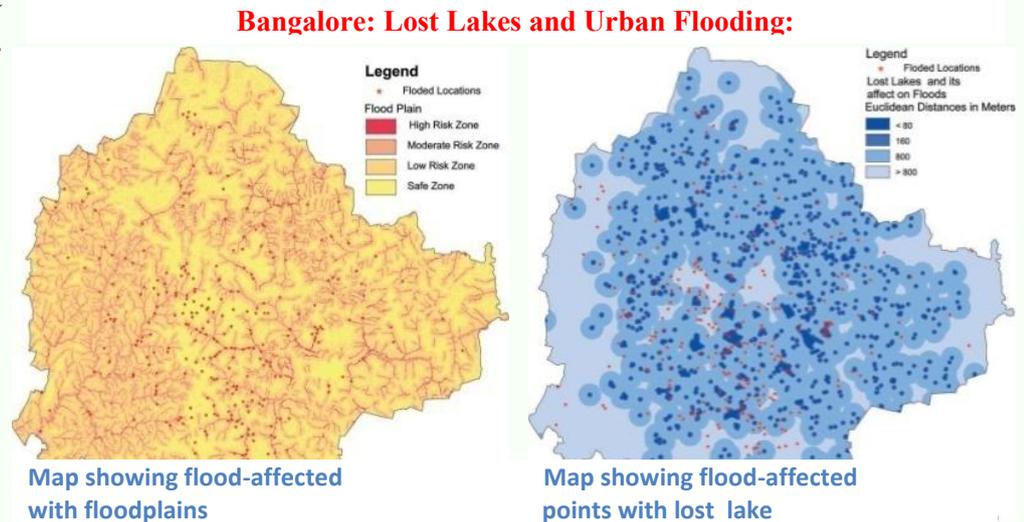
GETTING CLOSER TO NATURE: CAN ACADEMICS BE PART OF THIS EXPERIENCE?

It was in the year 2009; I was a faculty in Department of Geography, Bangalore University. A student post-graduation draft dissertation read "Rice is not cultivated in Karnataka, paddy cultivation in Karnataka accounts for 58.1 Lakh tonnes in the year 2009". When I discussed with the student, I understood that he never saw paddy in life. All that he knows is rice comes from the plant directly. But, I imagined himself to be a researcher in Geography soon, giving talks about "climate change and global warming" to his future generation but not knowing that rice is a product of paddy. Dichotomy raised in my mind, do education bring man closer to nature? Or is that education take man farther from nature? Urban area constitutes the more educated, elite citizens of any nation. But it is the same metropolitan area that contributes to higher carbon emission. Relationship with man and nature nevertheless symbiotic is growingly becoming a utopian concept. Living along with nature is a beautiful experience. Morning sun promotes the synthesis of Vitamin D from the accumulated cholesterol under the skin of human body. Encountering direct sun in an urban area is unlikely, and hence Vitamin D deficiency is popularly called as the urban disease that causes weak muscles and bones. More so is the role of parks, urban green spaces and open spaces in the role of connecting man with nature. The connect with Sálim Ali Centre for Ornithology and Natural History, Coimbatore imbibed in us this noble thought and hence we belong to this proud School of Environmentalism. We realized at a very young age that butterflies, birds, snakes, ants, squirrels, spiders, frogs and the like are not aliens. They are the components of nature as we are and have right to live as we do.

The underlining principle of SACON time and again proved the learning of technologies in academics that found innovative applications which in turn would build the man-environment

relationship. Such learning inspired me to work on the Ecological Analysis of urban wetlands of South Chennai for my masters dissertation. My doctoral research had significant findings on the land transformation of Bangalore city and accounted for the loss of lakes, agricultural plantations and forest lands. Today, as Assistant Professor of Geography, Central University of Karnataka, my research in Urban Green Biotopes for smart cities, Urban growth prediction modeling, Urban flood analysis, Urban Heat Islands and Urban infrastructure analysis for sustainable development have demonstrated the role of Geo-informatics in bridging the growing gap between man and environment. Technologies have been there and would be evolving better in future, but the inclinations of mind towards nature connects us for a common cause and help us to foresee better future. I am evolving a better pedagogy of teaching and research in higher education that amalgamates the importance of Geo-informatics technology but not losing the essence of its application.

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IN-SITU CONSERVATION OF VULTURES IN TAMIL NADU, INDIA

Vulture species are threatened across India and most parts of the world. The major reason for vulture decline in the Indian sub-continent was the veterinary use of diclofenac for cattle. Recently six NSAID's (Non-Steroidal Anti-inflammatory Drug) apart from diclofenac, namely aceclofenac, ketoprofen, carprofen, flunixin, nimesulide and phenylbutazone are evidenced toxic to vultures. Diclofenac is banned for veterinary use in India. The drug meloxicam remains the only vulture-safe NSAID. Today, vultures are confined in Moyar Valley of Nilgiri Biosphere Reserve in Tamil Nadu. The in-situ vulture conservation awareness program has been conducted in the year 2010 onwards and implemented significant vulture conservation actions in the Moyar Valley regions of Tamil Nadu by; 1) promoting a ban on another vulture killer drug ketoprofen, banned in three districts namely Nilgiris, Coimbatore and Erode which falls within the Vulture Safe Zone (VSZ) of Tamil Nadu, 2) passing a resolution for diclofenac-free villages and safe guarding vultures in *Grama Sabhas* (local decision making bodies in villages) in Coimbatore, Erode and Nilgiris and 3) Based on the vulture studies a blueprint of site specific vulture action plan prepared and circulated to the decision makers such as the state animal husbandry and forest departments. An assessment of status and population of vultures was conducted from 2011-2014 for four species namely the critically endangered Red-headed Vulture, White-Rumped Vulture and Indian Vulture and endangered Egyptian Vulture in the Moyar Valley (Venkitachalam 2015). The White-rumped Vulture and Indian Vulture have been breeding in Moyar Valley of Tamil Nadu and population



Rescued White-rumped vultures successfully raised in captivity in Segur Range of Nilgiri North Forest Division.

fluctuations were noticed in the Moyar Valley during monsoon, pre-monsoon and summer seasons (Venkitachalam *et al.* 2016).

Site specific threats are also identified in the designated provisional Vulture Safe Zone (pVSZ) other than NSAID's. A permanent vulture rescue facility is also required to rescue fallen abandoned vulture nestlings in the pVSZ. For instance, an abandoned White-rumped Vulture nestling was found in 2013, but was successfully raised in captivity and released back to the wild in Nilgiri North Forest Division (Picture 1). The current mortality of White-rumped Vultures (Picture 2) in the pVSZ is another challenge for conservation. Given the continued losses faced by people in conflict with wildlife, and the absence of readily available measures to offset these losses, there is a considerable local animosity towards wildlife conservation and support for activities that undermine conservation (Johnsingh *et al.* 2010). As per Saving Asia Vulture from Extinction (SAVE) guidelines, continued monitoring of existing vulture nests is important since it will provide a measure of the size of the breeding population; this is an important measure of the local status of slow breeding vultures and NSAID prevalence study must be carried out within the pVSZ of Tamil Nadu. Finally, the pVSZ in Tamil Nadu shares its borders with neighboring states such as Kerala and Karnataka and further conservation actions should be extended to these states too. Together, these efforts could help to contribute to announce Moyar Valley a permanent Safe Zone for Vultures in Tamil Nadu, India.

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White-rumped vulture mortality in provisional Vulture Safe Zone in Tamil Nadu

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EFFECT OF EXOTIC WEEDY PLANTS ON BIRDS AND BUTTERFLY ASSEMBLAGES; A STUDY FROM SACON CAMPUS

Exotic weeds have infested most areas of natural vegetation causing serious depletion of biodiversity among ecosystems across the globe. The loss of biodiversity is not only confined to native vegetation, but the faunal groups are also affected with changes in vegetation. A short-term study was undertaken at SACON campus during July-August 2016 as part of an M.Sc internship programme of Ms. Esha Haldar with an objective to examine how the three major exotic weeds viz. *Lantana camara*, *Chromolaena odorata* and *Prosopis juliflora* can affect the associated bird and butterfly assemblages. *Lantana camara* is a native of South, Central America and Caribbean Islands. *Lantana* was introduced to India in 1807 as an ornamental plant at the National Botanical Garden of Calcutta and soon it got spread into the wild and has established itself all over India. *Chromolaena odorata* is a native to North America and Caribbean Islands and was introduced in the Indian subcontinent in the nineteenth century. *Prosopis juliflora* is a native to Mexico and Caribbean. The history of the first introduction of *Prosopis* to India dates back to 1870.



Indian silverbill or white-throated munia
(*Euodice malabarica*)

We compared the diversity of birds and butterflies across eight selected study plots having varying levels of weed infestation (based on percentage cover of invasive species using visual estimation). Plots of 50 m radius were used for bird sampling while butterflies were recorded from 10 x10 m plots located within the sampling plots for birds.

Overall 36 species of butterflies and 44 species of birds were recorded during the study. Species composition and diversity of the bird and butterfly assemblages varied across the weed invasion gradient with higher diversity being recorded in the plots with less invasive weed cover. The species richness for birds and butterflies were higher for the control plot where the invasive species cover was almost nil. Although the study was conducted during the non-flowering season for most plants, the diverse species of plants present in the control plot attracted a wider range of birds and butterflies and hence the species richness was more. The *Lantana* and *Prosopis* dominated plots did not show much difference in their species richness, as they both attracted frugivorous and insectivorous birds, such as the Red Vented Bulbul, and Yellow-Billed Babblers. The *Chromolaena* attracted mostly insectivorous birds like Indian Robin as it mainly formed dense shrub cover. The species richness declined with increase in percentage of *Lantana* and/or *Prosopis* cover. The *Lantana* was also not in flowering state and hence it attracted comparatively less number and diversity of butterflies during the study period. The dominant *Chromolaena* patch showed higher abundance of butterflies probably because of the dense shrub cover and absence of any canopy. The butterflies were attracted in *Prosopis* plots mainly due to the native shrub undergrowth.



Rustic butterfly- *Cupha erymanthis*- Photo by Esha

It may not be prudent to make generalized conclusions on the relationship between exotic weeds and the diversity of birds and butterflies based on the limited data, short span of study and small sample size. However, the results clearly indicated that infestation by exotic weeds does have a negative relation with the diversity of bird and butterfly assemblages. Although the increased nectar and fruit availability contributed by the exotic weedy plants may attract certain birds and butterflies to them during certain seasons, the native vegetation appears to be more important for local biodiversity during off seasons. Long-term studies in this direction may bring out interesting patterns of dynamic interactions between exotic weeds infestation and the associated biodiversity.

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SALIM ALI ROLLING TROPHY NATURE AWARENESS COMPETITIONS - 2016



SACON conducted “Salim Ali Rolling Trophy Nature Competitions – 2016” on 20th November 2016 in G. D. Mat. Hr. Sec. School, Coimbatore. More than 2500 students from 50 schools participated in the competitions.

SACON has been conducting these competitions for more than two decades. Over this period of time, this event has become very popular among the schools of Coimbatore and nearby districts. Every year two to three thousand students from 50-80 schools participate in various categories of competitions such as elocution, essay writing, poetry writing, story writing (both in English and Tamil), painting and pencil drawing and nature quiz. One unique competition in this event is the bird watching or spot the bird contest to identify the young bird watcher of the year. Uniqueness of all these competitions is that the topics will be given only on the spot, to test the spontaneity, the real knowledge and skill of the student as opposed to the trained / or prepared competitions. First three positions in each of the competition will fetch points for the school and the school with highest point will become the Champion of the year and the rightful owner of the Rolling Trophy for the next one year. The following schools have crowned the position of champion in the previous years.

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| <ol style="list-style-type: none"> 1. Chinmaya Vidyalaya Mat. Hr. Sec. School, Coimbatore 2. G.R.G. Mat. Hr. Sec. Peelamedu, Coimbatore 3. G.K.D. Mat. Hr. Sec. School, Peiyanaikien Palayam, Coimbatore | <ol style="list-style-type: none"> 4. S.B.O.A. Mat. Hr. Sec. School Coimbatore (4 Years) 5. Kadri Mills Hr. Sec. School, Ondiputhur 6. G.D. Mat. Hr. Sec. School (6 years in two series) 7. Kongu Vellalar Mat. Hr. Sec.School, Karumathampatti (3 Years). |
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INAUGURATION OF WATER HOLE FOR WILD ELEPHANTS

Shri K. Chandra Prakash, Senior Regional Manager, Central Bank of India, Coimbatore inaugurated a ‘Water Hole’ constructed exclusively for wild elephants on the SACON campus on 18th November 2016. The present water hole, sponsored by Central Bank of India, is the third one on the campus for providing water for wild elephants.



SILVER JUBILEE LECTURE BY MR. VIVEK MENON



Mr. Vivek Menon delivering the SACON Silver Jubilee Lecture



Dr. K. Sankar, Director, SACON giving the introductory talk

As part of the Silver Jubilee Celebrations of SACON, Mr. Vivek Menon, Chief Executive Officer, Wildlife Trust of India, New Delhi and Chairman of Asian Elephant Specialist Group (IUCN – SSC) delivered a lecture on “Right of Passage; Conserving Elephants amongst a billion” people on 21st October 2016 in the Conference Hall of Chamber of Indian Industries, Coimbatore. This talk was arranged by SACON in collaboration with the Young Indians of Chamber of Indian Industries (CII), Coimbatore.

Mr. Vivek Menon, a wildlife conservationist, environmental commentator and author has narrated issues of elephant conservation in a highly populated country, India. Giving many anecdotal stories of elephants from his rich experiences in India and abroad he added that a good understanding of biology of animals could help the conservation possible. He mentioned that instead of stopping the movement of elephants using traditional methods such as trenches and fences, which have not proved fruitful always, it is better to allow their free movement. He added that conservation of grasslands along with forests is important as the elephants largely feed on grasses along with trees and other plants. While mentioning about the incidences of killing of elephants by trains he said that it can be brought under control by making underpasses, over passes and redirecting elephants from sharp edges.

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Design: A. Srinivasan

Views expressed in this newsletter are not necessarily those of the Editors or the Sálím Ali Centre for Ornithology and Natural History

October - December 2016

Printed & Published by the Director, Sálím Ali Centre for Ornithology and Natural History,
 P.O Anaikatty, Coimbatore– 641 108, Tamil Nadu, India.