



# SACON News



***Vol. 17 (1) January – March 2020***

# SACON News

January to March, 2020

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Ms. A. Julffia Begam

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Greater Flamingo  
© Mr. Amirtha Balan R.

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Ruddy Shelduck  
© Aditi Mukherjee



## From the Director's Desk

I wish everyone who is reading this, is safe and healthy. Amid the global pandemic COVID – 19, as many of us are safe in our homes, I extend my sincere appreciation and gratitude to all those who are relentlessly working every day to help all of us get through this time of ambiguity.

This January to March 2020 issue of SACON's newsletter covers various institutional activities and participation during the final quarter of the financial year 2019-2020. Before almost everything came to a standstill during the last quarter, SACON participated in various events and hosted representatives of several organizations on campus. At the beginning of the last quarter, SACON hosted its first National Ornithological Symposium with the theme of initiating an inter-institutional dialogue to develop the "National Red List" for Indian Birds. This gathering witnessed subject experts and stakeholders from different government and non-government organizations of the country. The 71<sup>st</sup> Republic day was celebrated at SACON, wherein our senior-most faculty Dr. P. Balasubramanian, who will be superannuating this year, shared his experiences of his service. SACON also signed an MoU with BNHS, Mumbai, to conduct avian ecotoxicological studies and to exchange students and faculty for short-term research. During the entire quarter, training programmes and workshops for IFS probationers, trainees, other officials and students from Indira Gandhi National Forest Academy (IGNFA), Airport Authority of India (AAI), Wildlife Institute of India (WII), and Tamil Nadu Agricultural University (TNAU), Coimbatore Institute of Technology (CIT) were conducted by SACON across the country. SACON also participated in the 13<sup>th</sup> meeting of the Conference of Parties (COP) to the Convention on Migratory Species (CMS) hosted by Ministry of Environment, Forest and Climate Change MoEFCC, Govt. of India at Gandhinagar, Gujarat; and 7<sup>th</sup> International Symposium on Frugivores and Seed Dispersal at Corbett Landscape, Uttarakhand. SACON's annual event of Salim Ali Trophy Nature Competitions witnessed participation of 1100 students from 25 schools in Coimbatore. The quarter concluded with MoEFCC's Green Skill Development Programme (GSDP), wherein SACON's ENVIS Resource Partner conducted a GSDP Certificate Course in "Bird Identification and Basic Ornithology" for 12 select candidates.

SACON also had the pleasure of hosting academicians from the University of Arkansas, USA; MIT Campus of Anna University, Chennai; University of KwaZulu-Natal, South Africa; and Oxford University, United Kingdom, during the last quarter. This issue also reports some delightful field experiences of researchers and introduces a new section Researcher's Corner - Art & Conservation wherein SACON's researchers and students can share their passion for conservation through the medium of art and photography.

I hope you all enjoy reading this issue, as I again wish you and your loved ones health, happiness, and strength to overcome the difficult times of global pandemic.

**Dr. K. Sankar, Director**



## Institutional Events

### Talk by Professor, University of Arkansas, USA and Fulbright-Nehru Specialist

Dr. Ragupathy Kannan, Professor, the University of Arkansas at Fort Smith, United States of America (USA) and a Fulbright-Nehru Specialist (Environmental Science) at SACON, delivered a talk on "*The reality of anthropogenic climate crisis- Convincing a skeptical public*" at SACON. The first part of the lecture was held on 02.01.2020 and the second part (*How warming can radically transform our planet-*



*Hints from the past*) was held on 03.01.2020. Dr. Kannan was at SACON for 6 weeks in December-January 2019-2020. On January 21<sup>st</sup>, SACON bid farewell to Dr. Kannan, as he planted a *Ficus religiosa* sapling near SACON Canteen.



### Visit of IFS Officers from IGNFA, Dehradun

The 2<sup>nd</sup> Batch of 39 Indian Forest Services (IFS) probationers from Indira Gandhi National Forest Academy, Dehra Dun, Uttarakhand visited SACON on 2<sup>nd</sup> January 2020. During the visit, Dr. S. Muralidharan, Senior Principal Scientist, and Dr. R.P. Singh, Senior Scientist delivered lectures on 1) Eco-toxicological Research that SACON is currently undertaking and the involvement of forest department in assisting such research; 2) Issues related to illegal trafficking of birds and animals and the role of forest department in curbing these issues, respectively. Further, the IFS Probationers visited SACON facilities *viz.* National Centre for Avian Ecotoxicology and Avian Forensic Laboratory to get acquainted with the research activities that are being undertaken in SACON.



### Talk by Senior Scientist, Anna University at SACON

Dr. R. Vasanthraj, Senior Scientist, Anna University-Kalam Centre for Advance UAV Research, MIT Campus of Anna University, Chennai, delivered a talk on 7<sup>th</sup> January 2020 on "*Optimized bird swarm algorithm and UAV Swarm Control implementation*" at SACON.

## Institutional Events

### Visit of students from TNAU, Coimbatore to SAGON

The B.Tech Biotechnology Students of Tamil Nadu Agricultural University (TNAU) visited SAGON on 9<sup>th</sup> January 2020. Dr. P.Balasubramanian, Senior Principal Scientist, briefed the students on SAGON's past and on-going research activities. Dr. R.P. Singh,



Senior Scientist, delivered a lecture in context to *"Biotechnology and its application in Avian Forensics"*. Subsequently, Ms. C. Divyapriya, Research Scholar, delivered a short lecture on *"Avian Bioacoustics – understanding the bird diversity and their language"*. This was followed by a visit to the Avian Forensics Laboratory, Field visit for a demonstration on bird calling techniques, and a walk through SAGON's Nature Trail guided by Ms. Sri Sowmiya M., Nature Education Assistant.

### Training of IFS officers on "Monitoring and Management of Wetlands"

Under the aegis of the Ministry of Environment, Forest and Climate Change (MoEFCC), Govt. of India, SAGON conducted a two-day compulsory training programme on "Monitoring and Management of wetland" on 9<sup>th</sup> and 10<sup>th</sup> January 2020 for the Indian Forest Service Officers. The venue for the workshop was the Hotel Residency Towers, Coimbatore. A total of 47 IFS Officers from various states were nominated by the MoEFCC to participate in the workshop, of which 19 IFS Officers representing 11 states at various levels attended the workshop. The theme of the workshop was to enhance the understanding of the officers about the conservation and management issues related to wetlands of the country and enable them to comprehend the importance of the socio-economic values, livelihood options, and ecosystem services derived from the wetland ecosystem.

Director (Dr. K. Sankar) and faculty members (Drs. S. Muralidharan, Goldin Quadros, Rajah Jayapal, Manchi Shirish S, M. Mahendiran, and R.P. Singh) of SAGON, and External Resource Persons (Dr. Sandilyan, Former Consultant, National Biodiversity Authority, Chennai; and Dr. J.M. Kataria, Former Director, Central Avian Research Institute, Izatnagar, Uttar Pradesh) gave presentations on monitoring and management of wetland during the training workshop. Nine lectures spread over two days were held along with a field visit to the SAGON campus wherein the participants interacted with the faculty and introduced to the modern laboratory facilities.



## Institutional Events

### Memorandum of Understanding signed with BNHS, Mumbai

SACON signed a Memorandum of Understanding with Bombay Natural History Society (BNHS), Mumbai on 13<sup>th</sup> January 2020 to conduct a ten-year study on “*Monitoring the Impacts of Mumbai Trans-Harbour Link on Flamingos and other Avifauna and formulating a Conservation Blueprint for the Sewari-Nhava Seascape*”. As per the MoU, BNHS will be collaborating with SACON for (1) *Ecotoxicology studies on Flamingos and other wading birds and their food chain in Seewri Nhava Seascape, Mumbai*, (2) *Understanding the accumulation of other elements that might be affecting the biology of flamingo and other birds in the study area*, (3) *Exchange of students and faculty for short-term research* and (4) *Interpretation of data and reports based on the findings*.



### Visit of Officer Trainees from Wildlife Institute of India, Dehra Dun



On 11<sup>th</sup> January 2020, a group consisting of 19 Officer Trainees (15 foreign nationals) of the rank of Range Forest Officers belonging to various state forest departments, who are currently undergoing training in the Certificate course of Wildlife Management at Wildlife Institute of India, visited SACON.

Presentations were organized

on the research activities of SACON (by Dr. Aditi Mukherjee, Scientist), Conservation management issues (by Dr. H.N. Kumara, Principal Scientist) and interactive sessions in the laboratories of National Avian Ecotoxicology (by Dr. S. Muralidharan, Senior Principal Scientist) and Avian Forensic (by Dr. Ram Pratap Singh, Senior Scientist).



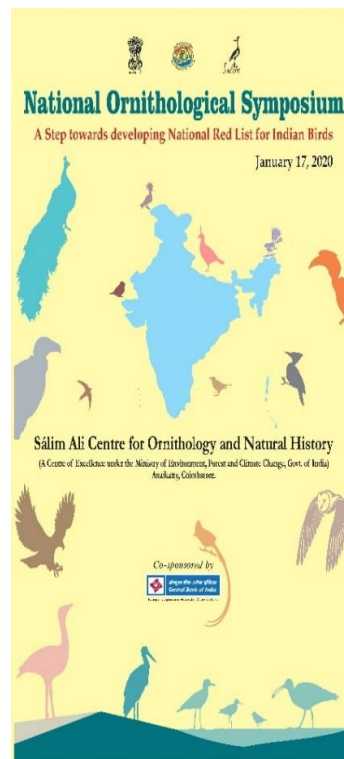
### National Ornithological Symposium at SACON

SACON conducted a one-day *National Ornithological Symposium* on 17<sup>th</sup> January, 2020. The main purpose of the symposium was to ultimately develop a “*National Red List for Indian birds*”, since as of now, India does not have any mechanism to classify the species to prioritize their conservation status. The symposium was attended by the subject experts from different government and non- government organizations of the country and this has served as a platform for all participants of the symposium, working towards research, conservation, and management of the birds in India, in initiating the idea of developing National Conservation Status for the Indian Birds.



# Institutional Events

Dr. K. Sankar (Director, SACON); Dr. A.R. Rahmani (Former Director, Bombay Natural History Society, Mumbai); Shri Vijai N., IFS, (Central Academy for State Forest Service, Coimbatore); Dr. Suhel Quader (Senior Scientist, Nature Conservation Foundation, Bengaluru); Dr. Sanjay Molur (Executive Director, Zoo Outreach Organization, Coimbatore); Dr. J. Praveen (Associate Editor, Indian BIRDS); Dr. Ragupathy Kannan, (Professor, University of Arkansas, USA & Fulbright-Nehru Specialist at SACON) and Dr. Rajah Jayapal (Senior Principal Scientist, SACON) gave presentations at the symposium and deliberated on the steps towards developing National Red List for Indian Birds.



## *List of participants of the National Ornithological Symposium held on 17<sup>th</sup> January 2020.*

1. Dr. K. Sankar, Director, SACON.
2. Dr. Asad R. Rahmani, Former Director, Bombay Natural History Society.
3. Dr. Ragupathy Kannan, Professor, University of Arkansas, USA & Fulbright-Nehru Specialist, SACON.
4. Sh. N. Vijai IFS, Central Academy for State Forest Service, Coimbatore.
5. Dr. S. Subramanya, Scientist (Retd.), University of Agricultural Sciences, Bengaluru.
6. Dr. S. Balachandran, Dy. Director, Bombay Natural History Society, Mumbai.
7. Dr. Sanjay Molur, Executive Director, Zoo Outreach Organization (ZOO), Coimbatore.
8. Dr. Suhel Quader, Senior Scientist, Nature Conservation Foundation, Bengaluru.
9. Dr. K.S. Gopi Sundar, Scientist, Cranes and Wetlands, Nature Conservation Foundation, Mysuru.
10. Sh. Kiran Srivastava, Raptor Research and Conservation Foundation, Mumbai.
11. Dr. C.K. Vishnudas, Head & Trustee, Hume Centre for Ecology and Wildlife Biology, Wayanad
12. Mr. Praveen J, Associate Editor, Indian BIRDS.
13. Dr. R. Suresh Kumar, Scientist-E, Wildlife Institute of India, Dehra Dun.
14. Dr. Robin Vijayan, Assistant Professor, Indian Institute of Science Education & Research, Tirupati.
15. Dr. Ashwin Viswanathan, Nature Conservation Foundation, Bengaluru.
16. Dr. Rajah Jayapal, Senior Principal Scientist, SACON.
17. Dr. Manchi Shirish S., Principal Scientist, SACON.
18. Dr. Aditi Mukherjee, Scientist, SACON.
19. Dr. P. Balasubramanian, Senior Principal Scientist, SACON.
20. Dr. S. Muralidharan, Senior Principal Scientist, SACON.
21. Dr. P.R. Arun, Senior Principal Scientist, SACON.
22. Dr. Shomita Mukherjee, Senior Principal Scientist, SACON
23. Dr. P. Pramod, Principal Scientist, SACON.
24. Dr. Goldin Quadros, Principal Scientist, SACON.
25. Dr. H. N. Kumara, Principal Scientist, SACON.
26. Dr. S. Babu, Senior Scientist, SACON.
27. Dr. R.P. Singh, Senior Scientist, SACON.
28. Dr. M. Mahendiran, Senior Scientist, SACON.
29. Dr. T. Ramesh, Scientist, SACON.

## Institutional Events

### Sálim Ali Trophy Nature Competitions



SACON conducted Sálim Ali Trophy Nature Competitions for this year on subjects related to nature conservation for the school students on 19<sup>th</sup> January 2020 at GD Matriculation School, Coimbatore. The competitions



included elocution, painting, pencil shading, essay, poetry writing, story writing, quiz, and bird watching. A total of 1100 students from 25 schools participated in the competitions.



### Republic Day Celebrations at SACON on 26<sup>th</sup> January 2020



The 71<sup>st</sup> Republic Day celebration was held at SACON, on 26<sup>th</sup> January 2020. On this occasion, Dr. K. Sankar, Director of SACON, hoisted the tricolour flag and delivered his Republic Day speech by evoking the importance of this day. He announced that SACON will soon set up a well-equipped Avian Disease Laboratory with proficient manpower. He also highlighted the recent accomplishments of SACON including the establishment of the *Avian Ecotoxicology Laboratory*, inaugurated by Shri. Prakash Javadekar, Hon'ble Union Minister of Environment, Forest and Climate Change, Govt. of India; successful completion of compulsory training workshop on "Monitoring and Management of Wetlands" for IFS officers, and hosting the visiting Fulbright Scholar Dr. Ragupathy Kannan from the University of Arkansas, Fort Smith, United States of America. He flagged off that SACON would soon be having an MoU with the University of Arkansas for student and faculty exchange programme for higher learning.

In the end, Director invited Dr. P. Balasubramanian, Senior Principal Scientist, who would be superannuating this year, to share his thoughts and professional experiences at SACON. After the flag hoisting function, different sports activities *viz.*, Tug of war, Volley Ball, and limited-overs Cricket match were conducted for the faculty, staff, and researchers in the playground premises of SACON.





## Institutional Events

### World Wetlands Day-2020, Celebration at SACON



SACON ENVIS observed World Wetlands Day on 31<sup>st</sup> January 2020. On this occasion a poster was released by Dr. K. Sankar, Director, SACON, carrying the theme “Wetlands and Biodiversity”. The team also organized a drawing competition for the students of Panchayat Union Middle School, Thoomanur, a tribal Village near Anaikatty hills, Coimbatore. Dr. M. Mahendiran, Senior Scientist, briefed

about SACON’s activities in the field of biodiversity conservation. He also encouraged the students to protect and conserve the wetlands. An awareness game “Sustainable Fishing” was conducted for the students including video screening and tree plantings. Over 50 students, 5 school teachers, researchers, and local people took part in the programme. The ENVIS team distributed biodiversity stickers and participation certificates to all the students and prizes to the winners of the drawing competition. The programme was concluded with a vote of thanks by Mrs. T. Vidhya, Assistant Headmaster of the school.



### Workshop on “Wetland Conservation” at Dimapur, Nagaland

The MoEFCC sanctioned a wetland training program for the forest officials of Nagaland state to be conducted by SACON and funded by the National River Conservation Directorate under its Wetland program. The training program was held on 4<sup>th</sup> February 2020 at the Conference Hall, Forest office Complex, Dimapur, Nagaland. The training program was inaugurated by Mr. Ved Pal Singh, IFS, PCCF & Chief Wildlife Warden, Nagaland Forest Department in the presence of Mr. Satya Prakash Tripathi, IFS, Chairman Biodiversity Board Nagaland; Mr. Suman W.M. Sivachar, IFS, DCF & WLW Kiphre, Nagaland; Dr. Goldin Quadros, Principal Scientist, Wetland Ecology Division, SACON; and Dr. Manchi Shirish S., Principal Scientist, Conservation Ecology Division, SACON. The training program was attended by 20 forest officials representing 11 districts of

Nagaland, in addition to 23 State forest office trainees. The main emphasis of the training was on the preparation of a brief document of *Wetlands* from



the state of Nagaland. The participants were also introduced to the subterranean wetlands. The importance of wetland conservation was deliberated in addition to international conventions like the Ramsar. The event was covered by the local press media namely the Nagaland Post and the Eastern Mirror.

## Institutional Events

### Workshop on "Analytical Instruments" at SACON

SACON conducted a one-day workshop entitled "*On-the-job Training on Analytical Instruments*" for the students (15 nos.), research scholars (04 nos.) and faculty members (02 nos.) of the Department of Civil Engineering, Coimbatore Institute of Technology, Coimbatore on 5<sup>th</sup> February 2020. During the workshop, the participants were given training on the handling of analytical instruments including Spectrophotometer, ICP-MS/MS, HPLC, LC-MS/MS, GC, and GC-MS/MS. The participants were also trained for the processing of organic and inorganic samples at SACON's Avian Ecotoxicological Laboratory.



### Workshop on "Mitigation of Bird Hazard in Indian civil airports" at Indian Aviation Academy, New Delhi

Under the aegis of Airport Authority of India, New Delhi, SACON conducted a workshop on "*Best Practice*" to mitigate Bird Hazard in Indian civil airports on 14<sup>th</sup> February 2020 at Indian Aviation Academy, Nangal Devat Road, Vasant Kunj, New Delhi. The Workshop was inaugurated by the Chairman, Airport Authority of India, New Delhi. On this occasion, SACON released a booklet on "*Best Practice Guide to mitigate Bird Hazard in Indian Airports*" which is based on an outcome of a 2-year study entitled "*A study on bird hazards in select Indian civil airfields*", conducted by SACON. The workshop was attended by 60 Airport high-level officials belonging to various civil airfields across the country along with other senior officials from AAI headquarters, Director General of Civil Aviation (DGCA), and Directorate of Aerospace Safety, New Delhi. During the occasion, SACON signed an MoU with Airport Authority of India, New Delhi for long-term studies on bird hazards in various civil airports across the country.





# Institutional Events

## SACON's participation in CMS COP13 at Gandhinagar, Gujarat

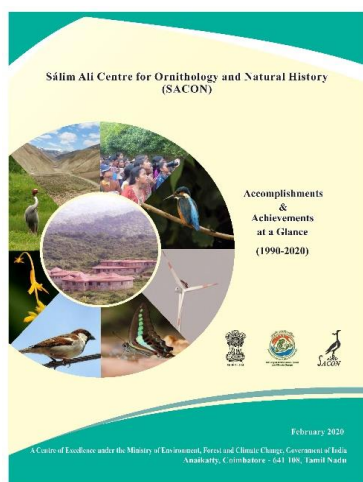
SACON participated in the 13<sup>th</sup> Meeting of the Conference of Parties (COP) to the Convention on Migratory Species (CMS) held from 15<sup>th</sup> to 22<sup>nd</sup> February 2020 at Gandhinagar, Gujarat, hosted by the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. During the CMS COP, SACON organized 03 side events including 1) Panel Discussion on 'Landscape Level Conservation & Management Planning: Need and Way Ahead' coordinated by Dr. Yash Veer Bhatnagar, Nature Conservation Foundation; Dr S. Sathyakumar, Wildlife Institute of India; Dr. P.V. Karunakaran, Principal Scientist, SACON; Dr. Aditi Mukherjee, Scientist, SACON in association with State Forest Departments of Tamil Nadu, Kerala, Himachal Pradesh and Maharashtra; 2) Panel discussion on 'Coastal Mudflats as a Key Wintering Habitat for Migratory Birds: Conservation Issues and Challenges' coordinated by Dr. Goldin Quadros Principal Scientist, SACON; and 3) an India Pavilion activity on 'Birds for People & People for Birds: Select Case Studies from SACON & its Associates', coordinated by Dr. P. Pramod Principal Scientist, SACON. Apart from this, SACON also screened a 20-minutes film on "A Day in Nilgiri Biosphere Reserve -



A Lifescape to Experience" at the COP. During the occasion, SACON showcased its ongoing research activities through Posters at the Exhibition Stall; and a Booklet on "SACON's Accomplishments and Achievements at a glance; 1990 - 2020" was released by Sh. C.K. Mishra, IAS, Secretary to the Govt. of India, MoEFCC, New Delhi.



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## Institutional Events

### Visit of Professor, University of KwaZulu-Natal, South Africa to SACON

Prof. Colleen T. Downs, Professor & NRF SARCHI Research Chair, Centre for Functional Biodiversity, School of Life Sciences, University of KwaZulu-Natal South Africa, and Dr. Yvette C.E. Smith, Postdoc, Centre for Functional Biodiversity, University of KwaZulu-Natal, South Africa delivered talks on



*"Persistence of wildlife in urban areas: a KwaZulu-Natal perspective in South Africa" and "Unifying cultural heritage with wildlife conservation within rural communities of south-central KwaZulu-Natal, South Africa (with special focus to southern ground hornbill)" respectively, on 9<sup>th</sup> March 2020 at SACON.*

### Talk by Research Associate, Oxford University, United Kingdom at SACON

Dr. Caroline Pannell, Research Associate, Department of Plant Sciences, Oxford University, United Kingdom delivered a talk on *"Wallace's Line and the biogeographical contrast between tropical Asian and Australasian Forests"* on 10<sup>th</sup> March 2020 at SACON.



### Green Skill Development Programme - Certificate course on "Bird Identification and Basic Ornithology"

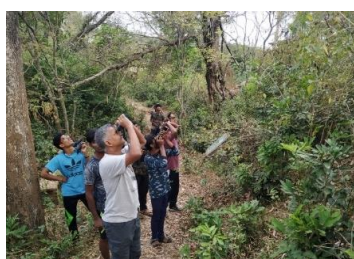
The Green Skill Development Programme (GSDP) of the Ministry of Environment, Forest and Climate Change (MoEFCC) is an initiative of the ENVIS Division for developing skill in the field of environment, forest, wildlife, and climate change sector. It aims to facilitate India's youth to get employment or to become an entrepreneur through ENVIS Resource Partners. SACON's ENVIS Resource Partner was assigned to conduct a GSDP Certificate Course in *"Bird Identification and Basic Ornithology"*. Out of 47 short-listed applications, 12 candidates were selected based on a personal interview to attend the course conducted from 02<sup>nd</sup> to 20<sup>th</sup> March 2020. The Programme was inaugurated by Dr. S. Muralidharan, Senior Principal Scientist, SACON. Dr. Goldin Quadros, Principal Scientist & SACON ENVIS Coordinator, welcomed the participants and gave a brief introduction about the course and the employment opportunities in the field of environment, forestry, and eco-tourism. The program was also attended by SACON faculty and researchers thereby introducing the participants to different divisions of the Institute.





## Institutional Events

SACON faculty, Researchers, Guest faculty and ENVIS Staff covered the following topics during the programme: Bird evolution and history, Bird classification and diversity, Adaptation in birds (Bird form and functions), Monitoring & Census Techniques of birds, Habitats, Bird identification, Plumology, Bird behaviour, Bird diversity of India, Threatened birds of India, Bird Conservation, Threats to the bird, Bird tourism as a livelihood, Bird Acoustic, Bird and human interaction as in culture, religious beliefs, Mist netting, Basics field Instruments used in avian studies, Global Positioning System (GPS), Camera traps, and basics of computer skill. Dr. P. Jeganathan, Scientist, Nature Conservation Foundation was a guest faculty for



the course and introduced the *e-bird* portal to the participants and involved them in the documentation of birds for the *Kovai Bird Atlas Survey*. In addition to the theory and practical classes, the students were introduced to different habitats and were taken on field visits to several Wild Life Sanctuaries and National Parks across the Tamil Nadu. During the field visit, the participants were guided on several aspects of ornithology and habitats by Dr. Goldin Quadros and Mr. T. Siva, Ph.D., scholar, Bharathidasan University. The GSDP participants were evaluated based on the written examination, bird identification skill, and oral examination. The valedictory function was held on 20<sup>th</sup> March 2020, presided by Dr. K. Sankar, Director, SACON. During the

valedictory, two posters (i) *International Day of Forests* - celebrated on 21<sup>st</sup> March every year; and (ii) *World Water Day* - celebrated on 22<sup>nd</sup> March every year were released by Dr. K. Sankar and Dr. P. Balasubramanian, Senior Principal Scientist, SACON. The theme for the *International Day of Forests* poster was "Forests and Biodiversity" for which the photographs captured by GSDP participants were used in designing the poster. Dr. K. Sankar, presented the certificates to the GSDP participants skilled at Level V by the Skill Development Agency of India. The event was concluded by a *vote of thanks* by Ms. A. Julffia Begam, Information Officer, SACON ENVIS RP.



## SACON's participation in the 7<sup>th</sup> International Symposium on Frugivores and Seed Dispersal at Corbett Landscape, Uttarakhand

H.S. Sushma

### Frugivory and Seed Dispersal Research - A brief historical perspective

Seed dispersal is an important ecological process that involves the transport of seeds away from the parent plants either by abiotic or biotic agents. It is considered as one of the essential ecosystem services and crucial to maintaining biodiversity. Scientific studies on fruits, frugivores, and seed dispersal from an ecological perspective commenced with Henry Ridley's (1930) publication "Dispersal of plants throughout the world" and Salisbury's (1942) "Reproductive capacity of plants". But it was van der Pijl's work on seed dispersal mechanisms (1957) and, Barbara and David Snow's work on the frugivorous birds of Trinidad, that set the stage for systematic studies on frugivory and seed dispersal (FSD). Many ideas in the field of FSD emerged in the 1970s. Perhaps, one of the most influential ideas that assumed a central place in the FSD research is Janzen-Connell hypothesis (Connell, 1971; Janzen, 1969, 1970). Daniel Janzen and Joseph Connell independently provided seminal theories on plant community structure that continue to have a significant influence on FSD research. Ecologists such as Doyle McKey, Carlos Herrera, and Henry Howe provided pivotal theoretical approaches to examine plant-animal interactions. Eugene Schupp (1993) provided Seed Dispersal Effectiveness framework that further catalysed research in the field. Thus, studies on frugivory and seed dispersal grew substantially and diversified. Today, FSD research encompasses various sub-disciplines in ecology such as landscape ecology, chemical ecology, molecular ecology, community ecology, conservation biology, etc.

### FSD symposia - Over the years

Bringing together researchers in the field to present their research and provide a platform to exchange ideas, FSD symposia are organised throughout the world once in five years. The first symposium on Frugivores and Seed Dispersal was held in Veracruz, Mexico in 1985. Subsequently, the second symposium was held again in Mexico in 1991. The first two symposia resulted in the edited volumes summarising studies from mainly from South and Central America (Estrada and Fleming, 1986; Fleming and Estrada, 1993). After a gap of nine years, the FSD symposium was held in Brazil in the year 2000, and then in 2005, it was held in Australia. Both events resulted in edited volumes (Levey et al. 2002; Dennis et al. 2007). In 2010, the symposium was held in Montpellier, France. The plenary presentations from this symposium were published in the journal *Acta Oecologia* as a special issue (volume 37, issue 6). In the last symposium held in South Africa in 2015, it was decided that the FSD symposium will move to India with Dr. Soumya Prasad (Research Associate, Nature Science Initiative, Dehradun) as the chairperson of the FSD 2020.

### FSD 2020 - Seed Dispersal in the Anthropocene

Dr. Soumya Prasad hosted the 7<sup>th</sup> International Symposium of Frugivores and Seed Dispersal at The Taj Corbett Resort & Spa, Jim Corbett, Uttarakhand from March 2<sup>nd</sup> to 6<sup>th</sup>, 2020. Partner institutes included SACON, Nature Conservation Foundation (NCF), Azim Premji University, and ATREE.





# Popular Articles



**Plenary talk by Dr. Rohit Naniwadekar on  
"Understanding the role of large-bodied frugivores"**

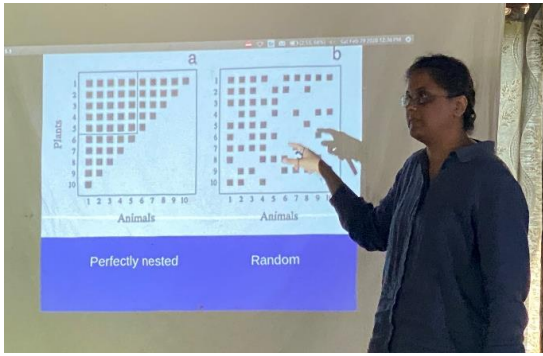
large-bodied frugivores such as the hornbills in seed dispersal. There were other important themes covered during the conference such as seed dispersal in urban landscapes, implications of plant phenology to seed dispersal, rewilding, among others. The event concluded on 6<sup>th</sup> March with the symposium on *"Applications of frugivory and seed dispersal for ecological restoration"*. Despite some cancellations at the last minute due to the COVID-19 outbreak, the conference was a great success.

## FSD 2020 - Student Workshop

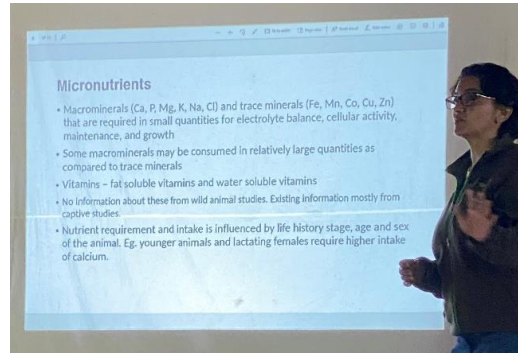
The conference was preceded by a student workshop held at Camp Hornbill, a low impact community-run eco-tourism resort at Kyari in the Corbett landscape, from February 26<sup>th</sup> to March 1<sup>st</sup>. The workshop was organised by Dr. Soumya Prasad and co-ordinated by the author. Twenty-two students attended the workshop. The tutors at the workshop included Dr. Eugene Schupp, Dr. Soumya Prasad, Dr. Kim Mc Conkey, Dr. Tomas Carlo, Dr. Beth Kaplin, Dr. Sachin Sridhara, Dr. Caroline Pannell, and the author. The participants comprised of post-graduates, doctoral students, and post-doctoral students. The workshop included theory and practical sessions covering various topics related to the field. The concepts covered in the workshop included an introduction to seed dispersal cycle, the natural history of plant-frugivore interactions, fruit traits, and fruit chemistry. More advanced topics included seed dispersal networks, seed dispersal effectiveness, Janzen-Connell hypothesis,



**Workshop participants from eight different countries  
including India**



**Dr. Soumya Prasad, the workshop organiser, speaking on interaction networks**



**Talk on fruit chemistry by Dr. H.S. Sushma**

estimating seed shadows, interaction networks within populations. There were also lectures on the application of seed dispersal to address, climate change, plant invasives, and forest restoration. Practical sessions covered an introduction to techniques such as tree watches, behavioural sampling techniques, estimating fruit crop size, and an interactive game on fruiting neighbourhoods. Overall, the workshop was a great learning experience as the students could interact with some of the leading experts in the field of seed dispersal and also discuss their research with them.

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## Along with birding, let's do some Spidering!

Dhanusha Kawalkar

"The spider taketh hold with her hands, and is in kings' palaces (Bible- Proverb 30:28)", this is not just a proverb but signifies spider's presence everywhere, from the houses of poor to the king's palaces!. Spiders are found in an array of habitats including marshy wetlands, dense forests, including every nook and corner of our homes and offices. There are around 40,000 spider species across 109 families all over the world with India being home to 59 families. Spiders of Salticidae family also known as jumping spiders are the most common and as their names suggest, they jump over a considerable distance when hunting, or fleeing in response to a sudden threat. The most commonly occurring species in the SACON campus and nearby areas are *Cyrotophora* spp., *Leucauge* spp., and *Gasteracantha* spp. which come in striking combinations of textures and colors. Tetragnathidae is another commonly occurring spider family on the campus, which is small and slender with an elongated abdomen and can be easily sighted near the sub-gate water tank.

Ever since I was introduced to spiders as a kid, their mere presence around me has always astonished me with several hilarious experiences worth remembering. Very recently my Project Supervisor, Dr. Manchi Shirish S, introduced me and my fellow researcher, Sudheer Kumar Jena (JRB) to spiders in a scientific way. While currently working in SACON's Edible-nest Swiftlet Conservation project in the caves of the Andaman and Nicobar Islands, I garnered additional interest and skills in spider documentation in different caves, their feeding ecology, web architecture and most excitingly their morphology and colours. The journey of 'Spidering' began thereon. Back in the SACON campus, often while birding, I would start exploring the spiders too. My Spidering deserves a worthy mention of my field guide Mr. Manchi Adwait, (Dr. Manchi Shirish's five-year-old son) who also passionately shares a similar interest. He would often accompany me in spending hours exploring the well-preserved natural surroundings of Green Nature Valley Resort (Adwait's home), a housing society complex in Alamaramedu which is just 3 km away from the SACON campus. Adwait has a unique way of taking me around and guide me in sighting these elusive creatures. It is his amazing sighting ability that has made the following list more diverse. Despite not being a spider expert, I have made a sincere attempt towards photographic documentation of some spider species found in and around the SACON campus.



### 1. Location: Water tank near sub-gate, SACON



Long-jawed orb-weaver spider  
*Tetragnatha mandibulata*



Long-jawed orb-weaver spider  
*Tetragnatha* sp.

## 2. Location: Pirojsha Hostel, Room no. 5, SACON



**Tent-web spider**  
*Cyrtophora cicatrosa*



**Decorative silver-orb spider**  
*Leucauge decorate*



**Common house spider**  
*Heteropoda Venatoria*



**Long-bodied cellar spider**  
*Pholcus phalangioides*  
with the eggs



**Pantropical jumper**  
*Plexippus paykulli*



**Wolf spider**  
*Hogna sp*

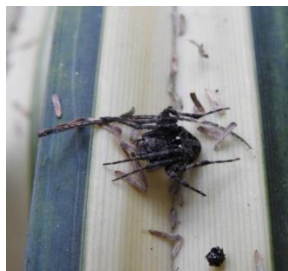
## 3. Location: The garden area near SACON main building



**Signature spider**  
*Argiope anasuja*



**Orb -weaver spider**  
*Argiope sp.*



**Spotted orb-weaver**  
*Neoscona sp.*



**Spider belonging to *Therididae* family along with the spiderlings feeding on a dead centipede**



## Popular Articles

### 4. Green Nature Valley Resort, Alamaramedu



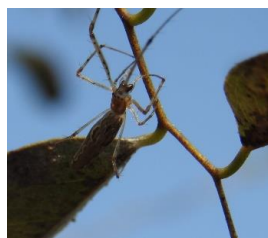
**Ornamental tree trunk spider**  
*Herennia ornatissima*



**Spotted orb-weaver**  
*Neoscona sp.*



**Orb web spider**  
*Thelacantha brevispina*



**Long-jawed orb weaver**  
*Tetragnatha sp.*



**Two-tailed spider**  
*Hersilia sp.*



**Orb-weaver spider**  
*Eriovixia Excelsa*



**Decorative silver orb spider**  
*Leucauge decorata*



**Oriental spiny orb-weaver**  
*Gasteracantha geminata*

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### **"Jack of all trades, Master of none"**

**Zainab Khan and Paul Antony**

For any Indian urban kid of the 90s, the picturesque of an enchanting forest came alive on the then beloved television show called the *Jungle Book*. The tales from the forest of central India told, heard and recited like no other. 'Kiplings' stories are said to have originated in Pench Tiger Reserve, which is part of the Satpura Range, straddling across the two states of Madhya Pradesh and Maharashtra. In October 2019, we were delighted to know that our next field visit would be in Madhya Pradesh. At the onset of winter, we were out and about to live our own stories in the heart of central India.

To begin with, we were at the historic Malva range and the Nimar Hills which are nurtured beautifully by the ever-flowing river *Narmada*. It is the only river in India that flows east to west, and its true essence can only be felt when one witnesses the vastness of the river with the sparkling blue colour, comparable to the depths of an ocean. The Narmada forms one of the most pristine belts of forests found in India, predominant with a mixed deciduous type of vegetation.

We were thrilled to spot Indian Gazelles, Blue Bulls, Spotted Deers, Northern Plain Langurs, Rhesus Macaques, Indian Wild Pigs, Indian Foxes, Jungle Cats, Indian Grey Mongooses and many of the commoners that one could think of amongst the mammals. Since our research is bird centric, our eyes were trained to spot remarkable birds of the region including Forest Owlet, Short-toed Snake Eagle, Rufous-fronted Prinia, Black-bellied Tern, Egyptian Vulture, Indian Nuthatch to name a few from the vast majority of diverse avifauna. These were some important observations considering that these birds were recently highlighted as species of concern in the State of India's Birds report, 2020 (SoIB, 2020). However, the most stupendous sighting of all was that of an Indian Jackal.

'Tabakqui' as Kipling has named it in his famous book, is a male Jackal portrayed as the evil sidekick of the ferocious Sher Khan (the Tiger). Jackals are not so differently presented in the Indian folklores like Panchatantra or the Mahabharata, where they are portrayed as the 'Chatur Geedad' or the 'clever Jackal' who cheats or sets other animals like the Tiger, Wolf, and mongoose against each other for their share of food. So what is it that makes it survive all odds when it is not the apex predator?

In most cases, the answer lies in its diet. Jackals are omnivorous and opportunistic foraging with a varying diet according to the habitat and season. Their diet includes fruits, rodents, reptiles, birds, and other small mammals. They are excellent hunters especially of rodents but have earned a reputation as a scavenger for their habit of eating the leftovers of other large carnivores and abandoned carcasses. The species found in India is the Golden Jackal (*Canis aureus*) which is closely related to wolves than dogs, and are placed between the two in the phylogenetic tree of wolf-like canid. The coat is yellowish or closer to golden with darker tails to blend in well with its typical deciduous type of habitat. The seasonal moulting of the coat also provides optimal camouflage corresponding to the changing seasons. For untrained eyes, spotting a jackal in the dry deciduous forest may seem like finding a pin in a haystack. As our eyes got accustomed to the forests, it became easier to spot them which led to many encounters.

When we first spotted a Jackal heedlessly passing the road, the only moment of visibility was when it was on the road eventually disappearing into the bush. On another day, a pair was foraging at the edge of forests connecting to the fields. It was a curious pair of a male and female frantically running and then halting to scan what crossed their path and then doing it all over again. Ultimately, when they looked at our vehicle, they became motionless and patiently gazed at us. Their brown eyes were fixed, almost reminding us that we were in their territory and being watched. They slowly then moved on to the interior forest. This was followed by several encounters in agricultural fields, scrublands, riverine beds, and around villages.



Golden Jackal in Dewas district, Madhya Pradesh  
Pic Credit: Paul Antony



Jackals either range alone or are found in monogamous breeding pairs sometimes accompanied by the previous batch of litters or recent litters. They mostly use abandoned dens of wolf and overtake dens of Bengal fox and Indian crested porcupine. They can travel up to 15 km or more in one night in search of food. Moreover, their tolerance to the presence of humans makes them acquire more territory as they range long distances. However, even this master of many trades is under threat due to developmental activities, diminishing forest patches, poaching, and the free-ranging feral dogs.

In one of the incidences, while following the trails of our grid in Indore district, we had happened to reach a village. The place initially seemed like an abandoned wasteland. The air had a foul smell, that made us get out of our vehicle and as we moved towards the direction of the smell, a pack of dogs started barking at us. We noticed a buffalo carcass approximately 30 m from us which had attracted these dogs. We did note that we had entered a fighting pit of who the carcass belongs to. We immediately distanced ourselves from the site and watched the ordeal from far with our binoculars. We observed that there were two pairs of Jackals and a single Jackal distressingly trying to get a bit of the meat. Two other packs of dogs with five to seven individuals in each kept fighting each other and the jackals to keep their claimed prize. The entire event seemed like a competition of mostly running, chasing, biting, and barking as the dogs outnumbered the Jackals. The jackals, however, observed the dogs savoring the kill from a distance as one of them was observed limping with possible injury.

In another incident of anthropogenic impacts, we witnessed the roadkill of a female Jackal. She must have been trying to cross the road the same morning, as the kill still appeared fresh. A recent study in India discussed the hunting of Jackals for their illusionary 'Jackal Horns'. Carried out by using open-source data, the team found that there is a widespread demand for 'talisman' which is taken from the jackal's skull, locally known as 'siyar singhi' in Hindi or 'nari kombu' in Tamil/Telegu (meaning Jackal horn). The trade is fueled due to claims made by religious practitioners, which increases their poaching based on superstitions (Chawla et al., 2020).



Golden Jackal roadkill, Dhar district, Madhya Pradesh; Pic Credit: Zainab Khan

As the saying goes, Jack of all trades is master of none but oftentimes better than a master of one. Similarly, Jackal tries to fit into many habitats with opportunistic feeding habits to create a trade-off for its survival. However, with development and illegal practices, anthropogenic activities are threatening this master trader as well. It is especially alarming because threats towards common species often go unnoticed. Other issues that need attention are the increasing numbers of feral dogs. There is a need to understand that the man's best friend is slowly becoming wildlife's enemy. Kipling once mentioned in his famous story that "The reason the beasts give among themselves is that Man is the weakest and most defenseless of all living things, and it is unsportsmanlike to touch him." This statement remarkably indicated the *law of the jungle* forbids every animal to eat a Man (a weak and defenseless being). Now, in the present times as humans are in culmination with more animals under threat, why can't we (humans) extend the same courtesy towards animals and forbid ourselves from harming them?

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## Researcher's Corner - Art & Conservation

### An Endangered Owlet of Central India

A small sized diurnal owl, the Forest owlet is endangered and endemic to Central India. Not to be confused with the nocturnal Spotted owlet (*Athene brama*) which looks quite similar. Forest owlet is slightly larger than the Spotted owlet and has a relatively large skull and beak. It has prominent white lower parts, with solid brown upper breast and the sides are barred. With fewer and much fainter spots on the crown and back, the forest owlet can be distinguished easily. It has an additional remarkable quality; A song. Unlike other owls that have a raucous tone, the Forest owlet has a much sweeter and mellow song (*kuhu kuhuu*) whose initial notes almost resemble the song of an Asian koel (*Eudynamis scolopacea*). Its rediscovery after 113 years in 1997 sparked further interest and many unsolved questions about its ecology. SACON is currently working on a



MoEFCC funded project on “Developing a conservation action plan for Forest Owlet (*Heteroglaux blewitti*), a Critically Endangered species endemic to central India”. The project aims to update the distribution range of the Forest owlet through occupancy sampling based on Species Distribution Model. The project is also looking at the genetic connectivity in populations since the owlet is known to occur in pocketed regions of Madhya Pradesh, Gujarat, and Maharashtra. With this project, SACON is spearheading the preparation of an effective conservation action plan for this enigmatic species in collaboration with stakeholders including the State Forest Departments.

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## Researcher's Corner - Art & Conservation

### Birds from My Bucket list

I would like to share artworks of two of my favourite bird species that I am longing to see. Despite being taxonomically completely different from each other, they share a common factor of *Endemism*.



Firstly, the Jerdon's Courser (*Rhinothylus bitorquatus*), an endemic species to India. Once believed to be extinct, the species was rediscovered after 138 years in 1986. It is a nocturnal bird and a scrub jungle dweller. These birds fly low to the ground and are amazing runners. I am curious to know, how they balance their life with other nocturnal mammals or birds and thrive to be an endemic species. This bird always reminds me about Kakapo (*Strigops habrotilus*), a ground-dwelling parrot which is also nocturnal and an endemic of New Zealand.

Secondly, the Ward's Trogon (*Harpactes wardi*), an endemic to Southeast Asia restricting its range in India, Bhutan, Tibet, Myanmar, and Vietnam. In India, the species is restricted to the Northeastern parts. It was recorded in the IBA Lowland forest of South Sikkim (IBA: IN-SK-07), which is coincidentally my study area. But unfortunately, there are no recent records of the bird from the specific IBA, and very little is known about the species. I have been scanning every possible known habitat of the bird with the hope of fulfilling my bucket list and obtaining additional knowledge on its ecology.



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### Editorial Board

Dr. Aditi Mukherjee, Dr. T. Ramesh & Mr. R. Jayakumar

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

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