SACON News

Vol. 18 (2 & 3) April – September 2021

SACON News
April – September, 2021

Institutional Events

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Talk and Training Programmes

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Back: Oriental Darter
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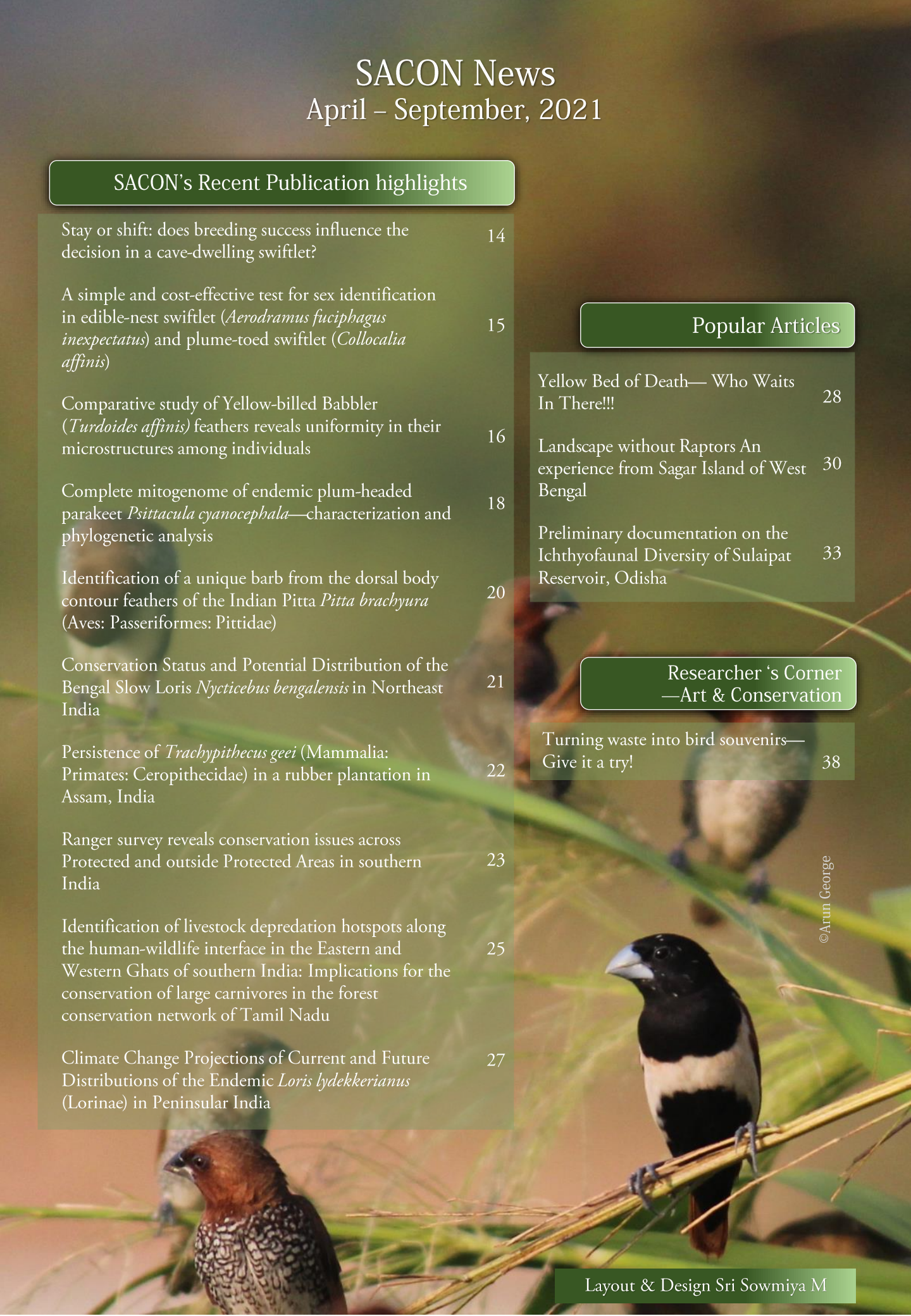
SACON News
April – September, 2021

SACON's Recent Publication highlights

Popular Articles

Researcher 's Corner —Art & Conservation



Layout & Design Sri Sowmiya M

From the Director's Desk

This issue of SACON News covers two quarters (April to June and July to September 2021). During this time, SACON organised and participated in several institutional activities, talks and training programmes. SACON observed several significant days as mandated by the Government of India. These include "Pledge on *World No Tobacco Day* 2021, *Swachh Pakhwada* 2021, and *International Day of Yoga* 2021". SACON, as ENVIS Resource Partner, organized activities under "*Ek Bharat Shreshtha Bharat* (EBSB)" Programme including celebrating *Earth Day* 2021, *International Day for Biological Diversity* 2021, *World Environment Day* 2021, and World Ozone Day 2021. Members of SACON Faculty also delivered Webinars talk at Azadi Ka Amrit Mahotsav events, participated as resource persons at a virtual training programme to Officers and Staff of Project Tiger Areas. SACON faculty and researchers also gave talks to the students of University of Rajasthan and Br. Balasaheb Khardekar College, Maharasthra. This issue also introduces an additional sections on SACON's publications. Highlights of significant publications published in Journal of Ornithology, Conservation Genetics Resources, Journal of Experimental Biology and Agricultural Sciences, PLOS ONE, Journal of Threatened Taxa, Primate Conservation, and Global Ecology and Conservation are presented for the benefit of readers. I believe the readers of this issue of SACON News will find it engaging. This issue also includes interesting articles by SACON researchers about their experience in the field.

Dr. S. Muralidharan,
Director in charge

Institutional Events

World No Tobacco Day 2021

Every year, May 31st is observed as "World No Tobacco Day", highlighting the health and other risks associated with tobacco use. This year, the theme of World No Tobacco Day 2021 was "*Commit to Quit*".

On this occasion, SACON organized "No Tobacco Pledge" to quit/desist from tobacco use. The faculty, staff, and housekeeping personnel of the institute took the following pledge— "*On this occasion of World No Tobacco Day, I take a pledge that I shall never smoke and consume any type of tobacco products in my life and motivate my family or acquaintances to not to smoke/use any tobacco products. I shall motivate my colleagues for the same*".

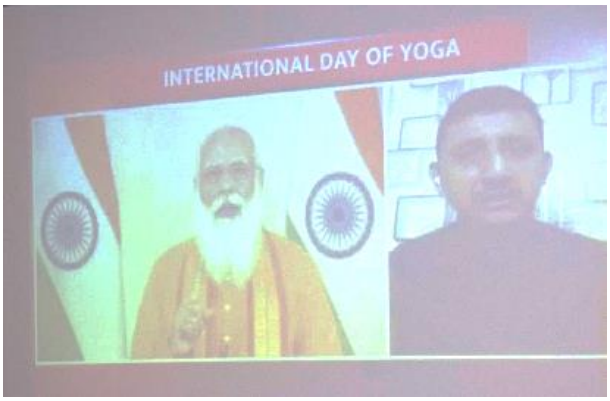
Swachh Pakhwada 2021

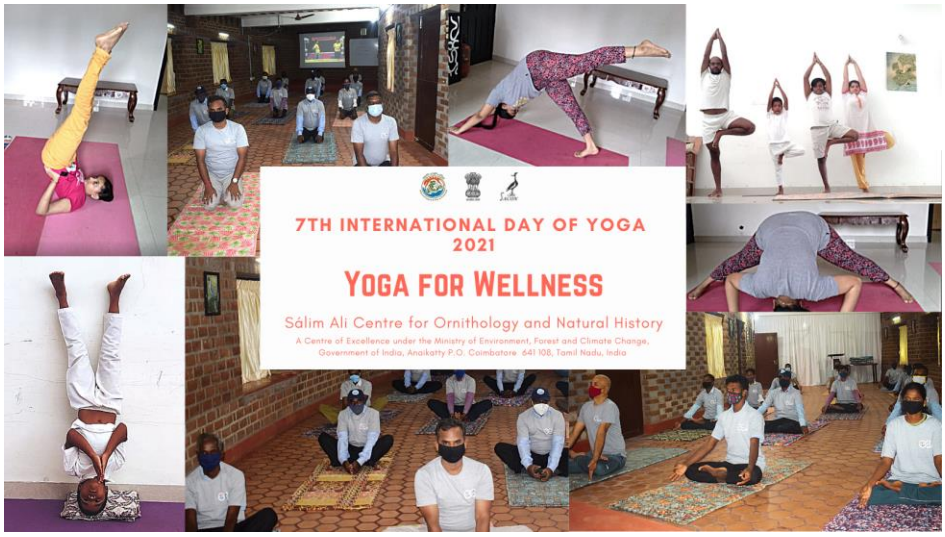
As per the directions received from Hon'ble Minister for Environment, Forest and Climate Change, Govt. of India, the staff undertook the cleanliness drive at SACON campus from 01st to 15th June 2021 under the aegis of *Swachhta Pakhwada* 2021.

Institutional Events

International Day of Yoga 2021

On 21st June 2021, SACON celebrated International Day of Yoga observing COVID appropriate norms. While faculty and staff members performed the Common Yoga Protocol (CYP) with their family members at their respective homes, a special session was organised at SACON for staff and students who were on campus.





Display of *National Scheme* Posters

In line with Govt. of India's aim to spread awareness, on *Vaccines for all, Free for all* under COVID-19 programme and *1 Nation 1 Ration Card* in respect of food grains for all under the Prime Minister Garib Kalyan Yojna for the extension of food grain during the period July to Nov 2021, banners have been displayed at SACON.

Institutional Events

ENVIS Activities under "*Ek Bharat Shreshtha Bharat (EBSB)*" Programme

The idea of a sustained and structured cultural connection between people of different regions was mooted by Prime Minister Shri Narendra Modi during the Rashtriya Ekta Divas held on 31st October 2015, to commemorate the birth anniversary of Sardar Vallabhbhai Patel. According to the EBSB programme, every State and Union Territory (UT) in the country was paired for some time with another State/UT, to carry out a structured engagement in the spheres of language, literature, cuisine, festivals, cultural events, and tourism. In line with the objectives of EBSB Programme, the ENVIS Hubs/Resource Partners (RPs) of a particular state were directed to coordinate with ENVIS Hubs/RPs of paired states regarding "value-added information products" in terms of outreach products relating to the environment, forest, wildlife, and climate change. As per the EBSB scheme, Tamil Nadu has paired with Jammu & Kashmir and Ladakh, and hence SACON ENVIS RP on Wetland Ecosystems collaborated with Jammu & Kashmir ENVIS Hub and came up with a calendar of activities for three months i.e., from April to June 30th, 2021.

Earth Day 2021

On the occasion of Earth Day on April 22nd, 2021, SACON ENVIS RP collaborated with Jammu & Kashmir ENVIS Hub and published an E-Poster on "Green Concerns: Tamil Nadu, Jammu & Kashmir, and Ladakh" on social media platforms. The poster drew attention to various environmental issues affecting our planet.

Institutional Events

International Day for Biological Diversity 2021

The theme of International Day for Biological Diversity 2021 was "We're part of the solution for Nature". SACON ENVIS Resource Partner observed Biodiversity Day 2021 virtually in collaboration with Jammu & Kashmir ENVIS Hub as part of the EBSB scheme by conducting the following activities:

- An E-Poster on "Biodiversity of Himalayas" was published and shared on social media platforms for wider dissemination. The poster highlighted the wildlife found in the Himalayan landscape, and the threats to the landscape's biodiversity.
- A short-film competition was also organized on the theme "*Biodiversity*". The event was registered on the official website of "*Convention on Biological Diversity*". Enrolled short films were evaluated by the officials of SACON, and out of 10 entries, three were declared as winners and one was given consolation prize. The results were announced on the official social media handles of SACON ENVIS Resource Partner.

Institutional Events

World Environment Day 2021

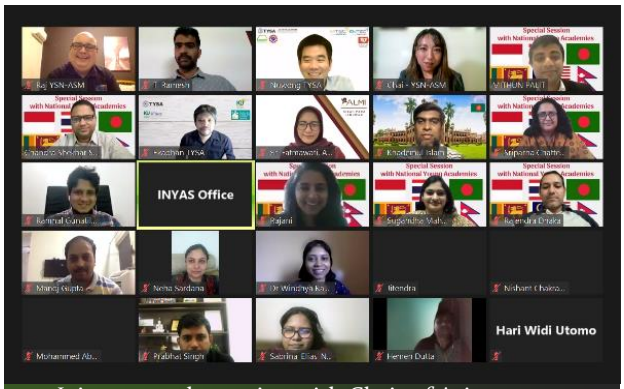
World Environment Day is celebrated on 5th June to take action to protect nature and the environment. The theme of World Environment Day 2021 was '*Reimagine*. *Recreate*. *Restore*' as the year marks the beginning of the United Nations Decade on Ecosystem Restoration. The global host for the day, this year, was Pakistan.

On the occasion of World Environment Day 2021, SACON ENVIS Resource Partner along with the Extension Division of SACON organized a virtual event "*Become an Environment Reporter*" for the children, youth, and general public across the country. The event encouraged the participants to submit their experiences on *Habitat Restoration* undertaken in the last few years in the form of either a Photostory, Powerpoint story, or Video story. Totally 140 participants submitted their entries to the event. The SACON ENVIS team also published an E-poster conveying the message "*Let's Revive our Oceans and Coasts*" on social media platforms for wider dissemination, and registered the event on the World Environment Day portal to mark the global celebration. The poster highlights the threats faced by Oceans and Coasts and how we can help restore the Ecosystem.

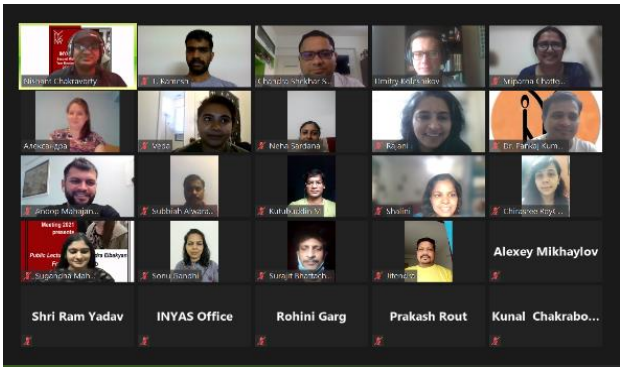
Institutional Events

Participation in meetings of 'Indian National Young Academy of Sciences' by SACON Faculty

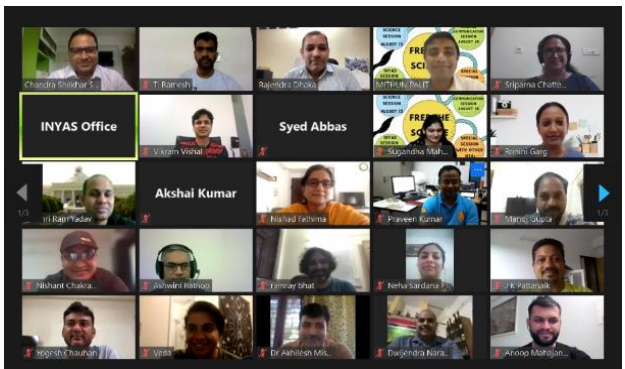
Indian National Young Academy of Sciences (INYAS), a body of Indian National Science Academy (INSA), Govt. of India, encourages freedom of exchange of ideas/collaborations among young scientists and the voice of young scientists across India. INYAS collaborates with young academies across the globe and connects young outstanding scientists from India with the rest of the world to exchange new ideas.



Joint network meeting with Chair of Asian young Academies



Interactive meeting with Alexandra Elbakyan, founder Sci-hub



Networking meeting with fellow members of Indian National Young Academy of Sciences

With an effort to connect with young scientists nationally and internationally, Dr. T. Ramesh, Senior Scientist, participated in various scientific knowledge sharing interactive meetings held from 13th–15th August 2021 on behalf of the Indian National Young Academy of Sciences, New Delhi. Prof. Peter Murray Rust, University of Cambridge, UK, and Prof. T. Ramasami, Former Secretary, DST delivered the keynote address, followed by an interactive meeting with Alexandra Elbakyan, founder of Sci-hub on issues faced by the global scientific community on free knowledge sharing, and joint networking session with National Young Academy of Bangladesh, Indonesian Young Academy, Young Academy Malaysia, National Young Academy of Nepal, Sri Lanka Academy of Young Scientists and Thai Young Scientists Academy.

Institutional Events

Special Vaccination Camp

SACON, in tie-up with the Primary Health Centre, Anaikatty organized a Special COVID 19 Vaccination Camp at SACON premises on 23rd August 2021 for SACON faculty, staff, research scholars, security, housekeeping personnel, and their family members. During the camp, the civilians residing near SACON premises were also vaccinated. Dr. P. Aruna, Deputy Director of Medical, Rural Health Services and Family Welfare, Coimbatore allotted 120 doses of vaccination to SACON, and 120 personnel including a few civilians were vaccinated. As on date, 95% of SACON faculty, staff, research scholars, security, housekeeping personnel, and their family members have completed their 2nd dose of vaccination. The special vaccination camp was conducted under the direct supervision of the Administrative Officer, SACON, and Dr. P. Ajay, MBBS of PHC, Anaikatty, Coimbatore.

Contact: ao-sacon@gov.in.

World Ozone Day 2021

The International Day for the Preservation of the Ozone Layer, more generally known as the World Ozone Day, is celebrated on the 16th September every year, commemorating the date on which the Montreal Protocol for the abatement of substances that deplete the Ozone Layer was signed in 1987.

Institutional Events

The theme of World Ozone Day 2021was '*Montreal Protocol – keeping us, our food, and vaccines cool*'. According to the official website of the UN, this year's Ozone Day highlighted the Montreal Protocol agenda of slowing climate change and helping to boost energy efficiency in the cooling sector, which contributes to food security. On the occasion of World Ozone Day 2021, SACON ENVIS Resource Partner organised awareness activities at Government Tribal Residential School, Anaikatty. The ENVIS team published a poster highlighting the significance of preserving the ozone layer and got it released at the school premises while taking the Ozone day pledge along with the teachers and students following COVID guidelines. Dr. M. Mahendiran, Senior Scientist, Wetland Ecology Division briefed about the importance of the ozone layer and the cause of ozone layer depletion to the school students and teachers. The team also shared information on the need to protect the ozone layer and impacts of Ozone Depleting Substances on the environment. During the event, the prize winners of the World Water Day 2021 competition were felicitated with certificates and prizes.

Institutional Events

SACON's publication was awarded as the Most Cited Paper of 2021 by the Primates Journal

Arijit Pal, Honnavalli N.Kumara, Partha Sarathi Mishra, Avadhoot D. Velankar, Mewa Singh (Clockwise from top left)

The publication 'Pal, A., Kumara, H.N., Velankar, A.D., Mishra, P.S., and Singh, M. (2018). Extractive foraging and tool-aided behaviors in the wild Nicobar Long-tailed Macaque (*Macaca fascicularis umbrosus*). *Primates*, 59:173-183' was awarded the most cited paper of 2021 by the Primates Journal. The same article was also highlighted in Science and Scientific American journals. This paper was about extractive foraging techniques and tool-aided behavior possessed by Nicobar long-tailed macaques. Macaques use a variety of extractive foraging tactics, ranging from complicated manipulation to tool-aided behaviors, to gain access to food, significantly increasing their foraging efficiency. The intricacy and composition of such strategies, on the other hand, vary greatly between species and even populations. The authors described seven complicated manipulative behaviours in Nicobar long-tailed macaques, six extractive foraging behaviors (Fig 1), tool-aided behaviors including modifying tools (Fig 2), and teeth flossing (Fig 3). These activities appeared to be for the extraction of encased food, food processing, foraging hidden invertebrates, and tooth flossing.

Institutional Events

Fig. 1 Tender coconut husking by an adult male Nicobar long-tailed macaque. An Individual started husking a)mature coconut by biting one terminal part of it, b) pulling the ripped husk with their teeth while holding the coconut on the ground with their hands, c, d) repeatedly husking the coconut with their teeth while holding it firm on the ground with both hands and legs.

Fig. 2 A subadult male modifying a tool by cutting it from a plant to perform wrapping over a dehusked coconut. a, b) Individual detaching a twig from a plant with their teeth while kept a dehusked coconut in front; c) using hands to completely detach the twig from the stalk and d) wrapping the twig over the dehusked coconut

Fig. 3 An adult female flossing her teeth with a metal wire

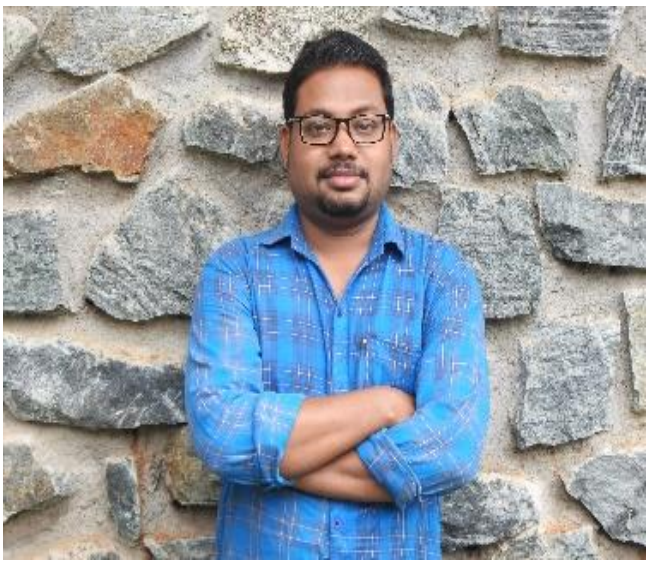
Three of these actions, namely wrapping, wiping, and teeth-flossing, were tool-aided behaviours in which macaques used natural and manufactured materials as tools. Macaques have been known to alter tools before using them. The leaf rubbing and teeth flossing patterns on the substrate were identical to those seen in other macaques. This was the first-time observation of a spontaneous tool modification to perform wrapping. These findings indicate that Nicobar long-tailed macaques have a high level of sensorimotor intelligence, which aids in the development of novel foraging strategies.

(Note: Figure representations and their captions are sourced from the published paper)

Institutional Events

SACON's INSPIRE Fellow, bags prestigious SERB-Purdue University Overseas Visiting Doctoral Fellowship 2022 award

Mr. Asit Kumar Behera, working under the supervision of Dr. T. Ramesh, Senior Scientist, Division of Conservation Ecology, SACON has been selected for India's Science and Engineering Research Board (SERB) Overseas Visiting Doctoral Fellowship Program (OVDF) at Purdue University, USA. He is one of the 25 Ph.D. students selected for the third cohort of this highly prestigious and competitive research program along with students from institutions like IITs, IISc and IISERs.



He is currently pursuing his doctorate as an INSPIRE Fellow on the topic 'Landscape-level patterns of mammalian assemblages in Bellary district, Karnataka'. He will be joining Prof. Patrick A. Zollner's lab, Forestry, and Natural Resources, Purdue University, USA, for twelve months. This SERB-Purdue University OVDF program provides important international research training, networking opportunities and experiences for top Ph.D. students enrolled in Indian institutions while fostering collaborations between research groups to strengthen institutional partnerships between USA and India. Asit's Ph.D. work investigates land-use changes, climate and forest patch characteristics with effects of forest fragmentation on mammalian assemblages and species interaction across Protected and Non-Protected Areas in the Deccan Plateau of India which are highly fragmented and exposed to agricultural intensification, mining, livestock grazing, and illegal forest resource extraction. His findings will be useful in developing effective wildlife conservation strategies in India's National Policies and minimizing global climate change impacts.

Talks and Training Programmes

Interaction with students in Sindhudurg, Maharashtra

On the 17th February 2021, Br. Balasaheb Khardekar College, Vengurla with Women Development Cell celebrated *Sushiladevi Malharrao Desai Yuvati Prerana Manch*. On this occasion, Ms. Dhanusha Kawalkar, Senior Research Biologist, SACON, currently working on the project titled, 'Population status, Ecology, and Conservation of the Indian Swiftlet *Aerodramus unicolor* in the Western Ghats, West Coast, and Offshore Islands of Maharashtra' interacted with 12th grade girl students. The interaction encompassed the importance of caves, introduction to swiftlets, and need for swiftlet conservation. A quiz competition was also arranged for the students based on the presentation. The talk was also covered by the local newspaper and media.

खर्डेकर कॉलेजमध्ये विद्यार्थींनींसाठी प्रबोधनात्मक व्याख्यानाचे आयोजन

तुळस । कृष्णा तुळसकर

श्रीमती सुशीलादेवी मल्हारराव देसाई यांच्या स्मरणार्थ दिनांक १७ फेब्रुवारी २०२१ रोजी खर्डेकर कॉलेजमध्ये विद्यार्थींनींसाठी प्रबोधनात्मक व्याख्यान पार पडले. या कार्यक्रमाचे आयोजन महिला विकास कक्ष, वें. बाळासाहेब खर्डेकर कॉलेज, वेंगुर्ला व श्रीमती सुशीलादेवी मल्हारराव देसाई युवती सभेतर्फे फाउंडेशन, गोपाळ कृष्ण गोखले कॉलेज, कोल्हापूर यांच्या संयुक्त विद्यमाने करण्यात आले होते.

कार्यक्रमाची सुरवात दीपप्रज्वलन व सरस्वती पूजनाने झाली. कार्यक्रमाचे प्रास्ताविक डॉ. सौ. धनश्री पाटील यांनी केले व त्यानंतर प्रमुख पाहुण्यांचे फुलझाडे देऊन स्वागत करण्यात आले. डॉ. पवार्थी आवटे यांनी युवती सभेतर्फे फाउंडेशनच्या उद्दिष्यांवर प्रकाश टाकला. सॅकॉनच्या ज्येष्ठ संशोधन जीवशास्त्रज्ञ कुमा. धनुषा कावलकर कार्यक्रमाच्या प्रमुख पाहुण्या म्हणून लाभल्या होत्या. त्यांनी केव्हस - अंडरएक्सप्लोअर्ड चॅराडाइस या विषयावर व्याख्यान दिले. यावेळी गुहा, त्यांचे प्रकार, त्यातील विभागणी, इंडीयन स्वीफ्टलेट - एडीबल नेस्ट स्वीफ्टलेट पक्षी व काम करताना आलेले अनुभव याबरल विद्यार्थींनी प्रेझेंटेशनद्वारे मार्गदर्शन केले.

त्यानंतर डॉ. सुप्रिया राऊळ यांनी अध्यक्षीय भाषणाद्वारे विद्यार्थींनी संबोधित केले. यावेळी गोखले कॉलेजच्या प्राध्या. सौ. तेजस्विनी पाटील तसेच खर्डेकर कॉलेजच्या सर्व प्राध्यापिका व विद्यार्थींनी वर्ग उपस्थित होते. या कार्यक्रमाच्या माध्यमातून विद्यार्थींनींना पर्यावरण शिक्षणातून उपलब्ध संधींची ओळख झाली.

कार्यक्रमाचे सूत्रसंचालन कुमा. मयुरी परब व कुमा. करिष्मा मोहिते तर आभार प्रदर्शन प्राध्या. सौ. वीणा दोसित यांनी केले. कार्यक्रमास कु. प्रितीश लाड, कु. नितीन कवळणकर, कु. हिरोजी परब या स्वयंसेवकांचा हातभार लागला. कार्यक्रम सुरळीतपणे पार पाडण्यात खर्डेकर कॉलेजचे प्राचार्य डॉ. विलास देऊलकर यांचे मोलाचे मार्गदर्शन लाभले.

Talks by SACON Faculty at *Azadi Ka Amrit Mahotsav* events

Azadi Ka Amrit Mahotsav is a series of events organised by the Government of India to commemorate the 75th Anniversary of India's Independence. Hon'ble Prime Minister, Shri Narendra Modi launched the '*Azadi ka Amrit Mahotsav*' in March 2020, i.e., 75 weeks before India's 75th anniversary of Independence, which will end on 15th August 2023. As a part of this Programme, the Central Zoo Authority (CZA) launched a 75 weeks programme focusing on 75 conservation-dependent species in 75 zoos across India. Following virtual talks were delivered by SACON Faculty in the events organized by the CZA:

- Talk on *Mysore Grey Slender Loris* by Dr. H. N. Kumara, Principal Scientist, organized by Sri Chamarjendra Zoological Gardens, Mysuru, on 18th May 2021.Talk on *Role of small/medium-sized carnivores in tropical ecosystems*, by Dr. Shomita Mukherjee, Senior Principal Scientist along with Dr. Nandini Rajamani, Assistant Professor, IISER-Tirupati on 18th June 2021.
- Talk on *Population status and conservation challenges of Lion-tailed Macaque in Western Ghats* by Dr. H. N. Kumara, Principal Scientist, organized by Arignar Anna Zoological Park on 25th April 2021.

Talks and Training Programmes

Training to Officers and Staff of Project Tiger Areas

A training/sensitization program was virtually organized by Karnataka Forest Department for the officers and staff of Project Tiger areas regarding protocols and guidelines to be followed for design, survey and analysis of MSTriPES and Camera Trap Data. In this regard, Dr. H. N. Kumara conducted a workshop on "*Field protocol and guidelines to assess the population survey of tiger and herbivores*", for the officers and staff of Project Tiger areas on 23rd June 2021.

Talk by SACON Faculty at University of Rajasthan

On 11th May 2021, a webinar session for students, research scholars, faculty of various colleges of Rajasthan was organized by the Department of Zoology, University of Rajasthan (UOR) on the topic "*Current Research Activities and Career Options in Ornithology*". The session was chaired by Dr. P. J. John, Head, Department of Zoology (UOR), and was attended by nearly 50 participants. Dr. Aditi Mukherjee, Scientist, SACON was invited as a resource person for the session. Dr. Aditi gave a brief introduction about the research activities of SACON and had an elaborate discussion with the participants regarding career options, scholarships, and academic opportunities in institutes offering ornithology courses in India and abroad. The session was concluded by Dr. Naresh Kumar Nirmal, Assistant Professor, Department of Zoology (UOR). He thanked the guest speaker for sharing her precious knowledge with the participants.

Talk by SACON Faculty at a National Webinar organized by Govt. Madhav Sadashivrao Golvalkar College, Madhya Pradesh

Dr. H.N. Kumara, Principal Scientist talked on 'Mammals and their Conservation in Kundremukh National Park and Bannerghatta National Park of Karnataka' on 4th September 2021 at a National Webinar (Second series) organized by the Department of Botany, Govt. Madhav Sadashivrao Golvalkar College, Rewa (M.P.) in collaboration with IQAC and the National Academy of Sciences India. The webinar was conducted over five days from 1st– 6th September 2021 and it covered various topics including Identification, Conservation, and Management of National Parks, Tiger Reserves, Wildlife Sanctuaries, and Botanical, Zoological Gardens of India

SACON'S Recent Publications

Stay or shift: does breeding success influence the decision in a cave-dwelling swiftlet?

published in *Journal of Ornithology (2021), 162(2), 369–379*

Authors: Prathamesh Gurjarpadhye, Dhanusha Kawalkar, Ram Pratap Singh and Shirish Manchi

Sálim Ali Centre for Ornithology and Natural History, Coimbatore, Tamil Nadu, 641108, India

The Edible-nest Swiftlet (*Aerodramus fuciphagus*) (Photo: Prathamesh Gurjarpadhye)

Individuals of a species can use decision rules to determine whether or not they will return to the same breeding place the following year or season, based on their immediate breeding success. The study explains the decision rule phenomenon and tested the prior-experience hypothesis for the cave-dwelling Edible-nest Swiftlet (*Aerodramus fuciphagus inexpectatus*; ENS) in the Baratang Island, Andaman, and Nicobar Islands. To understand the decision rule in ENS, the capture-mark-recapture method was applied. Totally 234 individuals were monitored throughout two breeding seasons (2017 and 2018). Habitat variables (cave morphometry and microclimate) were studied to see if there was a link between breeding success and habitat variables. In 2017, 88% (207 birds) of adult birds were captured from the study caves, and 66% (137 birds) of adults were recaptured from the same caves in 2018, indicating species fidelity to the caves. There was no significant variation between breeding success rates in 2017 and 2018. Multiple regression models revealed an insignificant relationship between cave structure and breeding success of the species. Furthermore, microclimate variables (temperature and humidity) had little effect on the birds' breeding success. By rejecting the prior-experience hypothesis, the ENS individuals appeared to choose the decision rule. These findings could help existing conservation measures in the Andaman and Nicobar Islands aimed at increasing the ENS population. Long-term investigations and population monitoring are thus recommended in order to better understand cave fidelity in ENS breeding populations.

The study was funded by the Department of Biotechnology, Government of India. [BT/PR10605/BCE/8/1067/2013] and implemented with the permissions and support from the Andaman and Nicobar Forest Department.

(Note: Figure representations and their captions are sourced from the published paper)

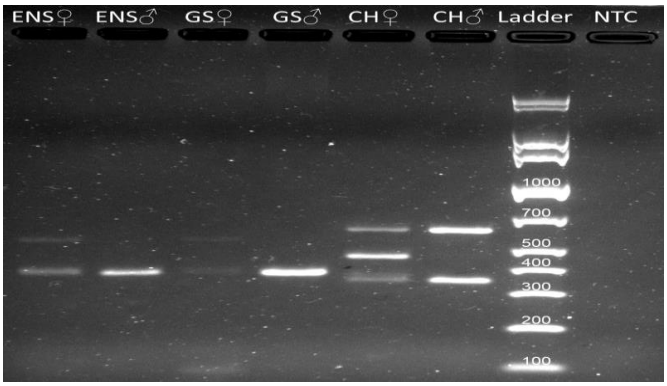
SACON'S Recent Publications

A simple and cost-effective test for sex identification in edible-nest swiftlet (*Aerodramus fuciphagus inexpectatus*) and plume-toed swiftlet (*Collocalia affinis*)

published in *Conservation Genetics Resources (2021), 13(2), 119-121*

Authors: Sanjeev Kumar Sharma, Prathamesh Gurjarpadhye, Shirish Manchi and Ram Pratap Singh

Sálim Ali Centre for Ornithology and Natural History, Coimbatore, Tamil Nadu, 641108, India



Agarose gel showing the band pattern of multiplex PCR using P8/P2 and the 2550F/2718R primers (ENS Edible Nest Swiftlet, PTS Plume-toed Swiftlet, CH Chicken, NTC Non- Template Control, Ladder 1Kb (Photo: Prathamesh Gurjarpadhye)

Sex identification plays a vital role in avian research, specifically in avian behaviour, ecology, evolutionary biology, genetics, forensic studies, and captive breeding programs. In monomorphic and juvenile birds, however, sex identification based on plumage and other morphological features is impossible. Furthermore, existing molecular sex identification approaches have varying degrees of efficacy in different bird species. Using the P8/P2 and 2550F/2718R primers, the study tried to establish a new multiplex PCR approach for sex identification based on the CHD1gene. In edible-nest swiftlets (ENS) (*Aerodramus fuciphagus inexpectatus*) and plume-toed swiftlets (PTS) (*Collocalia affinis*), the new multiplex PCR method correctly identified sex (two bands in females, single band in males). To resolve multiplex PCR results, the new method required agarose gel electrophoresis. The simplicity, speed, and low cost make this method an adaptable molecular tool for sex identification in ENS and PTS with a possibility in other bird species. During this study, over 1000 ENS samples were sexed using the new multiplexing approach and the authors expect this method to be equally useful in other bird species where the existing molecular sexing methods fail to identify sex.

The study was funded by the Department of Biotechnology, Government of India. [BT/PR10605/BCE/8/1067/2013] and implemented with the permissions and support from the Andaman and Nicobar Forest Department.

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications

Comparative study of Yellow-billed Babbler (*Turdoides affinis*) feathers reveals uniformity in their microstructures among individuals

published in *Journal of Experimental Biology and Agricultural Sciences (2021), 9(1): 51–64*

Authors: Swapna Devi Ray[a,*], Prateek Dey[a,*], Nozrul Islam[b], Sanjeev Kumar Sharma[a], Padmanabhan Pramod[a], Ram Pratap Singh[a,c]

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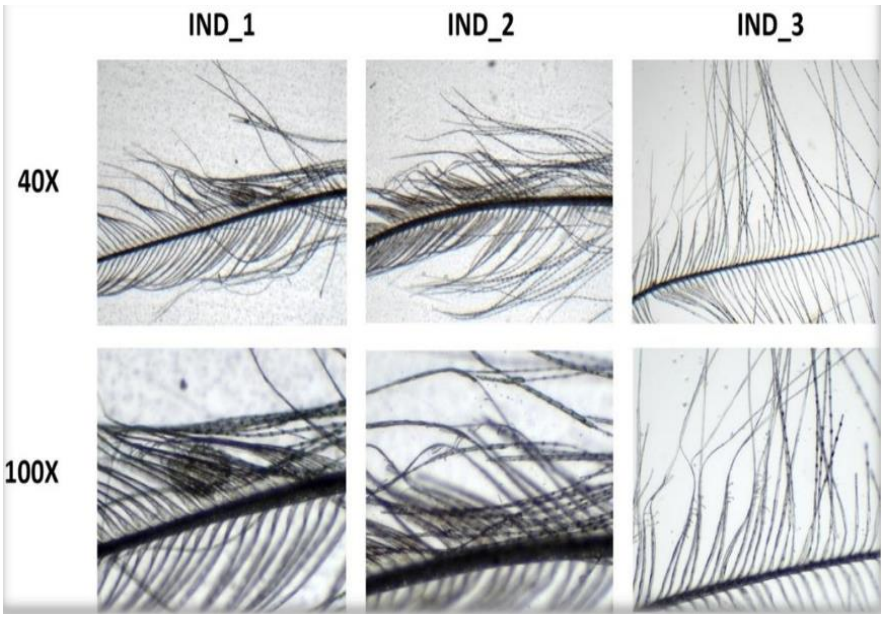
b Vidyasagar Senior Secondary School, Dhubri, Ward No. 15, College Road, P.O: Bidyapara, District: Dhubri, Dhubri-783324, Assam, India
c Department of Life Science, School of Earth, Biological and Environmental Sciences, Central University of South Bihar, Gaya - 824236, Bihar, India
* Equally contributed

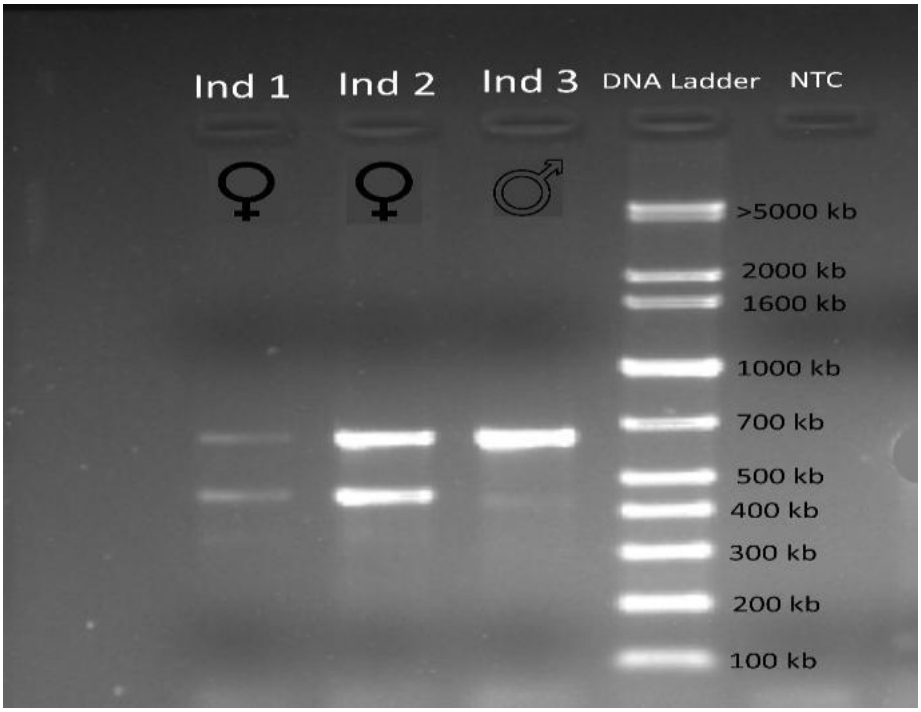


Feather microstructures of *T. affinis*
(IND: individual 1, 2 & 3)

Existing studies on feather micro-structures of birds endemic to the India/Indian sub-continent are a few in number and limited in their scope, and studies on feather microstructures of an individual haven't been conducted in the past decades. To address such a lacunae, a comparative feather microstructure study of three individuals of *Turdoides affinis*, a passerine, endemic to the Indian sub-continent was conducted.

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications



Molecular sexing of *T. affinis* (IND: individual 1, 2 & 3)

Molecular sexing identified two of the individuals used in this study as female and one as male. Morphometrically, tail contour was the longest (9.63±0.76 cm) and bristle was the shortest (1.00±0.07 cm) feather. Semiplume had the longest barb length (1.73±0.04 cm) and shortest barbs (0.16±0.01 cm) were present in bristles. Subpennaceous barbs and knob-shaped villi, characteristic of members of the Passeriformes family, were also observed in all three individuals. This study records no significant difference in feather characteristics amongst the three *T. affinis* individuals irrespective of the differences in their sex and size. Systematically documented feather micro-characteristics of *T. affinis* in this study could be used as a species identification tool and would provide baseline data for the feather catalogue of Indian bird species being compiled by SACON.

The study was funded by the Ministry of Environment, Forest and Climate Change, Govt. of India

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications

Complete mitogenome of endemic Plum-headed parakeet *Psittacula cyanocephala*—characterization and phylogenetic analysis

published in *PLOS ONE (2021), 16(4)*

Authors: Prateek Dey[a,*], Sanjeev Kumar Sharma[a,*], Indrani Sarkar[a], Swapna Devi Ray[a], Padmanabhan Pramod[a], Venkata Hanumat Sastry Kochiganti[b], Goldin Quadros[a], Saurabh Singh Rathore[c], Vikram Singh[d], Ram Pratap Singh[a,e]

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b National Institute of Animal Nutrition and Physiology, Bengaluru, India
c Mahatma Gandhi Central University, Motihari, India
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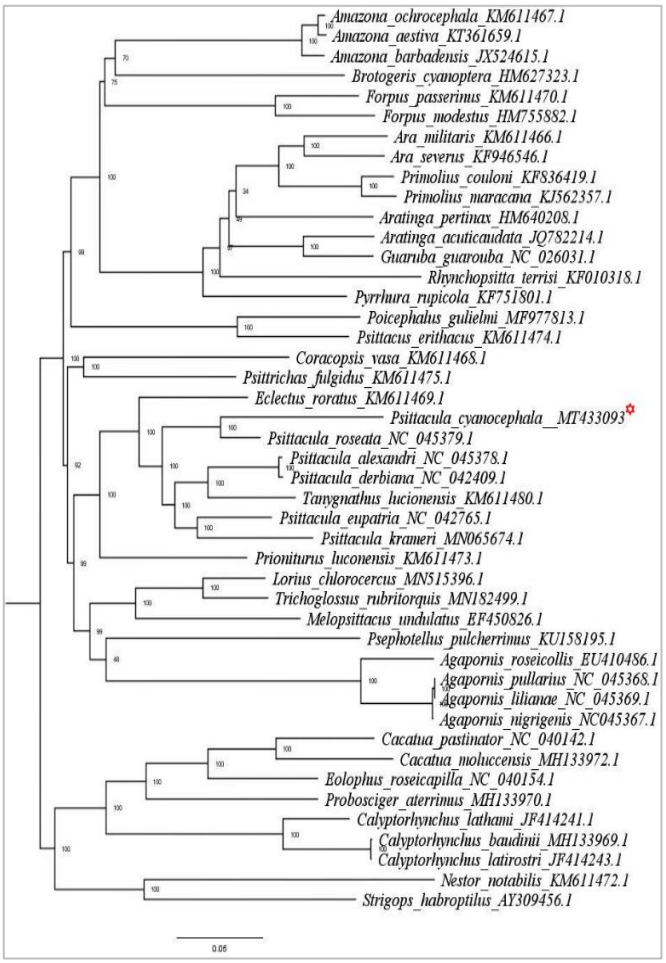
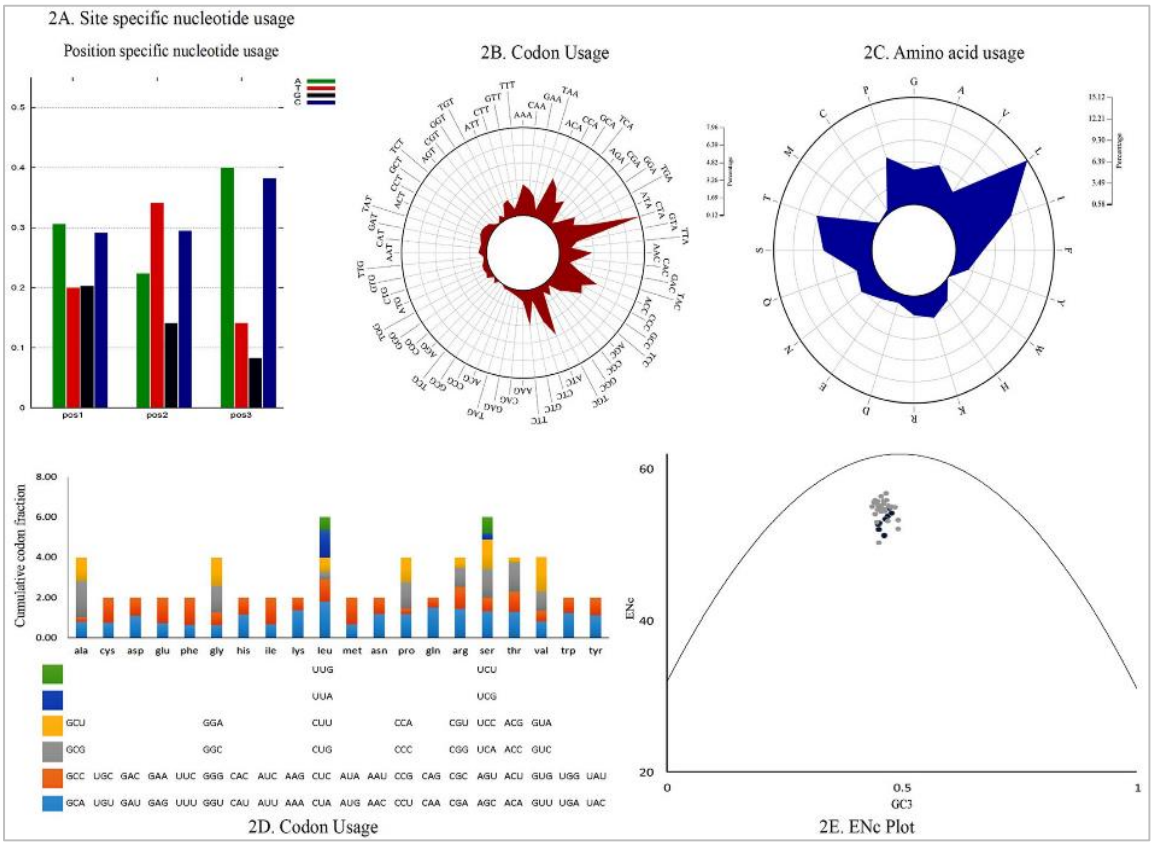
Psittacula cyanocephala is a parakeet endemic to the Indian sub-continent and has been recorded to be traded illegally. Information regarding genetic and evolutionary aspects of P.cyanocephala is less abundant. Since the mitochondrial genome provides useful information concerning the species evolution and phylogenetics, we sequenced the complete mitogenome of *P. cyanocephala* using NGS, validated 38.86% of the mitogenome using Sanger Sequencing and compared it with other available whole mitogenomes of *Psittacula*. The study provided high-quality complete mitogenome of *P. cyanocephala* consisting of 37 genes for the first time, and the gene arrangement showed conserved patterns similar to other species of parrots.



Phylogenetic analysis of select Psittaciformes mitogenomes

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications



Evolutionary and codon usage analysis of select Psittaciformes mitogenomes

The publications also reported that D-loop region of *P. cyanocephala* mitogenome to display the ancestral avian CR gene order. Codon usage analysis revealed that third positions of codons are dominated by adenine or cytosine. Evolutionary analysis revealed purifying selection on *nad6*, *nad5* and *nad4* genes. The mitogenome data will help design forensic tools for improving conservation efforts and preventing illegal trading of parakeet species.

The study was funded by the Ministry of Environment, Forest and Climate Change, Govt. of India

(Note: Figure representations and their captions are sourced from the published paper)

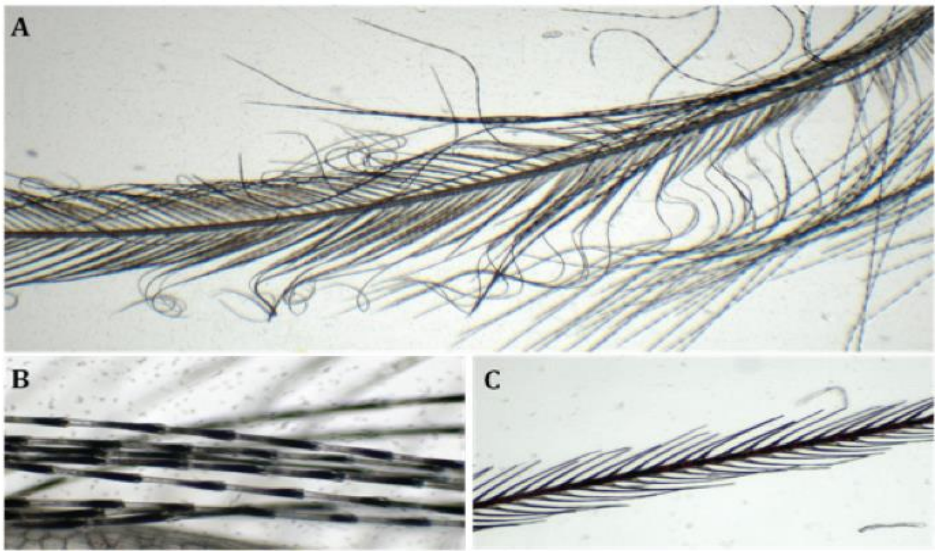
SACON'S Recent Publications

Identification of a unique barb from the dorsal body contour feathers of the Indian Pitta *Pitta brachyura* (Aves: Passeriformes: Pittidae)

published in *Journal of Threatened Taxa (2021), 13(7), 18781-18791*

Authors: Prateek Dey[a], Swapna Devi Ray[a], Sanjeev Kumar Sharma[a], Padmanabhan Pramod[a], Ram Pratap Singh[a,b]

a Sálim Ali Centre for Ornithology and Natural History, Anaikatty, Coimbatore – 641108, Tamil Nadu
b Department of Life Science, School of Earth, Biological and Environmental Sciences, Central University of South Bihar, Gaya - 824236, Bihar, India



Microscopic image of feather of Indian Pitta
(A) Both pennaceous and plumulaceous barbules on the ramus of the barb,
(B), Nodes, Internodes, and prongs on the plumulaceous barbule,
(C) Distal and proximal barbule on the pennaceous barb

A systematic study was conducted on all feather types of the Indian Pitta *Pitta brachyura*, a passerine native to the Indian subcontinent. Feathers from all over the body were sampled. A novel type of barb was observed for the first time from dorsal body contour feathers having plumulaceous barbules at the base followed by pennaceous barbules. Various feather micro/macrostructures in the feathers of *P. brachyura* were studied. This study will help to develop feather microstructures as an important tool in species identification and aid in developing the feather atlas of Indian birds.

The study was funded by the Ministry of Environment, Forest and Climate Change, Govt. of India

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications

Conservation Status and Potential Distribution of the Bengal Slow Loris *Nycticebus bengalensis* in Northeast India

published in *Primate Conservation (2021), 35: 1-10*

Authors: Honnavalli N. Kumara, Santhanakrishnan Babu, Megha Nitte and P.V. Karunakaran

Sálim Ali Centre for Ornithology and Natural History, Coimbatore, Tamil Nadu, 641108, India

Slow Loris in Meghalaya
(Photo: Sanyukta Kasbekar)

The Bengal slow loris *Nycticebus bengalensis* is a nocturnal primate, confined to the forests of the north-eastern states in India. The survey in Meghalaya, confirmed the occurrence of slow lorises in five of the nine surveyed community reserves. One individual was sighted in the Chimanapara Community Reserve. The publication confirms the occurrence of slow lorise in all of the seven states of Northeast India. Potential distribution model provides the environmental limits of its range. Abundance in the survey sites in Meghalaya and also in the entire northeast relatively low compared to many sites in the Southeast Asian countries. Reports of the number of slow lorises rescued almost equal the total detections recorded during all surveys carried out in Northeast India. Study also explored possible reasons for their low population and emphasized the need for educating people as a last resort for the species' conservation and management in Northeast India, taking cultural values and socio-political status of the local communities.

The project on the 'Characterization of Community Reserves and Assessment of their Conservation Values in Meghalaya' was funded by the National Mission on Himalayan Studies (NMHS) under the Ministry of Environment, Forest and Climate Change, Government of India (GBPNI/NMHS-2017-18/MG 32, dated: 28.03.2018)

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications

Persistence of *Trachypithecus geei* (Mammalia: Primates: Ceropithecidae) in a rubber plantation in Assam, India

published in *Journal of Threatened Taxa (2021), 12: 18679-18686*

Authors: Joydeep Shil[a,b,c], Jihosuo Biswas[c], Sudipta Nag[c,d] and Honnavalli N. Kumara[a]

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c Primate Research Centre Northeast India, House No. 4, By lane 3, Ananda Nagar, Pandu Port Road, Guwahati, Assam 781012, India
d Department of Zoology, School of Biological Sciences, University of Science & Technology Meghalaya, Techno City, Killing Road, Baridua 9th Mile, Meghalaya 793101, India

Golden Langur in the rubber plantation (Photo: Joydeep Shil)

Population size and age-sex composition of the Golden Langur (*Trachypithecus geei*) in a rubber plantation in the Kokrajhar district in Assam were assessed. During 2016, six groups of Golden Langurs totalling 78 individuals with a mean group size of 13.00±4.00SD were recorded. Of the total population, 10.29% were adult males, 41.18% were adult females, 32.35% were juveniles and 16.18% were infants. Comparison with earlier data shows the overall population growth from 1997 to 2016 to be 5.54% per year.

Habitat matrices of rubber plantations with natural forest patches are important in the fragmented landscape for the survival of Golden Langur. They may also act as a corridor for the langurs to move between the fragments and as food resources, highlighting the importance of such habitats for the langurs outside the protected areas.

This study was partially funded by Department of Science and Technology, Govt. of India (SERB Grant No. SR/SO/AS-17/2012), Primate Conservation Inc. and Wildlife Trust of India

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications

Ranger survey reveals conservation issues across Protected and outside Protected Areas in southern India

published in *Global Ecology and Conservation 24 (2020), e01256*

Authors: David Milda[a], T. Ramesh[a,b], Riddhika Kalle[a,b], V. Gayathri[a], M. Thanikodi[a]

a Sálim Ali Centre for Ornithology and Natural History, Coimbatore, Tamil Nadu, 641108, India
b School of Life Sciences, University of KwaZulu-Natal, Private Bag X01, Scottsville, Pietermaritzburg, 3209, South Africa

Effective wildlife management measures are critical in balancing the demands of growing human population and survival of wildlife. In India, forests designated as Protected Areas (PAs) have a more efficient wildlife management system than Reserved Forests (outside PAs). Outside PAs act as a corridor/buffer to PAs, but are often undervalued.

A herd of Asian elephants moving from Hosur, Tamil Nadu towards Karnataka State. (Photo: Milda David)

Human-wildlife conflict management will be complete only if the issues of protected areas and outside protected areas management systems are carefully addressed. To investigate current wildlife management issues, the study involved semi-structured questionnaire surveys with 79 Forest Range Officers (FROs) across various PAs and outside PAs of Tamil Nadu. More than half of the FROs reported an increase in human-wildlife conflict incidents in the past five years. Wildlife species frequently involved in the conflict with humans were elephant (*Elephas maximus*), wild pig (*Sus scrofa*), leopard (*Panthera pardus*), bonnet macaque (*Macaca radiata*), sloth bear (*Melursus ursinus*), sambar (*Rusa unicolor*), gaur (*Bos gaurus*), dhole (*Cuon alpinus*), chital (*Axis axis*), and tiger (*Panthera tigris*).

SACON'S Recent Publications

Endangered species, namely tiger (only in PAs), elephant, and pangolin (*Manis crassicaudata*), were also included in the list of species poached in Tamil Nadu although, wild pig, sambar, black-naped hare (*Lepus nigricollis*) and chital dominated the list. Regions outside PAs are more vulnerable to conflict, owing to the weaker resource inputs when compared to PAs.

Researcher interviewing the Forest Range Officer (Photo: Ankit Moun)

Nearly 50% of FROs stated that improved manpower and other resources during the past five years helped in the reduction of poaching incidents. It is the first study in India to highlight the success/failure of human-wildlife conflict management focusing on the lacunas in management effectiveness of PAs and outside PAs, at a broader landscape level.

Solar fence to mitigate human-elephant conflict at Hosur forest division (Photo: Milda David)

A combination of hanging and spike fence in a high human-elephant conflict zone at Hosur forest division (Photo: Milda David)

This study was funded by the Science and Engineering Research Board, Government of India, under the Ramanujan Fellowship scheme to the second author. The study was executed with permission and support from the Tamil Nadu Forest Department.

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications

Identification of livestock depredation hotspots along the human-wildlife interface in the Eastern and Western Ghats of southern India: Implications for the conservation of large carnivores in the forest conservation network of Tamil Nadu

published in *Global Ecology and Conservation 24 (2020), e01366*

Authors: Tharmalingam Ramesh[a,b], Riddhika Kalle[a,b], David Milda[a], V. Gayathri[a], M. Thanikodi[a], K. Ashish[a], Anthony J. Giordano[c]

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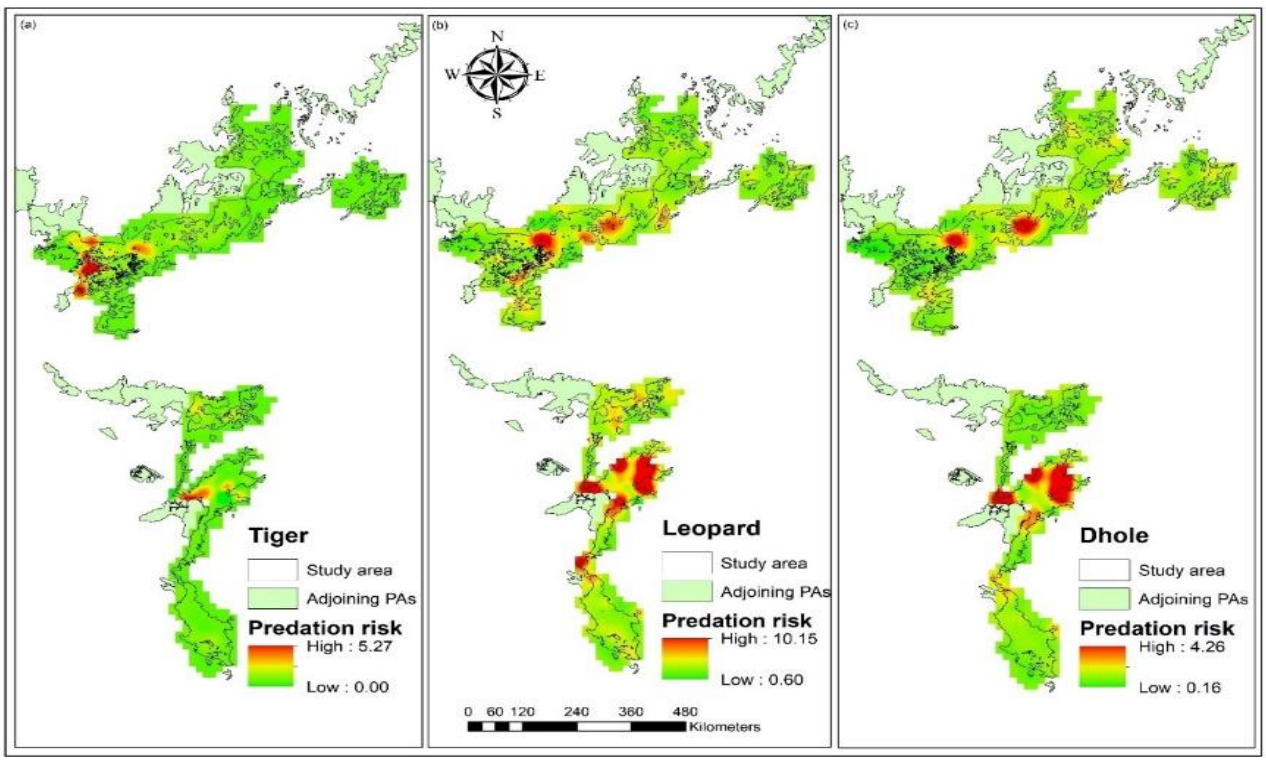
c Society for the Preservation of Endangered Carnivores & Their International Ecological Study, P.O. Box 7403, Ventura, CA, 93006, USA



Predation risk maps showing livestock depredation hotspots from tiger (a), leopard (b) and dhole (c) in the Western and Eastern Ghats parts of Tamil Nadu

Spatial patterns of livestock predation risk at a large scale from multiple co-predators are fundamental to applied conservation planning since social and landscape attributes of conflict will differ at human-wildlife interface areas. Totally 1460 villagers from the local communities participated in the semi-structured

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications

questionnaire surveys was conducted focusing on the livestock depredation incidents from tiger (*Panthera tigris*), leopard (*Panthera pardus*), and dhole (*Cuon alpinus*) during the past five years, across 15 Forest Divisions in the Eastern and Western Ghats, southern India. Systematic grid-based sampling was used covering various management systems (e.g., Protected Areas, Reserved Forest and Fringe Areas) at the human-wildlife interface areas. Important ecological, social, and landscape attributes influencing human-carnivore interactions were examined for this purpose.

Size of livestock species, dependency of local people on forest, topography, proximity to water and the forest boundary, precipitation, and forest cover determined the livestock predation risk. Incidents of livestock depredation by leopards were higher than dhole and tiger; besides, leopard and dhole exhibited a high degree of spatial overlap. Incidents of livestock depredation by tigers occurred in densely forested core regions of Protected Areas (PAs) while, the same from leopard and dhole was frequent in open areas of Reserved Forest.

Livestock pressure in the study area: (a) Researcher interviewing a herder, (b,c) livestock herded to the forest from human-wildlife interspace area, and (d) livestock utilising the water source inside the forested area (Photos: Gayathri. V & Thanikodi. M)

The predation risk map demonstrated species-specific depredation patterns of the large carnivores, revealed ecological differences among them with regard to their habitat and spatial partitioning and intra-guild competition for domestic prey. The map gives visual guidance for PA managers and recommends developing multi-species conflict mitigation strategies for peaceful co-existence.

This study was funded by the Science and Engineering Research Board, Department of Science and Technology, Government of India, under the Ramanujan Fellowship scheme to the first author. The study was executed with the permission and support from the Tamil Nadu Forest Department.

(Note: Figure representations and their captions are sourced from the published paper)

SACON'S Recent Publications

Climate Change Projections of Current and Future Distributions of the Endemic *Loris lydekkerianus* (Lorinae) in Peninsular India (2021)

Book chapter published in *Venkatramanan V., Shah S., Prasad R. (eds) Exploring Synergies and Trade-offs between Climate Change and the Sustainable Development Goals. Springer, Singapore. https://doi.org/10.1007/978-981-15-7301-9_13*

Authors: Sreenath Subrahmanyam[a], Mukesh Lal Das[b] and Honnavalli N. Kumara[c]

a Institute of Bioecoscience, Herndon, USA
b Central University of Kerala, Kasaragod, India
c Sálim Ali Centre for Ornithology and Natural History, Coimbatore, Tamil Nadu, 641108, India

Current and future potential distribution and range shift of *L. lydekkerianus* were studied using a maximum entropy machine learning algorithm. This ecological model suggests an expansion of the potentially suitable habitat of Malabar Slender Loris *L. l. malabaricus* in the central Western Ghats, and shrinking of the habitat of Mysore Slender Loris *L. l. lydekkerianus* in the Eastern Ghats. Range shift models predict a considerable shift in the present habitat range and expansion for *L. l. malabaricus* and *L. l. lydekkerianus* by 2050 and 2070 respectively.

Malabar slender loris (Photo: H.N. Kumara)

Mysore slender loris (Photo: H.N. Kumara)

Popular Articles

1. Yellow Bed of Death —Who Waits In There!!!

By
Swapna Devi Ray, Ph.D. Scholar
Correspondence: swapnadray555@gmail.com

"Will you walk into my parlour? said the spider to the fly,
Tis the prettiest little parlour that ever you did spy,
The way into my parlour is up a winding stair,
And I've a many curious things to shew when you are there."

— Mary Howitt

Any nature enthusiast, no matter where they are, will find the summer breeze mesmerising in the afternoons. Nobody, however, can deny the call of nature in the midst of a pristine and beautiful campus like SACON. There are several Asteraceae plants in front of the SACON main gate, including tree marigolds (*Tithonia diversifolia*), which are abundant and blooming profoundly. With the monsoon having decked our campus with colours and fragrances from a variety of beautiful flowers. In the middle of the blooming beauty, the birds and other pollinators seem to be on a frenetic schedule. On a beautiful afternoon, I came upon a crab spider (*Thomisus* sp.) devouring a bee. The "always-busy" bee went to one freshly blossomed *T. diversifolia* in search of nectar for their hive, not realising what was waiting for them there, and became a victim of "ambushed predation" by *Thomisus* sp., which had perfectly camouflaged itself with the attractive yellow colour.

Crab spiders, also known as flower-dwelling crab spiders, are distributed worldwide, with roughly 150 species belonging to the Thomisidae family. They occupy a variety of natural habitats and can be found on various sections of plants (twigs, leaves, and flowers) as well as on the ground, exhibiting an intriguing array of suitable adaptations. Crab spiders, particularly the flower-dwelling ones, can change their colour over time according to the flower it occupies. Others may blend in with their current background colour. Although crab spiders can produce silk for making a web, they rely on camouflage and stealth to catch their prey, making them one of the most well-known ambush predators. The well-adapted colour camouflage mechanism helps them increase the encounter rate of their prey. These mechanisms greatly affect the survivability and fitness of Crab spiders.

Popular Articles

Crab spider in Tree marigold

Crab spider with its prey

In SACON campus, Crab spiders are most typically found on the flowering plants such as *Catharanthus roseus*, Yellow oleander (*Cascabela thevetia*), Trumpet flower (*Tecoma stans*), and *Cactus* sp. With the variety of blooming flowers during the monsoons, one can spot these silent ambush predators controlling the population of other tiny organisms. Alternatively, we may say that Crab spiders convert the nectar sources of the bees and other pollinators into their *deathbed*!!

Popular Articles

2. Landscape without Raptors— An experience from Sagar Island of West Bengal

By
Riju P. Nair, Senior Research Biologist, Joel Sonya, Junior Research Biologist,
P.R. Arun, Sr. Principal Scientist,
P. Pramod, Sr. Principal Scientist, S. Babu, Senior Scientist
Correspondence: rijupnair2009@gmail.com

We wondered about the conspicuous absence of raptors while wandering through the Gangasagar coast on the southern tip of the Sagar Island (Sagardwip), the largest Island in the Sundarban deltaic complex of West Bengal. The Island sprawls across 30 km north-south direction with a width of about 12 km east-west (Fig. 1).

We were there with a task to explore the avifaunal assemblage of the Sagar Island as part of a study on the impact of the proposed all-weather helipads at Gangasagar.

Fig. 1. Location of Sagar Island (Google earth Image)

In the human-dominated landscape of this vast island and its wetland ecosystems, the concept of conservation appeared quite alien. Almost all the mangrove ecosystems along its coastline were broken up with built-up landmasses and structures created for the sake of recent human settlements (Fig. 2). The traditional settlements of the island are environment-friendly and temporary setups, mostly made up of hay, bamboo, and clay (Fig.3) The Sagar Island is surrounded by the River Hooghly; on the west by the main Hooghly river and the east by a distributary channel called the Baratala River or Channel Creek (locally called Muri Ganga), which bifurcate from Hooghly near Kakdwip, about 100 km south of Kolkata (Fig. 1). Reclamations of mangrove wetlands in the late 19th century have also contributed significantly to the formation of Island as seen today (Bandyopadhyay 1997).

The Island faces the Bay of Bengal on its south and is part of the South 24 Parganas district of West Bengal state. The total geographical area of Sagar Island is 272 sq km. The average elevation of the Island is around 3m from the mean sea level (Majumdar& Das 2011). Due to the privilege of its location, productivity, and the services they provide, the island ecosystem always stands out from others, and it supports immense biological diversity and resources. There is a complex interaction among the anthropogenic and natural processes of the ecosystem. When occupied by the human population, these remote areas become crowded, and resources being over-exploited. The Island already faces serious threats of coastal erosion from wave/tidal actions aggravated by clay mining activities, mangrove degradation, and increasing natural hazards like cyclones (Gopinath 2009).

Fig. 2. Constructions in the mangroves

Fig. 3. A typical traditional homestead at Sagar Island

Fig. 4. Community fishing within the mangrove area

Mangroves are the dominant vegetation on the east coast of the island, whereas the northern part is dominated by agricultural lands. The densely populated island with a population of around 1.5 lakh people, depends on agriculture, aquaculture, prawn seed collection and fisheries. The main livelihood is fishing (Fig. 4) and almost every family has a pond and some agrarian land of their own to sustain their livelihoods. The annual festival called 'SagarMela' during the seasonal tourism/pilgrimage at Kapil Muni temple also contributes to their livelihoods.

The proposed helipad location in Gangasagar was the focal area of the study. We expected birds of prey as one of the dominant species in the area by our experience in other similar coastal landscapes. To our surprise, we failed to spot a single raptor species other than shikra (*Accipiter badius*) that too with only six sightings during the two months of the intensive survey. We noticed that people were drying the fishes along the coast without much protection from the birds. The only bird species found snatching these fishes were house crows (*Corvus splendens*). To know more about the occurrence of raptors in Sagar Island, we checked the eBird data and found that only three checklists with 73 species were produced in eBird from Sagar Island and we could not find any raptor species in it except for a spotted owlet (*Athene brama*). Despite the presence of ideal habitats like coastal mangroves and wetlands, which are considered productive ecosystems that can contribute adequate food resources, the near absence of raptors in this landscape appears mysterious. The Island also provided enough potential perching trees and prey density for the raptors. Due to the restrictions because of the COVID-19 pandemic, we had to leave the place in the last week of April 2021. But for us, the curious case of this landscape with the enigmatic absence of raptors remains an unanswered ecological question. There must be some answers waiting to be found.

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Popular Articles

3. Preliminary documentation on the Ichthyofaunal Diversity of Sulaipat Reservoir, Odisha

By
Arjun M.S, Senior Research Biologist (Former),
Alby J.M, Junior Research Biologist,
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Odisha is an eastern Indian coastal state with a 480-kilometer-long coastline that is bordered in the north and south by West Bengal and Andhra Pradesh, respectively. The state, which is located in the tropical zone, is made up of the northern plateau, Eastern Ghats, central part, and coastal lowlands. The Mahanadi, Brahmani, and Baitarani rivers, as well as several minor east-flowing rivers, drain the state (Sugnnan, 1995). The current study was done at Sulaipat Reservoir (22° 7' 17.8026" N Latitude and 86° 14' 19.6512"E Longitude). Also known as Khadakhai dam, the Sulaipat Reservoir, impounds the Khadakhai tributary of Subarnarekha River Basin near the Similipal Tiger Reserve in Mayurbhanj District of Odisha. The region falls in the subtropical climate zone with hot and humid summer, a well-defined rainy season (June to October), and mild winter (November to February). The annual rainfall in the region is roughly 1500 mm, wherein the southwest monsoon brings around 70% of the rain between June to September, with torrential rains in August. The lowest temperature dips to 4°C in the winter, while it reaches upto 29.5°C in the summer. It's a beautiful location, surrounded by mountains and dense forest. Closeby, the iron ore mines; Gorumahisani, Badampahar, and Sulaipat. The nearby Sulaipat and Bankabal Reservoirs, as well as the Similipal Tiger Reserve, make this a popular tourist destination.

Freshwater is essential for human survival, as well as the survival of all aquatic and terrestrial ecosystems. Rivers, canals, reservoirs, and lakes are among India's many freshwater resources (Reid et al. 2005). Impounded rivers offer significant economic and environmental benefits, including hydroelectric power generation, navigation, flood protection, water supply, recreational and professional fishing, and habitat for fish and other aquatic life, all of which contribute to profit. Inland water resources in India are both diverse and abundant. In terms of both size and potential output, reservoirs are the single largest inland fisheries resource. Fish communities can also serve as environmental quality indicators (Miranda, 2001; Sarkar *et al.* 2015). With 1027 different kinds of freshwater fishes, India's freshwater fish fauna is very diversified (Gopi et al. 2017). Odisha has 13.92 % of India's freshwater fish population (Dutta et al. 1993; Mogalekar and Canciyal, 2018).

The present study attempts to document the fish diversity of Sulaipat Reservoir, which is yet to be studied. During the field visits between September and December 2020, fish samples were collected with the help of local fishermen using a variety of nets, including gill nets, cast nets, and dragnets. All of the samples were photographed, identified, and classified using keys available for the Indian subcontinent (Jayaram, 1999; Talwar and Jhingran, 1991) and in consultation with Ichthyology experts.

The taxonomic classification along with their IUCN conservation status of freshwater fishes found in the Sulaipat Reservoir is presented in Table 1. There were 18 fish species in total belonging to 16 genera and 7 families. The list from this short survey serves as preliminary baseline data on the fish diversity in Sulaipat reservoir. The present study is the first attempt to create baseline information about the Ichthyofaunal diversity of the reservoir that can serve as a reference for further studies. Furthermore, extensive research inputs are required to comprehend the aquatic diversity, particularly the ichthyofaunal diversity of Sulaipat reservoir.

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Table 1 Fish species recorded from the Sulaipat reservoir

S.No	Scientific name	Common name	Family	Vernacular name	IUCN status
1.	*Chanda nama*	Elongate glassy perchlet	Ambassador	Mucknee	Least concern
2.	*Channa punctate*	Spotted snakehead	Channidae	Gorissa	Least concern
3.	*Catla catla*	Catla	Cyprinidae	Bakur	Least concern
4.	*Glossogobius giuris*	Tank gobi	Gobiidae	Bali garida	Least concern
5.	*Cirrhinus reba*	Reba carp	Cyprinidae	Pohola	Least concern
6.	*Cyprinus carpio**	Common carp	Cyprinidae	-	Least concern
7.	*Notopterus notopterus*	Bronze featherback	Notopteridae	Fali	Least concern
8.	*Ombok bimaculatus*	Butter catfish	Siluridae	Pob-tah	Least concern
9.	*Parambassis ranga*	Indian glassy fish	Ambassidae	Lal chandee	Least concern
10.	*Dawkinsia filamentosa*	Blackspot barb	Cyprinidae	-	Least concern
11.	*Labeo boga*	Boga	Cyprinidae	Mundha bata	Least concern
12.	*Labeo rohita*	Rohu	Cyprinidae	Ruhu	Least concern
13.	*Pethia* cf. *ticto*	Ticto barb	Cyprinidae	Kudgi-kerundi	Least concern
14.	*Puntius chola*	Swamp barb	Cyprinidae	Putia-kerundi	Least concern
15.	*Puntius vittatus*	Greenstripe barb	Cyprinidae	-	Least concern
16.	*Rasbora daniconius*	Black-line rasbora	Cyprinidae	Dandikiri	Least concern
17.	*Salmophasia balookee*	Reddiah razorbelly minnow	Cyprinidae	Jellahri	Least concern
18.	*Anabas testudineus*	Climbing perch	Anabantidae	Kou	Least concern
	**Invasive species*				

Popular Articles

PLATE 1 Fishes recorded from the Sulaipat reservoir

Parambassis ranga

Pethia cf. ticto

Puntius chola

Salmostoma balookee

Xenentodon cancila

Ompok bimaculatus

Popular Articles

PLATE 2 Fishes recorded from the Sulaipat reservoir

Chanda nama

Channa punctata

Cirrhinus reba

Glossogobius giuris

Labeo rohita

Notopterus notopterus

Researcher's Corner –Art & Conservation

Turning waste into bird souvenirs- Give it a try!

By
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Black-hooded Oriole

White-rumped Munia

As I began to observe birds, I was always attracted and fascinated by their vivid colours. These splendid colourful creatures are known to inhabit various kinds of habitats. Unfortunately, we humans have managed to reach every corner of their habitat and some of us even manage to destroy it. Littering and careless disposal of garbage is the most insensitive things we do. Among all different kinds of filth, carelessly thrown liquor bottles, sometimes even broken ones are a common sight in many tourist spots. For example, in 2017, the Central Marine Fisheries Research Institute surveyed 254 beaches along India's coastline (including the peninsula and islands) and reported that Goa's beaches were polluted the most with garbage. Glass garbage (bottles, bulbs) made up to 33% of beach litter in Goa, second only to nylon fishing net/line debris, which made up to 36 % of beach litter by weight.

Researcher's Corner —Art & Conservation

Likewise, I visited many places and witnessed the same disturbing scenes. So, I came up with an idea to assist maintain the bird habitat while simultaneously spreading the word of conservation through my bird paintings on liquor bottles. I know it is a small initiative, but it is with a strong intention to help protect the homes of the colourful winged creatures and the likes.

Great Indian Hornbill, Flamingo, Painted Stork (L to R)

Asian Paradise Flycatcher

To

सालिम अली पक्षीविज्ञान एवं प्रकृतिविज्ञान केंद्र
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