

## ENVIS Newsletter

*on Wetland Ecosystems including Inland Wetlands*

Picture Courtesy: Ankita Das



**SÁLIM ALI CENTRE FOR ORNITHOLOGY AND NATURAL HISTORY**  
(A Centre of Excellence under the Ministry of Environment, Forest and Climate Change, Govt. of India)  
Anaikatty, Coimbatore - 641 108 (INDIA)

**Editor**

Dr. Goldin Quadros  
Coordinator, ENVIS, SACON

**ENVIS Team**

Dr. B. Hemambika  
Ms. A. Julffia Begam  
Mr. N. Mohamed Ibrahim

**Layout & Design**

Ms. A. Julffia Begam

**Published by**

Environmental Information System (ENVIS)  
Sálim Ali Centre for Ornithology and Natural History (SACON),  
Anaikatty (P.O.), Coimbatore-641108,  
Tamil Nadu, India.

**Sponsored by**

Ministry of Environment, Forest and Climate Change  
Government of India, New Delhi.

**Contents**

	<b>Page</b>
1. Ramsar Convention on Wetlands (COP13)	1-3
2. Green Skill Development Programme (GSDP)	4-7
3. Flagship Species of Ramsar Site	8-9
4. Newspaper Article	10

**Views expressed in the articles of this newsletter are of the authors only.**

**Instructions to Contributors**

We welcome original research and popular articles, reviews, reports, research highlights, notes, news, snippets, etc., related to the thematic area of the ENVIS Resource Partner for publication in 'Sarovar Saurabh the ENVIS Newsletter on Wetland Ecosystems including Inland Wetlands'.

The articles and other information should be neatly typed in double space not exceeding five pages. The figures, graphs/drawings should be of good quality and clarity. Photographs should be of minimum 300 dpi resolution. References should be limited and cited in the text by name and year. Council of Science editors style may be referred to for listing references at the end.

Email your articles in MS-Word 2003 or 2007 format to [sacon-env@nic.in](mailto:sacon-env@nic.in) or [salimalicentre@gmail.com](mailto:salimalicentre@gmail.com)

**Send the articles in hard copy by post to:**

The ENVIS Co-ordinator,  
ENVIS Resource Partner,  
Sálim Ali Centre for Ornithology and Natural History (SACON)  
Anaikatty P.O., Coimbatore - 641108. Tamil Nadu, India  
Ph: 0422-2203100, 129  
Website: [www.saconenvis.nic.in](http://www.saconenvis.nic.in); [www.sacon.in](http://www.sacon.in)

**From The Editors' Desk**

The Ramsar Convention that was signed on 2<sup>nd</sup> February, 1971 has been one of the crucial wetland conservation instruments adopted by over 169 countries. With over 2200 wetlands globally designated as "internationally important", the convention has tried to conserve an ecosystem that has been vital for several different life forms.

In this issue we have compiled some of the concerns the Indian Government raised during the 13<sup>th</sup> Ramsar Convention of Parties (RAMSAR COP) that took place in Dubai from 21 – 29 October, 2018. During the reporting period, SACON conducted a Green Skill Development Programme in "Bird identification and Basic Ornithology" and trained eleven participants and the report for the same is included. In addition we also have the news on wetlands that is shared for all. Our website can be assessed easily for the information on the latest conferences, laws, rules & regulations on wetlands, bibliography, conferences updates and news. Further, I request all the readers to kindly contribute your events, activities, articles and keep us updated on the happenings of the wetlands around you. Your inputs will help us keep our website updated and also help disseminate the information to the masses.

Editor

# RAMSAR CONVENTION

## 13<sup>th</sup> Meeting of the Conference of the Contracting Parties to the Ramsar Convention on Wetlands (COP13)

### Background

The Convention on Wetlands of International Importance (the Ramsar Convention) was signed in Ramsar, Iran, on 2<sup>nd</sup> February 1971, and entered into force on 21<sup>st</sup> December 1975. The Convention provides a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. For every three years, the government representatives of each of the Contracting Parties gather as the Conference of the Contracting Parties (COP), to agree on a work programme and budgetary arrangements for the next triennium and consider guidance on a range of ongoing and emerging environmental issues. Representatives of non-member states, intergovernmental institutions and non-governmental organizations (NGOs) also participate in these meetings as non-voting observers. Each meeting of the COP includes a number of technical sessions on ongoing and emerging wetland conservation and wise use issues, to update Convention concepts and draft guidance for the Parties.



### COP13

The 13<sup>th</sup> Meeting of the Conference of the Contracting Parties to the Ramsar Convention on Wetlands (COP13) took place in Dubai, United Arab Emirates, from 21-29 October 2018. The theme of COP13 was “Wetlands for a Sustainable Urban Future”. The COP 13 adopted 25 resolutions. The details of the proceedings on the Ramsar COP 13 are available on the Ramsar website. Among the adopted resolutions of Ramsar COP13, the aspects and concerns raised and discussed by the MoEFCC delegates for India are given here.

### Agenda of the meeting

It included: progress on the 2016-2024 strategic plan; regional initiatives; status of existing Ramsar sites; guidance on identifying Ramsar sites for global climate change regulation; restoration of degraded peatlands; cultural values, indigenous peoples and local communities, and climate change mitigation and adaptation; sustainable urbanization; and wetlands in specific areas and habitat types.

### Wetland City Accreditation

The Ramsar Wetland City Accreditation procedure was introduced by Standing Committee (SC) Chair Rucks who informed the receipt of 23 applications, with 18 cities recommended to be recognized as Ramsar Wetland Cities.

### Resolutions

It was agreed to accept a revised structure of the working programme to address earlier in the agenda those draft resolutions expected to benefit from informal discussions in contact groups. Additionally, “Friends of the Chair” groups met to resolve differences on many draft resolutions, with some agreements worked out in the closing hours of COP13. One draft resolution was withdrawn and two on governance were combined, with all resolutions adopted by consensus.

### Ramsar Strategic Plan 2016-2024 (COP13 Doc.18.6)

The Secretariat introduced the draft resolution (COP13 Doc.18.6), recalling that Resolution XII.2 states that a review of the Strategic Plan is to be undertaken at COP14, with relevant modalities to be established at COP13.

The resolution contains one annex, which includes, *inter alia*: the scope and modality of the review; an indicative timeline of key activities by the Strategic Plan Working Group to review progress in implementing

the plan up to 2021; and an indicative budget of CHF44,000, authorized at SC54 for working group members' travel, and a consultancy to support the SC and the working group. The working group is to take into account, *inter alia*, input from parties, the conclusions of the GWO, the 2030 Agenda and the SDGs and targets, the post-2020 global biodiversity framework to be adopted by the CBD in 2020; and other global developments.

### Report on the List of Wetlands of International Importance (COP13 Doc.12)

- ✦ It covers the period up to 20 June 2018 and the following list were highlighted:
  - (a) the designation of 131 new Ramsar Sites adding 27 million hectares;
  - (b) four new transboundary Ramsar Sites;
  - (c) updating relevant information regarding 300 Ramsar Sites;
  - (d) information on Ramsar Sites' reorganization and extension; and
  - (e) changes in the ecological character of Ramsar Sites due to human-induced activities.
- ✦ Senegal and India requested a number of amendments on updating and extension of Ramsar Sites, and on the Montreux Record to accurately portray the status quo.

### Resolution XIII.7: Enhancing the Convention's visibility and synergies with other multilateral environmental agreements and other international institutions (COP13 Doc.18.7)

- ✦ The plenary considered the draft resolution on enhancing the Convention's implementation, visibility, and synergies with other multilateral environmental agreements (MEAs) and other international institutions.
- ✦ On implementation, France said the Secretariat should concentrate on possible synergies, particularly with SDGs 6 (clean water and sanitation), 14 (life below water), and 15 (life on land). India stressed the relevance of SDG 3 (good health and wellbeing).

### Resolution XIII.17: Rapid Assessment of Wetland Ecosystem Services: (COP13 Doc.18.18)

- ✦ The Republic of Korea presented the draft resolution on developing an approach for the rapid assessment of wetland ecosystem services, highlighting its: applicability where wetland managers face resource limitations; flexibility across all wetland types; adaptability to local contexts; and usefulness for updating Ramsar Site information, and for planning and CEPA activities.
- ✦ India requested the Scientific and Technical Review Panel (STRP) to develop and include a method for using the assessment to determine medium and long-term changes.



### Resolution XIII.18: Gender and Wetlands (COP13 Doc.18.20)

- ✦ Colombia presented the draft resolution, underscoring that historically there have been multiple forms of discrimination against women, including on environmental matters. She stressed that many conventions and agreements, including the UNFCCC, CBD, and UN Convention to Combat Desertification, have gender plans, emphasizing that the issue is “a matter of justice and rights, and very important for sustainable development.”
- ✦ India requested the STRP to prepare an inventory of relevant gender tools, and congratulated women who significantly contribute to wetland conservation.

### **Resolution XIII.19: Sustainable agriculture in wetlands (COP13 Doc.18.21)**

- ✦ The Czech Republic introduced the draft resolution on agriculture in wetlands (COP13 Doc.18.21). It was noted that many wetlands have been drained for agriculture, and emphasized the need to acknowledge the connections between wetlands, agriculture, biodiversity, climate change, and extreme weather events such as floods. Many countries supported the draft resolution.
- ✦ Australia, supported by India, said text requesting the Secretariat to advise on withdrawing subsidies that endanger wetlands is too difficult to implement and would put the Secretariat in the position of criticizing practices of individual countries.



### **Resolution XIII.20: Promoting the conservation and wise use of intertidal wetlands and ecologically-associated habitats (COP13 Doc.18.22)**

- ✦ The Philippines introduced the draft resolution on conservation and wise use of intertidal wetlands and ecologically associated habitats. It was noted that it aims to strengthen international cooperation by exploring how synergies and collaboration among relevant fora can raise the profile of intertidal wetlands. It was also stressed that the activities included in the draft resolution will not place additional burdens on the core budget, emphasizing voluntary financing and use of existing resource mobilization mechanisms.
- ✦ India suggested ensuring that restoration efforts, for example for mangroves, do not ultimately convert mudflats and intertidal wetlands, which play important role as breeding and staging grounds for waterbirds.

### **Resolution XIII.21: Conservation and Management of Small Wetlands (COP13 Doc.18.23)**

- ✦ China introduced the draft resolution on conservation and management of small wetlands. It was underscored that small wetlands provide important ecosystem services, and are under extreme pressure due to climate change and human factors. It was noted that the difficulty in defining their size, and the guidelines need to be developed with guidance from the STRP and all parties.
- ✦ India along with other countries such as Lesotho for the African Group, Finland for the EU, the Dominican Republic, Jordan, Oman, Thailand, Iran, Mexico, Chile, Canada, Grenada, Colombia, the US, Bangladesh, Bahrain, Republic of Korea, Honduras, UNESCO, and FAO supported the draft resolution.
- ✦ India and Bahrain said the STRP should develop the necessary criteria.

### **Resolution XIII.24: The enhanced conservation of coastal marine turtle habitats and the designation of key areas as Ramsar Sites (COP13 Doc.18.26)**

- ✦ France and Senegal introduced the draft resolution on enhanced conservation of sea turtle breeding, feeding, and nursery areas, and the designation of key areas as Ramsar Sites.
- ✦ India underscored the need to devise new research methodologies and highlighted, with Kuwait, the need for international collaboration, noting that “sea turtles breed at one place, but travel to another.”

Picture Courtesy: V. Bhagysree

## Green Skill Development Programme (GSDP)

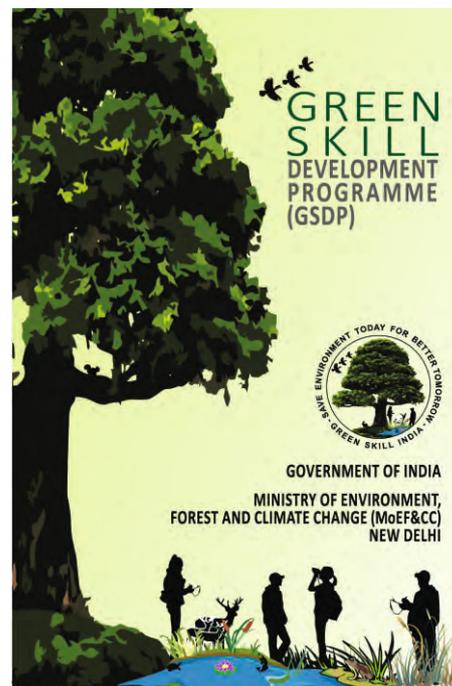
### Certificate course in “Bird Identification and Basic Ornithology”

#### Background

The Green Skill Development Programme (GSDP) of the Ministry of Environment, Forest and Climate Change (MoEF&CC) 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 entrepreneur through ENVIS Resource Partners/HUB. ENVIS Resource Partner on “Wetland Ecosystems including Inland Wetlands” hosted by Sálím Ali Centre for Ornithology and Natural History (SACON), Coimbatore was assigned the GSDP Certificate Course in “Bird Identification and Basic Ornithology”.

The MoEFCC advertised this course during May 2018 in the local News paper “Pirpagal”. SACON ENVIS received 71 on-line applications. Based on the qualification and interest in the specified field 36 applications were short-listed and the applicants were called for the interview which commenced on 28<sup>th</sup> June 2018. Among the 36 applicants, five individuals attended the interview and were selected to attend the course. Among the selected applicants, two individuals expressed their inability to attend the course due to their pre scheduled examination. The number of candidates

to be trained was ten. Hence, the course was readvertised and also promoted through Whatsapp group and email contacts to the residents around SACON, Anaikatty, Coimbatore. In response we had 11 participants from Tamil Nadu, Kerala and Lakshadweep who attended the course during 26<sup>th</sup> November to 14<sup>th</sup> December 2018.



#### Inaugural program

The Programme was inaugurated on 26<sup>th</sup> November 2018 by Dr. K. Sankar, Director, SACON. He 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 participants were provided with the kit and course material including the book “Birds of the Indian Subcontinent” by Grimmett *et al.* and binoculars. The program was also attended by SACON faculty thereby introducing the participants to different divisions of the Institute.

During the course period SACON faculty, ENVIS Staff, researches and guest faculty trained the participants covering the following topics: Bird evolution and history, Bird classification and diversity, Adaptation in birds (Bird form and functions), Plumology, Birds and their habitats, Bird behaviour, Bird diversity of India, Threatened birds of India, Bird identification, Bird Conservation, Threats to the bird, Bird tourism as a livelihood, Bird and human interaction as in culture, religious beliefs, Basics of Instrumentation like Binocular, Spotting scope, Global Positioning System (GPS) and Camera, and basics of computer skill. The proceedings of the entire course are as below:

**26<sup>th</sup> November 2018** - Dr. M. Mahendiran, Scientist, SACON trained the participants on the Avian Evolution and their history and explained about the Charles Darwin's Natural selection theory, Avian classification, Archaeopteryx and morphological features of the birds. He also took the participants on a campus tour to give them a firsthand experience of the birds commonly observed.

**27<sup>th</sup> November 2018** - Dr. Rajah Jayapal, Principal Scientist, SACON introduced the participants to the Bird classification and their diversity. Dr. Ram Pratap Singh, Senior Scientist, SACON took class on characteristics

of birds, adaptation in birds, their form and functions. He informed about the documentation of birds using genetic studies and how the bird tissue, bones or feather is used for different studies. Dr. S. Muralidharan, Senior Principal Scientist, SACON gave a brief talk on ecotoxicology and the threats faced by the birds. Ms. Kirubha Nandhini, Ph.D., Research Scholar, Ecotoxicology Division, SACON introduced the participants to the Ecotoxicology laboratory and demonstrated the dissection of birds. She also elaborated on the procedures to send the dead bird samples for autopsy to determine the cause of birds death.

**28<sup>th</sup> November 2018** - Dr. P. Jeganathan, Scientist, Nature Conservation Foundation was invited as a guest faculty. He took the participants around the SACON Campus and taught them how to identify the birds based on their characteristic features. He gave a lecture on basics of ornithology, bird distribution and diversity in India. He gave an introduction about Tamil birders meet and made the participants to register in the e-bird website. He conducted Nature games and held a Quiz where he showed an image of a bird and the participants were asked to identify them.

**29<sup>th</sup> November 2018** - Dr. P. Balasubramanian, Senior Principal Scientist, SACON took class on birds, their habitats and behaviour. The next session of the day was handled by Dr. Riddhika Ramesh, Scientist, SACON who discussed about the birds and their habitats, classification of habitat, causes of habitat loss and fragmentation, Threatened birds of India. She conducted games on identifying bird species using the book “Birds of the Indian Subcontinent” book by Grimmett *et al.* The participants were taken to “National Ornithological Databank (NOD) Cell” at SACON where Ms. Divya Priya, Ph.D., Research Scholar, SACON briefed about the objectives of NOD Cell where they collate, organize, authenticate, curate, and make key information/data on Indian Ornithology.

**30<sup>th</sup> November 2018** - Dr. Rajah Jayapal, Principal Scientist, SACON took the participants around the SACON Campus and emphasised on the skills to be used on field to observe and identify the birds. At noon, the participants started their travel to participate in the “Tamil Birder's Meet” and to field visit.

**01<sup>st</sup> and 2<sup>nd</sup> December 2018** - The GSDP participants actively participated in the annual “Tamil Birder's Meet” held at Virudhunagar District. The sessions during the meet covered the topics on birds, climate change, women and bird studies, bird call records. They also attended workshops on e-bird, photography, bird crayons sketching on 01<sup>st</sup> December 2018. The participants interacted with several birders and conservationists from various parts of Tamil Nadu.

**03<sup>rd</sup> to 5<sup>th</sup> December 2018** - The field visit to the forest, inland and coastal wetlands for bird identification commenced from 03<sup>rd</sup> to 5<sup>th</sup> December 2018. The places covered were Koonthankulam Birds Sanctuary, Udhayamarthandapuram Birds Sanctuary, Vaduvoo Birds Sanctuary, Thoothukudi harbour and Vellore Bird Sanctuary where bird watching and wetland survey was done based on the questionnaire. The participants were guided on several aspects of ornithology and wetland habitats by Dr. Goldin Quadros, Principal Scientist & SACON ENVIS Coordinator, Mr. T. Siva and Mr. S. Arulraj, Project fellows, Wetland Ecology Division. The use of GPS and mapping was also introduced on the field by Mr. N. Mohamed Ibrahim, IT Officer, SACON ENVIS RP. During the field visit Ms. Swapna Devi Ray, Junior Research Biologist, SACON introduced the bird road kill sampling for forensic and bird genomic studies.

**06<sup>th</sup> December 2018** - Dr. S. Manchi Shirish, Senior Scientist, SACON introduced the participants to “Conservation of Birds”. He described the status and conservation of the Edible-nest Swiftlet in the Andaman and Nicobar Islands. Ms. A. Julffia Begam, Information Officer, SACON ENVIS RP taught the participants about the basics of computers and Microsoft Office. In the last session of the day, Mr. T. Siva, Project Fellow, SACON took class on the general introduction to the Owls and Indian eagle-owl.

**07<sup>th</sup> December 2018** - Dr. M. Mahendiran, Scientist, SACON and Mr. N. Mohamed Ibrahim, IT Officer, SACON ENVIS RP introduced the participants to the basics of instrumentation technology and skilled them in the use of binocular, clinometers, compass, laser rangefinder, spotting scope, GPS and camera which are all

used in the field for bird identification. The afternoon session covered the Library session where the participants were introduced to use and importance of library. They were also introduced to the toposheets and its usage in the modern day GIS technology. They were also guided to finding out the bird books which are useful for bird identification.

**08<sup>th</sup> December 2018** - Ms. Swapna Devi Ray, Junior Research Biologist, SACON took lecture and practicals on Plumology and introduced the participants on the basics of feather identification and genetics and avian forensic studies. The participants prepared the bird feather slides and identified some of the characteristics under the microscope.

**09<sup>th</sup> December 2018** - Officially it was a holiday but the participants under took a self bird watching trail in SACON campus observing over 75 different birds from the different habitats around the campus.

**10<sup>th</sup> December 2018** - Dr. S. Babu, Senior Scientist, SACON gave a talk on Coastal birds and their habitat, and owl behaviour. Mr. N. Mohamed Ibrahim, IT Officer, SACON ENVIS RP in continuation to the field exposure on GPS, further skilled the participants on the Geographic Information System (GIS), GPS and its types. He explained in detail about the role of satellite signal in receiving the latitude and longitude to the GPS receiver. In the afternoon session, Dr. P. Pramod, Principal Scientist, SACON took class on Bird tourism as a livelihood. Dr. B. Hemambika, Programme Officer, SACON ENVIS RP gave a talk on Threats to Birds and the ways to protect the birds.

**11<sup>th</sup> December 2018** - Ms. A. Julffia Begam, Information Officer, SACON ENVIS RP conducted practical session on MS Word and Ms Excel. Dr. Riddhika Ramesh, Scientist, SACON gave a talk on interaction of birds and humans, birds in culture and resource. Dr. S. Babu, Senior Scientist, SACON took class on Coastal Bird diversity of India and explained about the breeding of pelagic birds.

**12<sup>th</sup> December 2018** - The participants visited the GASS Forest Museum at Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore. The participants viewed the specimens which were present in two floors – a ground floor and first floor filled with all sort of exhibits such as stuffed birds and animals, reptiles, plants, samples of the various types of tree wood, skeletons, weapons, models of houses made of wood, forest ranger uniform, and almost everything else found in a forest. The participants were given an activity i.e., to find out the list of bird specimens using the “Birds of the Indian Subcontinent” book by Grimmett *et al.* In afternoon session, Mr. T. Siva, Project Fellow, SACON taught the participants on how to use e-bird website and enter the data on the website platform. In the last session, the participants visited the Ecotoxicology laboratory and saw the instruments used for the analysis of heavy metals and pesticides in the bird tissues.

**13<sup>th</sup> December 2018** - The GSDP participants were evaluated based on the written examination, skill in identification of birds using the “Birds of the Indian Subcontinent” book by Grimmett *et al.* and PowerPoint practical viva examination. Dr. P.V. Karunakaran, Principal Scientist, SACON was invited as an examiner along with Dr. S. Manchi Shirish, Senior Scientist, SACON and Dr. Goldin Quadros, Principal Scientist & SACON ENVIS Coordinator.

**14<sup>th</sup> December 2018** - The GSDP on “Bird Identification and Basic Ornithology” was concluded with the valedictory function. The welcome Address was delivered by Dr. K. Sankar, Director, SACON. The Chief Guest of the Day was Mr. Rajesh Gopalan, IFS, Chief Conservator of Forest & Head, Extension Division, IFGTB, Coimbatore, delivered the valedictory address stating the importance of GSDP, its relevance and opportunity for availing employment or self-employment. The Chief Guest along with the Dr. K. Sankar, Director, SACON distributed the certificates to the participants skilled at Level V by the Skill Development Agency of India. The GSDP participants gave their feedback and shared their experience of the programme. The Vote of Thanks was delivered by Dr. Goldin Quadros, Principal Scientist & SACON ENVIS Coordinator, SACON, Coimbatore.

## Photo Gallery



Inaugural ceremony



Dr. Rajah Jayapal, Principal Scientist, SACON explaining about 'The bird classification and their diversity'.



Dr. Goldin Quadros, Principal Scientist, SACON interacting with the GSDP Candidates in the field



Dr. P. Jeganathan, Scientist, Nature Conservation Foundation conducting Nature Games



GSDP Candidates at the Gass Forest Museum, IFGTB, Coimbatore



Tamil Birder's Meet at Virudhunagar

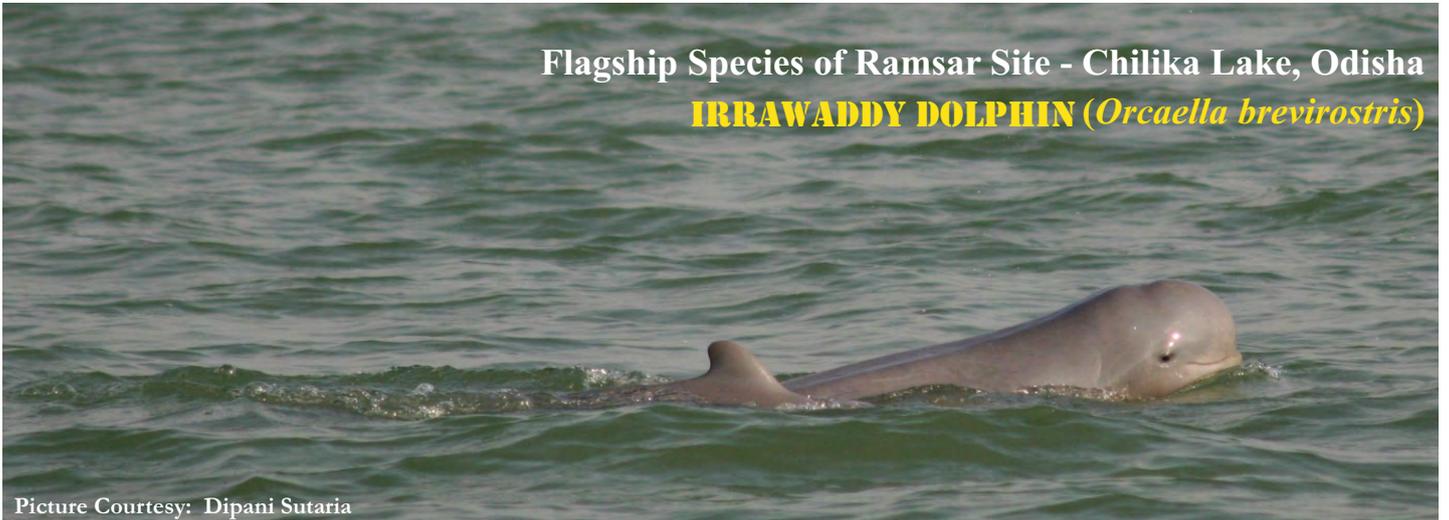


Lighting of Lamp during the Valedictory function



Certificate distribution

Flagship Species of Ramsar Site - Chilika Lake, Odisha  
**IRRAWADDY DOLPHIN (*Orcaella brevirostris*)**



Picture Courtesy: Dipani Sutaria

Kingdom: **Animalia**                      Phylum: **Chordata**                      Class: **Mammalia**

Order: **Cetartiodactyla**                      Family: **Delphinidae**                      Genus: **Orcaella**

**Conservation Status:** Endangered (IUCN Red List Category and Criteria)

The Chilika Lake is the largest brackish water lagoon in India and the second largest lagoon in the world. It is spread across the Puri, Khurda and Ganjam districts of Odisha state on the east coast of India. Chilika Lake was designated as the wetland of international importance under the Ramsar Convention on 1<sup>st</sup> October 1981, the first from India. Chilika Lake is home to the only known population of Irrawaddy dolphins in India (Sutaria, 2007) and one of only two lagoons in the world that are home to this species (the other being the Songkhla Lagoon in Thailand) (Ghosh and Pattnaik, 2005). The Irrawaddy dolphin (*Orcaella brevirostris*) is the flagship species of Chilika Lake.

The species gets its common name from the Irrawaddy River in Myanmar. Its range extends from the Bay of Bengal to New Guinea and the Philippines. Besides the Irrawaddy River, it is also found in India's Ganges, and Southeast Asia's Mekong River. Though, it is not a true river dolphin it prefers to live in estuaries and brackish water near coasts (Source: conservationindia). In Chilika, they can be seen solitary, in pairs or as small groups of 4-6 individuals. They are fairly slow swimmers. They usually feed on cephalopods, fish, crustaceans and fish eggs. The breeding season is between December and June. Lifespan is about 30 years.

According to downtoearth report, Odisha's recent annual census of dolphins was carried out by the State Forest and Environment Department on 19<sup>th</sup> January 2019 and the census report was released on 14<sup>th</sup> February 2019. Mr. Pradipta Kumar Sahoo, the Deputy Conservator of Forests (Wildlife Management), Odisha stated that as per the census on 19<sup>th</sup> January, 2019 there were 113 Irrawaddy dolphins sighted in Chilika (Source: downtoearth).

**References:**

Ghosh, A.K. and Pattnaik, A.K. (2005) Chilika Lagoon: Experience and Lessons Learned Brief. Prepared for the GEF Lake Basin Management Initiative, <http://www.Worldlakes.org>

Sutaria, D. (2007) "Irrawaddy dolphin - India". *Whale and Dolphin Conservation Society*. [http://www.wdcs.org/submissions\\_bin/consprojectirr.pdf](http://www.wdcs.org/submissions_bin/consprojectirr.pdf). Retrieved 2008-12-25.

**Internet Source:**

<http://www.conservationindia.org/gallery/irrawaddy-dolphin>, accessed on 19/02/2019.

<https://www.downtoearth.org.in/news/wildlife-biodiversity/dolphin-numbers-have-shrunk-in-odisha-reveals-census-63244>, accessed on 19/02/2019

<https://www.iucnredlist.org/species/15419/123790805#population>, accessed on 19/02/2019.

## Research Publications of the Flagship Species of Chilika Lake:

- Bahl, R., Ura, T., Sugimatsu, H., Inoue, T., Sakamaki, T., Kojima, J., Akamatsu, T., Takahashi, H., Behera, S.K., Pattnaik, A.K., Khanet, M. and Kar, S.K. (2007) Acoustic survey of Irrawaddy dolphin populations in Chilika Lagoon: First test of a compact high-resolution device. *Proceedings of the OCEANS 2006 - Asia Pacific Conference, Singapore: Marine Technology Society* pp. 1-6.
- Bressem, M.V., Minton, G., Sutaria, D., Kelkar, N., Peter, C., Zulkarnaen, M., Mansur, R.M., Porter, L., Vargas, L.H.R. and Rajamani, L. (2014) Cutaneous nodules in Irrawaddy dolphins: An emerging disease in vulnerable populations. *Diseases of Aquatic Organisms* 107(3): 181-189.
- D'Lima, C., Marsh, H., Hamann, M., Sinha, A. and Arthur, R. (2014) Positive interactions between Irrawaddy dolphins and artisanal fishers in the Chilika Lagoon of Eastern India are driven by ecology, socioeconomics, and culture. *AMBIO* 43(5): 614-624.
- Dhandapani, P. (1992) Status of Irrawaddy river dolphin, *Orcaella brevirostris*, in Chilka Lake. *Journal of the Marine Biological Association of India* 34:90-93.
- Dhandapani, P. (1997) The conservation of the potentially endangered Irrawaddy River dolphin *Orcaella brevirostris* in Chilka Lagoon, Orissa, India. *Journal of the Bombay Natural History Society* 94: 536-539.
- D'Lima, D.F. Coralie (2014) Striking a balance between fishing, tourism and dolphin conservation at Chilika Lagoon, India. *PhD thesis*, James Cook University. pp. 150.
- Ingale, C.B. and Lokhande, S.S. (2015) Habitat impact on echo-location characteristics of Irrawaddy dolphins from Chilika Lake and Sunderbans. *International Journal of Science and Research* 4: 2249–2252.
- Jayasankar, P., Patel, A., Khan, M., Das, P. and Panda, S. (2011) Mitochondrial DNA diversity and PCR-based sex determination of Irrawaddy dolphin (*Orcaella brevirostris*) from Chilika Lagoon, India. *Molecular Biology Reports* 38(3): 1661-1668.
- Kannan, K., Ramu, K., Kajiwara, N., Sinha, R.K. and Tanabe, S. (2005) Organochlorine pesticides, polychlorinated biphenyls, and polybrominated diphenyl ethers in Irrawaddy dolphins from India. *Archives of Environmental Contamination and Toxicology* 49: 415-420.
- Khan, M., Panda, S., Pattnaik, A.K., Guru, B.C., Kar, C., Subudhi, M. and Samal, R. (2011) Shark Attacks on Irrawaddy Dolphin in Chilika Lagoon, India. *Journal of the Marine Biological Association of India* 53(1): 27-34.
- Pattnaik, A.K., Sutaria, D., Khan, M. and Behera, B.P. (2007) Review of the status and conservation of Irrawaddy dolphin *Orcaella brevirostris* in Chilika lagoon of India. In: B.D. Smith, R.H. Shore and A. Lopez (Eds.) *Status and Conservation of Freshwater Populations of Irrawaddy Dolphin*, Wildlife Conservation Society, Bronx, New York. *Working Paper Series* 31: 41-51.
- Raheman, M.I.B.A. and Nalbalwar, S.L. (2015) Detection and analysis of Irrawaddy Dolphin signals. *International Journal of Emerging Technology and Advanced Engineering* 5(7): 228-230.
- Sahu, H.K., Kar, S.K. and Pattnaik, S.K. (1998) Study on some aspects of Irrawaddy River dolphin *Orcaella brevirostris* gray in Chilika Lake, Orissa. *The Indian Forester* 124(10): 803-809.
- Sinha, R.K. (2004) The Irrawaddy dolphins *Orcaella brevirostris* of Chilika Lagoon, India. *Journal of the Bombay Natural History Society* 101(2): 244-251.
- Sutaria, D. and Marsh, H. (2011) Abundance estimates of Irrawaddy dolphins in Chilika Lagoon, India, using photo-identification based mark-recapture methods. *Marine Mammal Science* 27(4): 338-348.
- Sutaria, D. (2009) Species conservation in a complex socio-ecological system: Irrawaddy dolphins, *Orcaella brevirostris* in Chilika Lagoon, India. *PhD thesis*, James Cook University. pp. 275.

**Hidden myristica swamps discovered near Goa border Times of India - September 05, 2018**

**KERI:** A patch of unique vegetation of myristica swamp in an extensive four acre area has been found in a community conserved area of Hevale in neighbouring Dodamard taluka of Maharashtra.

In Goa, the myristica swamp has been discovered in many places at Brahmakarmali and Maloli in Sattari taluka, Netravali and Bhati in Sanguem and Cotigao in Canacona taluka.

While the type of vegetation differs in some patches with the species found in Goa, this highly-endangered ecosystem indicates that thousands of years ago, Konkan had a longer period of rain from the southwest and northeast monsoons and was home to a luxuriant tropical wet evergreen forest.

It was the villagers of Hevale who helped reserachers to the forested patch. The researchers, Gayatri Sreedharan of Thrissur, Kerala, and Malhar Indulkar of Chiplun, Maharashtra, with the help of local villagers, brought to light the myristica swamp vegetation in the sacred grove of Kanalachi Rai amidst agriculture and rubber plantation. Myristica swamps having members of Myristicaceae, a primitive family of flowering plants, are associated with rainforests of Asia, Africa, Madagascar and South America.

Narayan Desai from Havale says, “Through generations, we have protected this swamp vegetation inside the sacred grove. Once in a year, we fell only one tree for the Holi festival from this grove whereas other elements of biodiversity have been offered protection. We never eat non-vegetarian foods or drink alcohol inside the grove.”

Speaking to TOI, Indulkar said, “We have identified the tree species as *Myristica fatua*, *Gymnacranthera canarica* and *Holigarna arnottiana*. The grove also offers refuge to a wide range of wildlife like crabs, tortoises, fishes, birds, mammals and insects.”

Shivram Naik, a local resident, said, “A perennial spring emerges out of the grove. It supports our autumn agriculture and also provides drinking water throughout the year.”

**Source:** <https://timesofindia.indiatimes.com/city/goa/hidden-myristica-swamps-discovered-near-goa-border/articleshow/65677770.cms>

**The squawks get louder****The Hindu - November 09, 2018****In an October count, 101 bird species were identified at the Pallikaranai Marsh**

The Pallikaranai marsh, which includes the Perumbakkam wetland, is home to two striking ducks — the spot-billed duck and the fulvous whistling duck. At the first scent of rain in October, four migratory ducks will start waddling in. They have already arrived. The roll call: northern shoveller, northern pintail, gargeny and common teal.

K.V.R.K. Thirunaranan, founder of The Nature Trust, which studies the birds of Pallikaranai, says that in October this year, 101 species of birds have been accounted for. “With the migratory season picking up momentum, there will be more arrivals in the weeks to come. At the Pallikaranai marsh, 167 bird species, which include resident, migratory and woodland birds, have been identified over the years. This year, pied avocet and black-tailed godwit and ruff, which are waders, have already arrived,” he says.

Thirunaranan points out there is a huge presence of raptors, which according to him, illustrates the health of the marsh.

“There are Western Marsh Harrier, Greater-spotted Eagle, Indian-spotted Eagle, Booted Eagle, Osprey and Black Kite,” says Thirunaranan.

**Source:** <https://www.thehindu.com/todays-paper/tp-features/tp-downtown/the-squawks-get-louder/article25449405.ece>