



Hornbill Nest Adoption Program

Annual Report 2019

Nine years of the Hornbill Nest Adoption Program

The Hornbill Nest Adoption Program (HNAP) is a community-based conservation initiative, through which local villagers protect hornbill nest trees near villages outside Pakke Tiger Reserve, Arunachal Pradesh. Funds raised from urban donors and zoos who 'adopt' hornbill nests are used to employ local villagers (called Nest Protectors).

This year's hornbill breeding season began in early March and ended in early August. We currently have 11 Nest Protectors from 6 villages, who protect 37 hornbill nests. In the 2019 season, we monitored 30 of the nests in

Papum RF with 22 active nests (one Wreathed hornbill nest was a new nest).

20 chicks fledged this year.

Hornbills are monogamous birds and pairs generally mate for life. During the breeding season (usually March - August), they nest in cavities in big trees, which are formed naturally when branches break off or when large woodpeckers make holes. After mating, the pair searches for a suitable nest cavity. The female then enters, lays eggs and seals herself inside for about 4 months, leaving only a small slit open through which the male



Prem Tok found this new Wreathed hornbill nest and got some lovely pictures of the chick coming out.

provides food to the female and later also to the growing chick. This is a huge parental investment. The larger hornbills raise only one chick in a year, while the smaller Oriental Pied Hornbills sometimes raise two chicks.

While hornbills are known to use the same nest cavity year after year, not all nests are 'active' (occupied/used) every year. Table 1 provides a detailed summary of 22 active

nests which were monitored by the Nest Protectors this year. One GH was abandoned or failed mid-way and one OPH nest that was taken over by a WH and where nesting was delayed also failed. The outcome at 4 active nests could not be determined. 16 nests had successful chick fledging with 2 OPH nests seen with 2 chicks and very unusually, **one GH nest also produced 2 chicks!**

Apart from monitoring and protecting hornbill nests, several of our 11 nest protectors from the villages around Pakke TR also assist with the restoration work and nature education camps. In the non-breeding season in winter, they also count hornbills at roost sites and walk transects to count hornbills and other wildlife in the Reserved Forest.



*Left : **Budhiram Tai** Photo: Aparajita Datta; Right: **Taring Tachang** Photo: Saniya Chaplod*



*Left : **Tajik Tachang**; Right: **Prem Tok** both Photos: Saniya Chaplod*

Table 1: Outcomes at active nests in the Papum RF

S.No	Nest ID	Species	Nest protectors	Entry date	Chick exit date	Outcome	No. of chick/s	Total nesting duration
1	GHG1	GH	Vijay Tachang, Nikje Tayem	06-Mar-19	-	Abandoned	0	-
2.	GHJ4	GH	Naga Kino, Tajik Tachang	NA	NA	Success	1	NA
3.	GHL1	GH	Sako Waru	18-Mar-19	21-Jul-19	Success	1	125
4.	GHA/M1	GH	Vijay, Nikje	05-Mar-19	16-Jul-19	Success	1	133
5.	GHJ3	GH	Kaja Keyang	28-Feb-19	13-Jul-19	Success	2	135
6.	WH/GHB1	GH	Taring Tachang	23-Mar-19	02-Aug-19	Success	1	132
7.	WHA/M9 (New)	WH	Prem Tok	07-Mar-19	24-Jul-19	Success	1	139
8.	WHD3	WH	Budhiram Tai	20-Mar-19	18-Jul-19	Success	1	120
9.	OPH/WHJ8	WH	Kaja Keyang	10-Apr-19	-	Abandoned	0	-
10.	OPHUS1	OPH	Rikum Gyadi	15-Apr-19	15-Jul-19	Success	1	91
11.	OPHUS2	OPH	Rikum Gyadi	14-Apr-19	NA	Success	2	NA
12.	OPHA/M2	OPH	Vijay Tachang, Nikje Tayem	13-Apr-19	NA	Success	1	NA
13.	OPHA/M3	OPH	Vijay Tachang, Nikje Tayem	17-Apr-19	16-Jul-19	Success	2	90
14.	OPHJ6	OPH	Naga Kino, Tajik Tachang	10-Apr-19	06-Jul-19	Success	not sure	87
15.	OPHA/M5	OPH	Prem Tok	12-Apr-19	12-Jul-19	Success	1	91
16.	OPHA/M6	OPH	Prem Tok	12-Apr-19	11-Jul-19	Success	1	90
17.	OPHA/M7	OPH	Prem Tok	08-May-19	15-Jul-19	Success	not sure	68
18.	OPHA/M8	OPH	Vijay Tachang, Nikje Tayem	12-Apr-19	10-Jul-19	Success	1	89
19.	*OPHM6	OPH	Tajik Tachang	Active	-	-	-	-
20.	*OPHM7	OPH	Tajik Tachang	Active	-	-	-	-
21.	*OPHMa1	OPH	Tajik Tachang	Active	-	-	-	-
22.	*GHM1	GH	Tajik Tachang	Active	-	-	-	-

* These nests were seen to be active early in the season but could not be monitored later to determine success

A summary of the nine years

In 2011, after discussions with the Ghora-Aabhe Society and the Forest Department (PTR authorities), the idea of the HNAP was conceived. In that year, 3 of the village headmen (Gaonburras) agreed to initially locate and find some hornbill nest trees as a starting point for the program.

They located 9 nest trees and we all decided that the idea would work and we would begin a program to find, monitor and protect hornbill nest trees and their habitat in the fringe forest areas near the villages adjoining Pakke Tiger Reserve (in the Papum Reserved Forest).

The Hornbill Nest Adoption Program was formally launched in November 2011 as a three-way partnership between Nature Conservation Foundation (Mysore), Arunachal Pradesh Forest Department (Pakke Tiger Reserve authority) and the Ghora-Aabhe Society (a local NGO).

The actual field program started from January 2012 when 10 nest protectors were selected from different villages and employed to find, monitor and protect hornbill nests in the fringe forest areas outside Pakke Tiger Reserve.

Since 2018, a fourth partner has been included - the Executive Committee of the Pakke Paga Hornbill Festival, comprising community leaders.

This nine-year program has seen various ups-and downs and changes and turnover in both the staff and field nest protectors.

However, our team have continued to carry out the main work each year with much sincerity and dedication. There have been drawbacks in the support system for protection and enforcement which need to be evaluated, strengthened and modified in the coming year.

A mechanism is needed to ensure that disturbances (instances of hunting or the more problematic illegal logging) observed and reported by the field nest protectors are followed up on by the concerned authorities.

Running this program continuously for nine years has also been possible due to the support of around 211 individual citizen donors and in more recent years - the support of several international zoos in Europe and the USA. The PTR management (APFD) have also provided funding on some occasions when needed.

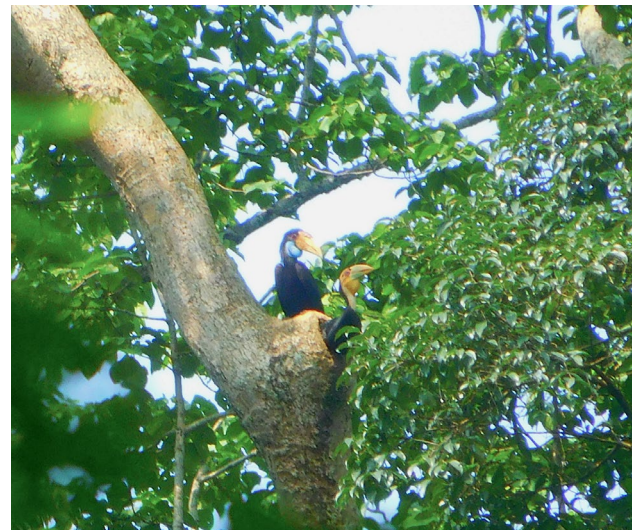
There have also been several donors/well-wishers who have helped in other ways by making a film about the program or writing articles, donating paintings for an art exhibition and by telling others about the program and recruiting more donors.

Total number of chicks produced from 2012 to 2019: 138 hornbill chicks

Great hornbill chicks: **34**

Wreathed hornbill chicks: **17**

Oriental Pied hornbill chicks: **8**



Photos of the chick pictures: Taring Tachang, Budhiram Tai, Prem Tok and Vijay Tachang

Summary of HNAP: 2012-2019

Year	No. of nest protectors	No. of total nests monitored	No. of active nests	No. of chicks fledged	Donors in that year
2011	Program was launched in Nov 2011				
2012- 2013	10	22	17	11	102
2013-2014	13	21	13	11	57
2014-2015	11	23	19	17	44
2015-2016	17	33	22	20	48
2016-2017	17	37	22	22	28
2017-2018	13	37	25	20	44
2018-2019	11	37	19	17	33
*Apr 2019 - Sep 2019	11	30	22	19	13

*Seven nests could not be monitored.

Species-wise hornbill nests and nesting success

2012	Total nests	Active nests	Successful nests	Chick fledged
Great hornbill	10	9	7	7
Oriental Pied hornbill	7	5	3	3
Wreathed hornbill	5	3	1	1
Total	22	17	11	11

2013	Total nests	Active nests	Successful nests	Chick fledged
Great hornbill	8	5	4	4
Oriental Pied hornbill	10	6	6	6
Wreathed hornbill	3	1	1	1
Total	21	13	11	11

One GH and 2 RNH nests were also located in 2013 in the Dissing-Passo circle area which was not a part of the active HNAP program. One RNH nest was inactive, but the two active GH and RNH nests were not successful.

2014	Total nests	Active nests	Successful nests	Chick fledged
Great hornbill	9	7	6	6
Oriental Pied hornbill	10	9	8	8
Wreathed hornbill	4	3	3	3
Total	23	19	17	17

2015	Total nests	Active nests	Successful nests	Chick fledged
Great hornbill	9	3	3	3
Oriental Pied hornbill	18	15	13	13
Wreathed hornbill	6	4	4	4
Total	33	22	20	20

2016	Total nests	Active nests	Successful nests	Chick fledged
Great hornbill	10	5	2	3
Oriental Pied hornbill	20	14	13	16
Wreathed hornbill	7	3	3	3
Total	37	22	18	22

2017	Total nests	Active nests	Successful nests	Chick fledged
Great hornbill	8	4	2	2
Oriental Pied hornbill	22	17	15	17
Wreathed hornbill	7	4	1	1
Total	37	25	18	20

For 2 OPH & 1 GH nests, final success was not known.

2018	Total nests	Active nests	Successful nests	Chicks fledged
Great hornbill	8	3	2	2
Oriental Pied hornbill	22	14	12	13
Wreathed hornbill	7	2	2	2
Total	37	19	16	17

2019	Total nests	Active nests	Successful nests	Chicks fledged
*Great hornbill	8	7	5	6
**Oriental Pied hornbill	16	12	9	11
Wreathed hornbill	6	3	2	2
Total	30	22	16	19

**One of 7 active nests failed in 2019, but one nest produced two chicks which is unusual as they normally produce 1 chick per nest. Success could not be determined at one nest as the nest was not monitored regularly.*

***For two OPH nests, the exact number of chicks were not known, but assumed to be one each. Two other OPH nests had 2 chicks each. For 3 other active nests, the success could not be determined as these nests were not monitored regularly.*

Nest trees: total number, loss and turnover

Since the program began, we have documented and found 47 nest trees in the RF. In the 1st year of the program in 2012, 5 nest trees were due to human disturbance (3 due to fire and 2 trees cut), since then no nest trees have been lost directly due to felling or fire.

However, due to illegal logging in the last few years, the forest in the area is becoming heavily degraded in patches. The number of hornbill nest trees used by each species keeps changing also because some trees fall and are lost naturally. We have lost 4 trees due to tree

fall between 2015-2019. So totally nine nest trees have been lost in the last nine years from 2012 to 2019.

Totally we now have 38 nest trees. Four other nest trees although still standing have not been used or active as the nest tree or cavities are not suitable for use any more.

In addition, due to competition for nest trees, sometimes nests that are used by one species can get taken over by another species. All nest trees are also not active every year for various reasons.

Interspecific competition and nest takeovers

Given the shortage of large tall trees with suitable cavities in the RF now, there are several instances of fights and attempted nest takeovers seen between hornbill species. In some years, when there are fights between different species pairs, the nest remains inactive that year and no one uses the nest

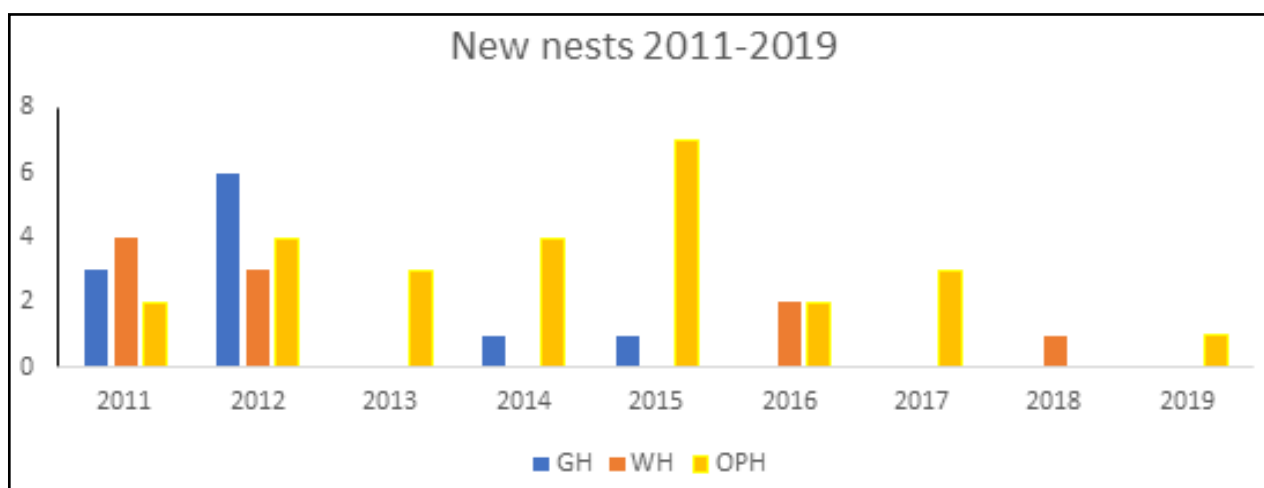
and the pairs do not breed.

Nest takeovers have been observed at 5 nests where one species took over the nest from another species pair. The details of these takeovers are given in the table below:

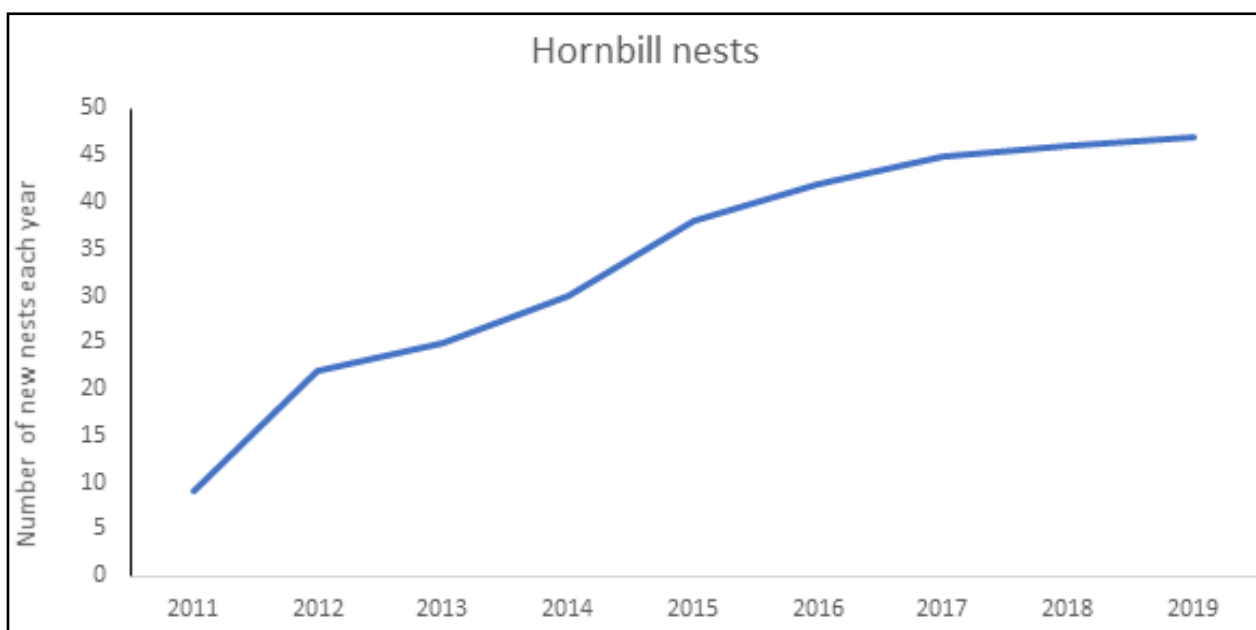
Location	Nest ID	First owner	2nd/3rd/4th owner	Year of takeover
Darlong	WH/GH	WH	GH	2012
Balibasti	WH/OPHB1	WH	OPH/WH/GH	2012; 2014; 2018
Goloso-Lanka Pahad	GHL1	GH	WH	2015
Laming	GHJ2	GH	WH	2017
Tamoso nala	OPHJ8	OPH	WH	2019

Number of new nest trees found

The graph below shows the number of new nests of each hornbill species located every year. As can be seen, the number of new nests found of the smaller more adaptable secondary forest species - the Oriental Pied hornbill has increased, while there are fewer new nests of the larger two species found in the Reserved Forests which are degraded with fewer large trees suitable for nesting.



This graph shows the cumulative number of nests found each with more being found initially and very few new ones being found in the last few years.



Individual citizen donors from 2012-2019: 211

Zoo Donors

1. Greater Vancouver Zoo, Canada
2. Rotterdam Zoo, Netherlands
3. Attica Zoological Zoo, Athens, Greece
4. Atlanta Zoo, USA
5. Amiens Zoo, France
6. Zoo Lagos, Portugal
7. Nashville Zoo, USA
8. Planckendael Zoo
9. Berlin Zoo, Germany
10. Faruk Yalcin Zoo, Turkey
11. AZA Park, USA
12. Feira Viva, Cultura e Desporto E.M. Portugal, Portugal
13. Warsaw Zoo and the Panda Foundation, Poland
14. Dallas Zoo, USA

The Pakke Tiger Reserve authority (Arunachal Pradesh Forest Department) provided partial salary support of nest protectors from April to August 2015: Rs. 365,000.

The Pakke Tiger Reserve authority also paid for the salaries of nest protectors in January and February 2018: Rs. 150,000.

Nesting overview in Pakke Tiger Reserve

We learn many things each year from our long-term monitoring of hornbill nests. This year again most of the hornbills nested early. But nesting failed for 5 Great hornbill nests in the park, mid-way through the season. So many nests have never failed in a year like this before. The timing of nesting is changing along with fruit availability patterns and we wonder if that is now affecting nesting success.

In 2017, when they had all nested very early, it had not affected nesting success or nesting duration, but this year, it seems to have affected the Great hornbills. Now, hornbills have to contend with possible climate change effects on breeding apart from the other

threats they face.

But one Great hornbill nest which we have followed since 1998 (it was a Wreathed hornbill nest initially) - produced 2 chicks this year. We had never seen that before. Usually Great hornbills produce one chick that fledges. They lay two eggs, but the second one usually does not survive.

Tali Nabam and Khem Thapa our field staff were thrilled and documented it - the 1st chick emerged on 3rd July and the second one, came out on 16th July. Even in the RF this year, one Great hornbill nest produced two chicks. Tali Nabam got some great videos of the 1st chick emerging and of the 2 chicks inside. Below are some screenshots from the video showing the 1st chick emerging.

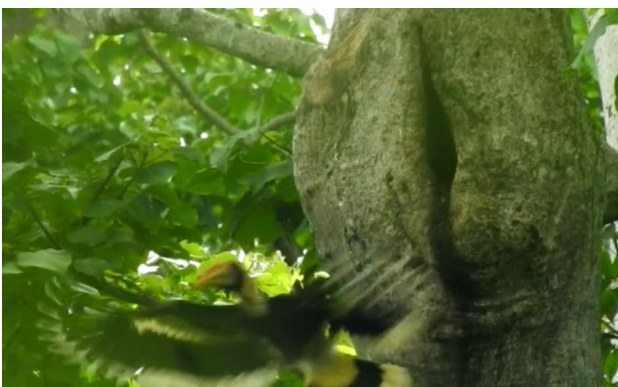
Table 2 is an overall summary of nests in Pakke Tiger Reserve (Arunachal Pradesh), some of which we have been monitoring since 1997.

Hornbill species	Total nests monitored	Active nests	Successful nests	Failed nests	Not known	No of chicks
Great hornbill	15	12	6	5	1	7
Wreathed hornbill	13	9	8	0	1	8
Oriental Pied hornbill	12	6	6	0	0	6
Total	40	27	20	5	2	21



Left : Pakke field team; Right: Wreathed hornbill female Photo: Rohit Naniwadekar

Photos of hornbill chicks from Pakke Tiger Reserve



Wreathed hornbill chick: Rohit Naniwadekar

Great hornbill chick sequence: Tali Nabam

Other updates

We also bring you updates on the status of nests inside Pakke Tiger Reserve (monitored by our field staff), and from a few other places where we are trying to replicate the HNAP - Dihing-Patkai landscape in eastern Assam, Buxa Tiger Reserve in North Bengal and some of our other activities in and around Pakke Tiger Reserve.

In Dihing-Patkai Wildlife Sanctuary (Assam), we monitored 9 Brown Hornbill Nests,

In Buxa Tiger Reserve (West Bengal) where we have 18 known nests, 12 were active - 5 Great Hornbill, 2 Wreathed Hornbill, 2 Oriental Pied Hornbill and 3 Rufous-Necked Hornbill nests. Our work in Assam and West Bengal is funded by the Whitley-Segré Conservation Fund and the Stop the Poaching Fund.

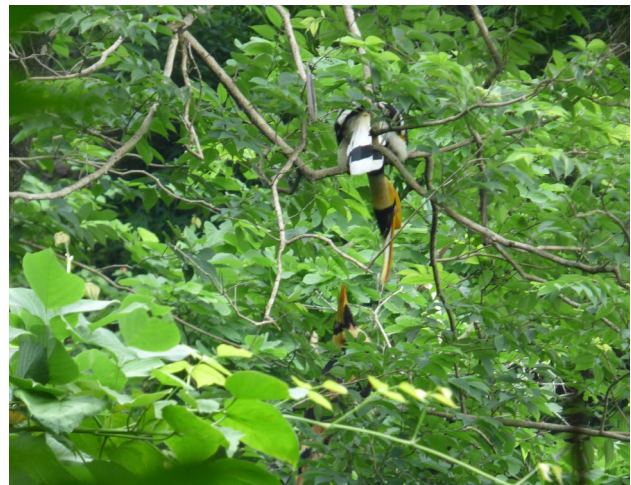
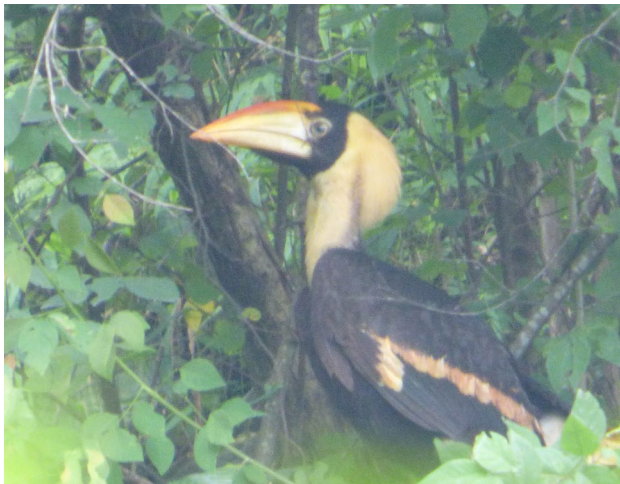


Field team in Buxa Tiger Reserve



Rufous necked hornbill female. Photo: Aparajita Datta

Expansion of HNAP: Buxa TR, North Bengal



Left: Chick after emergence; right: Female Great hornbill feeding the chick in the canopy after it came out of the nest.

Photos: Karishma Pradhan

In 2019, the team identified a total of 18 nests - 5 Great Hornbill, 2 Wreathed Hornbill, 6 Rufous-necked Hornbill and 5 Oriental Pied Hornbill. At the onset of the breeding season, regular visits were made to known nest trees to observe hornbill visits, cleaning, sealing, etc. to understand the status of each nest. For two Great hornbill nests and two Rufous-necked hornbill nests once the female entered and sealed herself, the next phase of nest watch commenced. For the remaining active nests, weekly monitoring continued to monitor the status of the nest and identify any potential threats and disturbances at the nests.

Outcomes at active hornbill nests in Buxa TR

Since the chick fledging also coincides with peak monsoon in the region, some of the nests were inaccessible and could not be monitored till the end. The outcome of these nests is not known. One Oriental Pied hornbill nest and one Rufous-necked hornbill nest are suspected to have been poached. The other OPH nest could have either been poached or a case of natural predation.

We also observed inter-specific competition in one of the RNH nest. A pair of Great hornbill was observed visiting the nest tree from the 7th week of female entry onwards. Both the male and female GH were observed visiting the cavity on many occasions and disturbing the breeding RNH female. The seal for this nest was found partly open 101 days after female entry with no sign of any of the parent of chick hornbill around the nest tree.

Sr. No	Species	No. of active nests	Successful chick fledging	Unsuccessful chick fledging	Unsure of outcome
1	Great hornbill	5	3	0	2
2	Oriental Pied hornbill	2	0	2	NA
3	Rufous-necked hornbill	3	1	1	1
4	Wreathed hornbill	2	0	1	1
Total	12	4	4	4	

A summary of the outcome of the active nests in 2019 indicating fledging success of each nest



A Rufous-necked hornbill chick peeping out of the nest cavity during rains in August just before it emerged.

Photos: Sitaram Maha



GH male at RNH nest with RNH female inside cavity



At one nest, the female Wreathed hornbill died as its foot got stuck in the cavity while trying to emerge out of the nest. Our staff notified the FD staff and accompanied by some expert climbers - they retrieved the female but it had already died. There was no sign of the chick. The male was hanging around near the nest tree and was unable to feed the chick. Photos: Sitaram Mahato



Meeting with the North Bengal Forest Department officials

On September 13th, Nature Mates, Kolkata and Nature Conservation Foundation (NCF), Mysore jointly organized a meeting at the Sukna Nature Interpretation Centre, Mahananda Wildlife Sanctuary (MWLS).

The meeting was attended by Mr Ujjal Ghosh, IFS, Chief Conservator of Forest (CCF), North Bengal (Wildlife) along with DFOs, ADFOs, Range Officers and other Forest Department officials representing different Protected Areas of north Bengal. Some community members from fringe villages of MWLS who are actively engaged in tourism activities were also a part of this meeting.

Some of the main objectives of the meeting were to:

- Present the research findings of research project titled "Study of hornbills in the forests of Himalayan foothills of West Bengal with emphasis on their foraging habit, mate selection and breeding preferences".

- Discuss the key ecological results and threats documented for the species and highlight the importance of this landscape for 4 species of forest hornbills.
- Discuss the key actions and possible plan to ensure the long-term monitoring and protection of hornbills in this landscape.

The meeting included power-point presentations by Dr. Aparajita Datta, Senior Scientist, NCF, who largely presented about hornbills found in the north Bengal landscape, ongoing conservation efforts towards protecting hornbills and their habitat in north-eastern states of India and threats to hornbills at the global and national level. Dr. Rohit Naniwadekar Scientist, NCF, then presented findings of hornbill surveys that were conducted in Buxa Tiger Reserve, Mahananda Wildlife Sanctuary and Neora Valley National Park wherein he compared vegetation and hornbill densities/encounter rates with sites in Arunachal Pradesh and highlighted the importance of the landscape for hornbill conservation.



This was followed by a brief overview of the breeding biology and monitoring of roosting sites at Buxa Tiger Reserve by Karishma Pradhan, Project Co-ordinator, NCF. Anmol Rai, a young community member from Latpanchar also gave a brief presentation about how the local communities are involved in biodiversity documentation and conservation in and around Latpanchar.

Some of the key discussions of the meeting included the need to strengthen protection

and vigilance against hornbill poaching especially during the breeding period. The Forest Department expressed their interest in training some of the frontline staff in locating hornbill nests and protecting them simultaneously while carrying out their patrolling duties. There were also some discussions regarding the need to promote ethical tourism activities in the fringes of PAs, by strengthening partnerships between the Forest Department and local communities of these biodiversity rich areas.



Expansion of HNAP: Upper Siang



We carried out preliminary surveys to study extend of occurrence of the Rufous-necked hornbill (RNH) in Upper Siang district of Arunachal Pradesh, India. A total 28 trails were walked (total length: 128.91 km) for 97.8 hrs. with only single sighting of the species. Secondary data on past (20 years ago) and current occurrence of the species was collected using interview surveys of the key informants from 20 villages. This data was used in occupancy-based framework. The entire area was divided into 49 grids, each of 7x7 km (49 sq. km) and presence reports of the birds in each grid in the past and present time periods were noted. The interview surveys revealed a decrease in bird population. The species is being hunted

for subsistence purpose (meat) only. The hunting techniques have also changed over time. Now people prefer guns instead of traditional methods (traps, bow and arrow). To generate awareness, meetings with the Kebang (village councils) and at school were conducted in every sampled village. Hornbill information materials such as posters, handbook, booklets and pocket field guides were distributed. Documentaries related to hornbill breeding were also screened during such meetings to provide information regarding the species. The findings of the same study were presented at an International conference, 'ATBC, 56th annual meeting' held at Antananarivo, Madagascar in July 2019.

Expansion of HNAP: Dehing-Patkai WLS

Nesting duration and outcomes in 2019

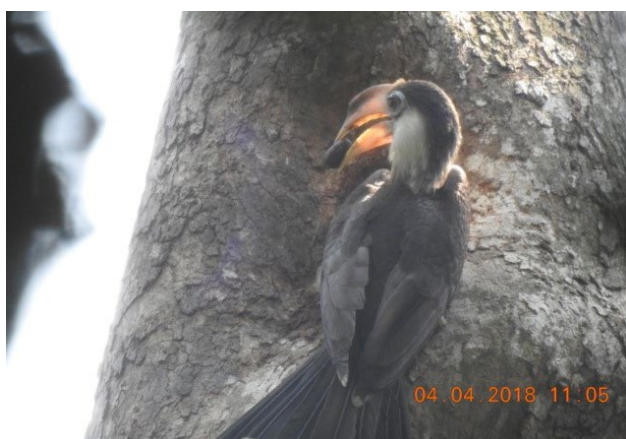
In 2019, the first date of nest entry recorded was on 18th March for BH-1 nest and ended on 17th July with the BH-7 nest. Out of the nine known Brown hornbill nests, 7 were active this year and we recorded exact nest entry and exit dates for 6 nests of the Brown hornbill (see table). Nine successful fledgling were recorded from 7 nests and in three of the nests, the female was seen emerging first followed by the chick/chicks. In two of the nests (BH-1 and BH-6), 2 fledglings were seen emerging out of the nests, while in the remaining four nests, one chick was seen

leaving the nest. The mean length of the nesting cycle was 95 days.

Two of the nests (BH-3 and BH-5) remained unoccupied in 2019, in BH-3 we observed nest- cleaning and regurgitated seeds below nest trees in March and early April. In BH-5 nest, there was no sign of activity at the nest. We also recorded the nesting length of one Oriental Pied hornbill nest in Jeypore Reserve Forest. We found the nesting duration to be 96 days, and based on our monitoring visits at least 1 chick had successfully fledged from the nest.



Left: A sub-adult female with a newly hatched chick, right: a newly hatched chick. Photos: Bhaskar Bora



Nesting duration and nesting success of 9 Brown, 1 Oriental Pied hornbill nests

Year	Location	Nest ID	Entry Date	Exit Date	Nesting Duration	Fledging
2019	Namsang-Sopa	BH-1	18-Mar-19	22-Jun-19	96	2
2019	Notun Ali-Saam	BH-2	25-Mar-19	25-Jun-19	92	1
2019	Gulmari	BH-3	Inactive	na	na	na
2019	Noutun Ali-Jutuli	BH-4	28-Mar-19	30-Jun-19	94	1
2019	Central Road	BH-5	Inactive	na	na	na
2019	Soraipung	BH-6	03-Apr-19	09-Jul-19	97	2
2019	Namsang-Gunsoroï	BH-7	14-Apr-19	17-Jul-19	94	1
2019	Namsang-Jutuli	BH-8	NA	26-Jun-19		1
2019	Digboi-Nazirating	BH-9	05-Apr-19	10-Jul-19	96	1
2019	Nogaghat	OPH-1	08-Apr-19	13-Jul-19	96	1



A male bringing different food items to the nest. From left, a cicada, beetle, a fruit of *Aglaia spectabilis*, and a drupe belonging to Lauraceae family. Photos: Bhaskar Bora

Forest Restoration and Rainforest Nursery

The rainforest restoration project was initiated in 2014 with an aim to restore degraded patches of forest in and around Pakke Tiger Reserve (PTR), Arunachal Pradesh. Since then we have grown about 70 species of rainforest trees at our nursery. The planting activities began in PTR and some parts of Assam from 2016.

All the planted sites are being maintained and monitored at regular intervals, to ensure better survival and growth of the saplings.

The survival of tree species nine months after planting at the sites from 2018, ranged from 35.8 to 82 %.

We have also started monitoring the growth rate of the planted saplings from 2018. In 2019, we raised 6724 seedlings and saplings. A total of 2423 saplings were planted at a degraded site in Assam and 809 saplings were provided to a tea estate for planting. Around 830 saplings were distributed to the Arunachal Pradesh Forest Department for various tree-planting campaigns throughout the year. Some economically important saplings were also distributed to the local people for planting in their farmlands.

We currently house 4280 seedlings and saplings of 49 species in our nursery and will continue to add up more for the next planting season in 2020.



Left: NCF staff after finishing planting; Right: Planted saplings with protection to prevent from grazing at a tea estate in Assam;

Photos: Noopur Borawake



Left: Saplings at NCF's rainforest nursery in Seijosa near Pakke Tiger Reserve; Right: In October 2019, we shifted our nursery to a safer and bigger location in Darlong village Photos: Noopur Borawake

Nature Education Program

As a part of the school programme calendar, we organized a rainforest nursery visit for the students of Vivekananda Kendriya Vidyalay, Seijosa on 28 August 2019.

Twenty-four students from Class 5 visited the nursery with their nature club coordinator. During the visit the students participated in all the activities that the nursery staff perform daily like de-weeding, watering the plants, cleaning the nursery.

Our field staff also explained to the students about seed collection and various other aspects of maintaining a rainforest nursery.

The main aim of this visit was to familiarize the students with the importance of rainforest restoration. This event was entirely organized and conducted by our local field staff in Seijosa.

A training workshop was conducted by Dr. Pranav Trivedi again on how to do Nature Education – as a refresher for some of our staff and the FD staff and for new people. This was held in Seijosa from 14th to 17th Nov 2019. There were 20 people; 4 youth from Assam, 4 local school teachers, 4 Forest Department staff and 8 of our own NCF staff.



Vivekananda Kendriya Vidyalaya students visit to Nature Conservation Foundation's rainforest nursery in Seijosa. Photos: Sital Dako



Nature camps in Pakke in Nov 2019. Photos: Saniya Chaplod



Pranav with the trainees during the workshop.

Photo: Noopur Borawake

Schedule of the camps for Nov-Dec 2019

22 - 24 November (Paga module)	25 - 27 November (Tiger module)	28 - 30 November (Paga module)
RWD Colony Govt. School Class 7-8 (31 students)	Darlong Govt. School Class 9 (29 students)	Nivedita Vihar Class 8 (32 students)

4 December	5 December	6 December
Niti Darlong Govt. Middle School Class 6 & 7 & 8 (25 students)	Vivekananda Kendriya Vidyalaya Class 6 (28 students)	A2 Govt. School Class 6-7 (39 students)

We have three modules, each for a different class/age group.

The first module is structured as a treasure hunt for messages that are tied to different activities, we create interest and excitement in the forest by bringing in an element of magic and wonder. This module aims to introduce young children (Class 6 & 7) to the beauty, joy and wonders of Pakke TR and its wildlife through an experiential program.

We try to:

1. activate the sensory perception through specific and focused activities,
2. create interest and excitement in the forest and its denizens through multisensory activities promoting observation and experience. The introduction, involves a large Bhelu tree (important hornbill nesting tree) speaking to the children through a message inviting them to explore the Pakke forest and its wildlife.

Through activities in Modules 2 & 3, we try to demonstrate seven key ecological concepts such as energy flow, cycling of matter, diversity, community, interrelationships, change and adaption. We also try to activate the sensory perception through focused activities and provide time for solitude and reflection.

The introduction to the 2nd module (Class 8 & 9) has a Nyishi tribal (in traditional attire) sharing the folktale of the tiger and human (wherein the two are said to be brethren), following which the tiger gives the children an important message. The aim of this module is to understand and appreciate the inter-relationships between different forest creatures, how we are part of the same ecological processes that sustain life on earth and how these are operational in Pakke.

We try to:

1. activate/sharpen sensory perception through specific and focused activities for each sense,
2. demonstrate through activities important ecological concepts of energy flow and cycling of materials,
3. provide time for solitude and reflection for processing of above.

The aim of the 3rd module (Class 7 & 8) is like the second module. The introduction to this module has our staff dressed up as Great Hornbills and performing a Nyishi dance and song. They give the children an important message about interdependency and a present, which is a box full of seeds dispersed by hornbills (crucial for forest regeneration).

Community engagement

Eco-tourism in Pakke has picked up in last few years. Last year before the Pakke Paga Hornbill Festival in January 2019 we helped two households in setting up homestays and conducted a 10-day training workshop for 14 nature guides from the area. At present, there are 9 homestays and 15 nature guides in Seijosa. For a successful community-based tourism model it is important to standardize and formalize homestay tourism and nature guiding in Seijosa. So, as a part of our community engagement program we organized a meeting with all the homestay owners and nature guides of Seijosa on 26th August 2019 to discuss the formation of **Pakke Homestay and Nature Guide Association** in the presence of DFO Wildlife, Arunachal Pradesh Forest Department. This meeting was conducted with inputs from Sanjay Sondhi (Titli Trust) and Geetanjali Dhar (IT Nature Club). During the meeting, we discussed the guidelines for the association

provided by Payal and Harsha J (experienced naturalists) and other aspects of the homestay management. We are now in the process of finalizing the association documents and also organizing a homestay training workshop.

Video Song: During our earlier workshop with the women in Pakke we came across a few old Nyishi songs that have never been recorded or documented. So, we recorded and shot a song-video of artistic merit that can help audiences outside Pakke access and appreciate it. Its story structure enabled us to create an emotionally charged piece that would work beautifully with the traditional song as well as impart information. This will help preserving and passing on Nyishi oral heritage and will also ensure that the younger generation learns to sing it. The video song will be released later this year.



Expenditure

The donations that we receive goes towards the salaries of 10 nest protectors, one field coordinator and we also have other expenses as field equipment, medical emergencies, travel. The table below lists our expenses from April 2018 to March 2019.

Expense from April 2018 to March 2019	
Opening Balance	18,30,037
Donations Received	7,93,800
Total receipts	26,23,837
Expenses	
Salaries (Nest protectors)	8,59,550
Consumables - Field Supplies	42,023
Programme Implementation Services	36,000
Travel - Food and Accommodation	13,712
Travelling Expenses	13,130
Field Equipment	9,449
Bank Charges	6,977
Medical Expenses	4,292
Travel - Fuel Expenses	3,570
Travel - Local Field Transport (taxi hire, bus)	2,928
Printing and Stationery	2,905
IT & Computer Services	1,898
Total Expenses	9,96,434
Balance	16,27,403

Expense from April 2019 to September 2019	
Opening Balance	16,27,403
Donations Received	3,45,378
Total Receipts	19,72,782
Expenses	
Salaries (Nest protectors)	5,41,600
Bank Charges	6,317
Equipment Maintenance	5,959
Travel - Food and Accommodation	5,260
Medical Expenses	4,597
Travel - Fuel Expenses	2,865
Consumables - Field Supplies	1,610
IT & Computer Services	1,399
Travel - Local Field Transport (taxi hire, bus)	1,205
Printing and Stationery	60
Total Expenses	5,70,872
Balance as on September 2019	14,01,910

The total amount raised from Apr '18 - Mar '19 was **INR 7,93,800** and from April 2019 to September 2019, we have only raised **Rs. 3,45, 378**. **To keep the original concept of shared parenting alive, we need you (our citizen donors) to financially support the program by adopting nests.**

Thanks to the following Zoos who have supported the Hornbill Nest Adoption Program



Hornbill Parents

Listed below are the donors who have adopted hornbill nests. We would like to thank you for your support. If you wish to adopt a hornbill nest again, you can do so online using this link <http://ncf-india.org/pages/donate>. Donations by Indian donors are eligible for tax exemption **under Sec. 80(G) (50% exemption) or Sec. 35 (150% exemption)** of the Income Tax Act. Foreign nationals can donate using the **FCRA sub link** on this page.

Please do send us an email at **veenarai@ncf-india.org** to let us know after you have donated so that we can contact you and keep you updated on our work.

HORNBILL PARENTS (April 2018-March 2019; April 2019-September 2019)

(April 2018-March 2019)

Adarsh Raju
Akshay Panday
Anil & Anjali Powar-Haridass
Arindam Ray
Ashish & Shanthi Chandola
Gopa Marayil
Joy Ghosh
Malavika Bakshi
Manasi Warde Pandit
Pakke Tiger Conservation Foundation
Prakash Bulusu
Praveen K Manivannan
Radha Rangarajan
Ram Gopalakrishnan
Ramya B S
Ravi Krishna
Ravindran S
Shivakumar M
Shoba Narayan
Subbu Subramanya
Subhasmita Patro
Sudip Datta

Sujatha Rangaswami
Suma H
Ulhas Anand
Urmila Pingle
Vaibhav Ranjangaonkar
Vamsi Sthithaprajna Rao
Venkatesh Viswanath
Vivek Madappa (Doux Dentistry, Humming Bird Travels)
Vivek PB
We Foundation

(April 2019-September 2019)

Aasheesh Pittie
Anil & Anjali Powar-Haridass
Arjan Basu Roy
Geetha G B
Malavika Bakshi Rao
Ram Gopalakrishnan
Ramesh Adkoli
S. Ramachandran
Seema Rahalkar
Shivakumar M
Siddhesh, Nisha and Ira Poyarekar
Subbu Subramanya
Uday Kumar

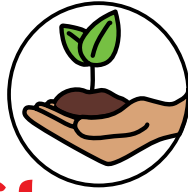
Acknowledgements

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