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Editorial

Satish Pande

Hornbills have long life spans among birds and they indicate the health of their habitats. The Indian Grey Hornbill *Ocyrceros birostris* is restricted to the Indian Subcontinent and occurs in deciduous habitats and urban areas close to and often amidst human habitation, both in rural and urban society. It is an omnivorous bird. This cavity nester breeds in natural tree hollows. It often faces competition from Rose-ringed Parakeets and mynas for nest sites, a commodity that is now becoming scarce with every passing day, due to unbridled habitat modification and destruction.

The prime step for the conservation of hornbills is protection and conservation of large stretches of natural habitats. The supplementary methods include offering artificial nest hollows (in the form of correctly designed nest boxes), strict implementation of legal provisions against indiscriminate tree felling, conversion of poachers into conservationists and eco tourism guides, ex-situ breeding programs following re-introduction of the hand reared hornbills into the wild occupied territories to supplement their dwindling wild populations.

The key to offering artificial nest box is the optimization of its design. The only way to judge the perfect nest box is acceptance of the box by the hornbill for which it is designed. In this issue of *Ela Journal* we have a successful story of the acceptance of an artificial nest box by the Indian Grey Hornbill. The nest box specifications will be useful guidelines for other conservationists, who would like to assist the Indian Grey Hornbill. Widespread use of these nest boxes, where the species occurs, will no doubt help the hornbills. This can be publicized in the media to generate awareness about the dwindling habitats and emphasize the need for the protection of occupied and suitable territories.

Other aspects highlighted in the present issue deal with hailstorms, secretive fresh water turtles and rural outreach programs. Hail storms not only inflict great damage to

human assets and agriculture but they also cause great morbidity and mortality of wildlife. Preparedness for such natural catastrophes is the key to provisioning timely medical aid for the affected wildlife. Training and empowerment of people for such catastrophes is important for effective mitigation.

Many of our water bodies keep secrets in their deep waters. Presence of giant turtles is one such secret that our rivers closely guard, the presence of which is revealed to us by chance encounters that may become detrimental for the survival of the clandestine species. Again, creation of wide spread local awareness about the existence and importance of such rare species is vital to save them in case of future encounters.

Today, our wild life thrives not only within the confines of our protected areas but it also exists in our rural areas in a big way. Hence, widespread outreach workshops to sensitize, educate and empower our friends from rural India as well as officials from forest department are needed, more than ever before, if the wild life has to survive in the un-protected habitats. Ela Foundation has started 'Rural Biodiversity Conservation Outreach Programs' and we have received an enthusiastic response. We have already conducted workshops at Jejuri, Baramati, Yadavwadi and Bhor in Maharashtra, and Varanasi in Uttar Pradesh with an outreach of over hundred villages and thousand participants. We intend to conduct a special workshop at Kundal Academy of Development, Administration and Management (Forest), Forest Department, Government of Maharashtra for the trainee RFO's and Foresters.

We believe that local wildlife and local habitats can be best conserved by local people from the civil society including the NGO's, with the cooperation of the government departments. We should learn to work with each other. Clean habitats, respectful thoughts and sensitive minds are primordial for conservation of nature.



Bird and animal morbidity, mortality and rescue following summer hailstorms in Pune district, Maharashtra, India in March 2014

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INTRODUCTION:

Hail storms are known to cause high bird and animal mortality (D’Cunha, 1987; Hall, 2007; Higgins, 1978; Narawade, 2014). Preparedness to combat bird and animal morbidity during and after a hailstorm is the key to the survival of several injured and moribund animals. In this short communication we report our experience of treating injured wild birds and other animals after a hailstorm in March 2014. Out of the 5204 birds, mammals and reptiles that were affected by the hailstorm at Baramati, we could successfully rescue 675 birds, mammals and reptiles (13 %). We also report the incidence of mortality and morbidity due to a windstorm from another site of Bhadalwadi heronry, during the same period.



All photographs for this paper are provided by the authors



A scene after the hail storm at Baramati, district Pune.

OBSERVATIONS:

A hail storm had lashed Baramati and Indapur regions of Pune district on 9, 10 and 11 March 2014. The time of hail storms was between 1600 to 1700 PM. The sizes of the hail stones ranged from 1 cm to 5 cm but few were as large as 30 cm in diameter. Major attention is usually paid to the damage related to human life, property, and crop. Apart from destroying thousands of acres of standing crop and injuries to humans, significant damage to houses and trees was also recorded due to the hail stones. Some trees were uprooted, few had broken branches and others were stripped off their bark. The damaged tree species included *Ficus bengalensis*, *Ficus religiosa*, *Azadirachta indica*, *Eucalyptus* sp., *Ailanthus excelsa*, *Millettia pinnata*, *Acacia nilotica*, *Bombax ceiba*, *Mangifera indica*, *Moringa indica*, etc. In this short communication we report the bird casualties due to the hail storm. Birds were caught in hailstorm while flying towards roosts. Causes of mortality included wing and leg fractures; bleeding; broken neck; head injury; ulcers on body and freezing temperatures. Windblown birds were thrown against buildings and trees.

The birds found dead or injured were from various localities near the town of Baramati in western Maharashtra, where the intensity of the hail storm was



A grape vineyard after the hail storm.

at its peak. Apart from this locality we also recorded injured birds at Nimgao-Ketaki villages and Bhadalwadi heronry in Indapur taluka of Pune district.

1. Baramati: The areas in Baramati included MIDC, Pragati Nagar, Baramati-Indapur Road, Patas Road, Bhigwan Chowk, Malegao Road, Garbage Dump, Irrigation Department Colony, Lake, Near Karha River, Shri Ganesh Nagar, TC College, Vivekananda Nagar, Gunwadi Area, Vivekananda Nagar, Avachat Estate, Shirsuphal, Kasba, Gojubavi, MHADA Colony, Tandulwadi, Amrai, Ashok Nagar, Railway Station Area, Sahayog Society, Sayali Hill, other areas of Baramati city.

At Baramati, 5204 animals suffered in the hail storm, of which 4529 birds, mammals and reptiles were found dead and 675 birds, mammals and reptiles were rescued and successfully released in the wild. Among the casualties were 46 species of birds, 8 species of mammals and 9 species of reptiles.

Out of these the following taxa were respectively found dead and were rescued: birds (4165, 530), reptiles (32, 114) and mammals (332, 31).

2. Bhadalwadi and Nimgao-Ketaki: We also took an overview of damage to the heronry at Bhadalwadi and birds around Nimgao-Ketaki villages. Bhadalwadi is a village 119 km towards to the east of Pune in Indapur Taluka, Pune District of Maharashtra State, India. It is located at the periphery of the hail storm hit epicentre of Baramati tpwn, at a distance of 33 km from Baramati. The villages around Bhadalwadi are Dalaj No..2 (6 km), Kalas (7 km), Madanwadi (7 km), Diksal (9 km) and Rui (10 km).

The traditional heronry is located in the Bhadalwadi Irrigation Tank, which is close to the village of Dalaj No.1, but about 1 km from Bhadalwadi village. The nests are located on *Acacia* trees standing in the irrigation tank.

Observations on 12 March 2014 at Bhadalwadi showed that 540 birds had died due to hail storm. Of these 376 had died directly due to injury from hail stones while 164 were windblown on trees.

To quantify the subsequent effects of the hail storm on the heronry we counted the nests of Painted Storks, Grey Herons, Oriental White Ibises, Little Cormorants and Grey Herons again in May 2014.

Out of 276 nests counted 152 were active (55.07%), of which 46 were of grey heron (30.3 %), 83 of painted stork (54.6 %), 8 of night heron (5.3 %), 1 of little egret



The outcome of the hail storm at Baramati shows dead Rosy Starlings, Shovellers and Painted Stork.



Grey Heron injured due to hail stones and striped bark of the trees as a result of the hail storm.



(0.6 %), 12 of little cormorant (7.9 %) and 2 of black-headed ibis (1.3%).

The total number of active nests, and live and dead juveniles within the nests according to species were as follows: Painted Storks (83,72, 11); Grey Herons (46,54, 12); Night Heron (8,8, 0); Little Egret (1,0,0); Little Cormorant (12, 13, 13); Black-headed Ibis (2,4,0). In all, 97 live juveniles were recorded. Apart from these, an additional 190 dead juveniles of the above species were recorded on the ground some of which were rotting; others were partially eaten, while few were hanging in the branches of trees, in decaying condition. The mortality was due to the storm that had lashed the Bhadalwadi heronry during mid March, 2014. Several nests of Little Cormorants and herons were seen to be damaged.

Earlier, 26 species of birds and nine species of mammals were reportedly killed by the series of hailstorms that occurred from February to May in Marathwada and Vidarbha in Maharashtra.

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A fallen tree during the hail storm.

Table 1: Birds killed and rescued at Baramati during the hail storm. Species are arranged in an alphabetical order for the sake of convenience.

Species	DEAD	RESCUED
Ashy Prinia	2	
Asian Koel	3	4
Barn Owl	2	
Black Kite	289	43
Black Cormorant	22	1
Black Drongo	434	20
Black Ibis	12	
Black-Winged Kite	2	
Black-Winged Stilt		
Blue Rock Pigeon	130	56
Brahminy Kite	3	3
Brahminy Myna	340	30
Cattle Egret	84	19
Common Iora	1	1
Common Myna	86	4
Rock Bush Quail	7	1
Common Tailorbird	3	4
Coppersmith Barbet	2	2
Greater Coucal	18	7
Grey Heron	60	20
Grey Hornbill	3	7
Grey Wagtail	73	18
House Crow	130	23
House Sparrow	18	15

Indian Pond Heron	23	4
Indian Grey Hornbill	3	7
Jungle Crow	19	
Large Grey Babbler	28	35
Laughing Dove	19	18
Oreintal Whiteeye	5	2
Painted Stork	3	
Pond Heron	23	4
Purple Sunbird	7	
Purple-Rumped Sunbird		4
Red-Vented Bulbul	20	17
Red Wattled Lapwing		3
Red-Whiskered Bulbul	4	1
Rose-Ringed Parakeet	9	6
Rosy Starling	4108	140
Shikra	1	1
Spotted Owlet	31	5
White Throated Kingfisher	2	1
White-Browed Wagtail	1	
White-Necked Stork	2	
White-Spotted Fantail	6	
White-Breasted Waterhen	1	
Yellow-Wattled Lapwing		4
Total	4165	530

Table 2: Birds killed at Bhadalwadi during the wind storm in March 2014:

SPECIES	WIND BLOWN	HIT WITH HAIL
Asian Openbill	2	65
Black-headed Ibis		3
Brahminy Duck		2
Cattle Egret	30	8
Common Teal		10
Glossy Ibis		5
Greater Flamingo		38
Grey Heron	4	7
Little Cormorant	60	78

Little Egret	25	10
Little Grebe		25
Median Egret	20	40
Night Heron	5	8
Northern Shoveller		40
Painted Stork	3	12
Pond Heron	15	
Purple Moorhen		
Spot-billed Duck		25
TOTAL	164	376

Table 3: List of reptiles found dead or rescued during the hails storm at Baramati in March 2014.

Name	Scientific Name
Rat Snake	<i>Ptyas mucosa</i>
Cobra	<i>Naja naja</i>
Snake Sp.	
Russell's Viper	<i>Daboia russelii</i>
Common Cat Snake	<i>Boiga trigonata</i>
Monitor Lizard	<i>Varanus bengalensis</i>
Keeled Indian Mabuya	<i>Mabuya carinata</i>
Garden Lizard	<i>Calotes versicolor</i>
Indian Chameleon	<i>Chamaeleo zeylanicus</i>

Table 4: List of mammals found dead or rescued during the hails storm at Baramati in March 2014.

Name	Scientific Name
Flying Fox	<i>Pteropus giganteus</i>
Five-Striped Palm Squirrel	<i>Funambulus pennantii</i>
Indian Grey Mongoose	<i>Herpestes edwardsii</i>
Domestic Pig	<i>Sus scrofa domesticus</i>
Asian Palm Civet	<i>Paradoxurus hermaphroditus</i>
Bonnet Macaque	<i>Macaca radiata</i>
Domestic Cat	<i>Felis silvestris catus</i>
Domestic Dog	<i>Canis lupus familiaris</i>



Hail scattered on the ground at Baramati and an injured Northern Shoveller.



Indian Grey Horn Bill *Ocyrceros birostris* successfully nesting in an artificial nest box and fostering an orphaned fledgling

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Indian Grey Hornbill at the artificial nest box with a grasshopper as food for the occupants.

(All photos for this paper are by Avinash Nagare)

INTRODUCTION:

Five species of hornbills are recorded in Maharashtra, out of which the Indian Grey Hornbill *Ocyrceros birostris* is seen in the city of Pune, Maharashtra. It is a widely dispersed species in the Indian Subcontinent and is classified as Least Concern (BirdLife International, 2015). The range size of this species is probably declining (del Hoyo, 2001). Hornbills need natural hollow spaces in the trunks of huge trees for nesting. Continued deforestation and habitat destruction put huge premiums on their nest sites (Pande et al 2003). For the past few years our company has supported a unique conservation initiative of offering artificial nests to this species of hornbill. After study of the natural habitat of this hornbill, we have developed an artificial nest box to address the problem of scarcity of large natural nest hollows in the region. Our specially designed nest box for the use of the Indian Grey Hornbill was mounted on the trunk of a tall tree in the premises of our company, because natural hollows were not available. Our efforts were finally paid off two and half years after deployment of the artificial nest boxes, when a pair of Indian Grey Hornbill accepted the nest box and successfully fledged two young. We encourage the use of this design widely to assist the conservation of the Indian Grey Hornbill by providing optimal breeding opportunities.

OBSERVATIONS:

We had mounted an artificial nest box on a *Eucalyptus* sp. tree in the premises of our company in 2012. The Indian Grey Hornbills were seen in the area around the artificial nest box for two years.

The dimensions of the nest box were as follows:

Height-28”(inches); width-18”; Depth-20”; Diameter of the entrance hole-2.75”; Placement of the center of the entrance hole from the bottom at-20”; Thickness of the wall of the wood used for the nest box-1”; Three 0.5” drain holes at the bottom; A 40” long x1.5” broad SS metal plate fixed on the back side of the nest box with holes at either side for nut bolting the nest box on the tree. Water proof plywood was used to construct the nest box. Brown, bark-colored paint was given to the outside of the nest box, no paint on the inside. The



Indian Grey Hornbill at the artificial nest box with a fig held in the beak .

life expectancy of the nest box in local conditions, in Kokan and Deccan Plateau, is 3 to 4 years.

The hornbills began showing interest in the nest box and established their territory by not allowing other hole nesting birds in the vicinity. On 2 April 2014, after mating, the female hornbill entered the nest box and on the same day the male and female closed the entrance of the nest with a mixture of mud, soil, small wooden sticks and possibly fecal matter. Only a narrow slit was left open. We could observe the movements of the female hornbill within the nest box from a vantage point at eye level. From the position and the movement pattern of the female hornbill within the nest it was inferred that the first egg was probably laid on the second day and the second egg on the fourth day. The female came out of the nest box after 59 days on 31 May 2014. The first young fledged 72 days (12 June 2014) since the female entered the nest box and the second young fledged on day 76 (16 June 2014).

An injured fledgling of another pair of Indian Grey Hornbill was brought to us for treatment care on day 74. The search for the nest of this orphaned chick was unsuccessful. We treated the injured hornbill that was of about the same age as our fledglings. We ringed and released it in the premises of our company, where one

young hornbill had fledged two days ago. The foster was accepted by the parents. We recorded that the parents subsequently fed all the three juvenile hornbills. This incidence confirms that fostering of juvenile orphaned hornbill is possible during the post-fledging dependency period, and such behavior is reported for Bonelli's Eagle (Pande et al, 2004).

CONCLUSION:

The specially designed nest box was accepted by the Indian Grey Hornbill for successful nesting and two young fledged from this artificial nest. We hope that this nest box design will be tried at several other places for hornbill conservation in view of habitat destruction and declining hornbill populations.

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Indian Grey Hornbill parent at the artificial nest box. The young is seen peeping out of the nest box. A glimpse of the protruded beak of the female parent.

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First Sighting and Preservation of Cantor's Giant Soft-Shell Turtle *Pelochelys cantorii* Gray, 1864 in Pune District, Maharashtra, India

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On the morning of 26 September 2011 at about 0700 AM a large fresh water turtle was found dead by local fishermen at Sonawadi, taluka Daund, district Pune, Maharashtra, India, on the muddy banks of the back waters of Ujani dam on the river Bhima. The huge size of this turtle attracted the attention of the fishermen and the sighting was reported to the first author.

Basic morphometry showed that the length of the turtle from snout to tail was 187.5 cm and the maximum width of the carapace was 95 cm. The wet weight was 2000 g. The head was broad and the snout was short with eyes near the tip of the snout giving it a 'frog-faced' appearance. The carapace was smooth, un-patterned and olive brown in colour and rib-like markings were seen on the dorsal convexity. The



© Bharat Mallav

Cantor's Giant Soft Shell Turtle at Sonawadi, taluka Daund, district Pune.



The dissected abdomen of the dead Cantor's Giant Soft Shell Turtle shows eggs in the abdominal cavity confirming that the example was a female and that she had probably surfaced to lay eggs.

underside was faint pink to flesh coloured. The flanks were composed of rubbery skin supported by ribs and the shell was of soft consistency. Few sharp scales were seen on the underside of the forelimbs. Comparing with the original description of the species (Gray, 1864) the turtle was identified as Cantor's or Asian or Frog-faced Giant Soft-shell Turtle *Pelochelys cantorii* Gray, 1864. (Order: Testudines; Suborder: Cryptodira; Family: Trionychidae).

Cantor's turtle spends most of its life buried underground beneath water and surfaces for breathing only twice a day, hence it is poorly studied. (Ernst and Altenburg, 1998). It is previously reported from India from the east coast from West Bengal, Orissa and TamilNadu and from the west coast from Kerala (Palot and Radhakrishnan, 2011), hence this turtle was found in western India, Pune district, Maharashtra for the first time, therefore the forest department decided to preserve the specimen for educational purposes and posterity. During the dissection for taxidermic preparation of the specimen it was found that it was a female and the ovary consisted of a mass of about 250 follicles at various stages of development. The large follicles were round and whitish-yellow in colour and were loosely connected by peritoneum to the rest of the ovary as seen in hen. The 20 to 25 large follicles were in graded sizes (3.0 to 3.5 cm). It is possible that the turtle may have come out to lay eggs in the mud bank and had died. Its known breeding season is February and March. (Ernst and Altenburg, 1998).

The known distribution of this terrestrial freshwater turtle is from India (Biju Kumar 2004; Palot, and Radhakrishnan, 2002, 2011), Bangladesh, Burma,

Thailand, Malaysia, Cambodia, Vietnam, China, Philippines, Indonesia, Papua New Guinea, Sumatra, Borneo, and western Java (Ernst, 1998; McCord and Joseph-Ouni, 2003). From India, *P. cantorii* was known from the mangrove creeks of the Sunderbans and Bhitarkanika until the early 1990s (Choudhury et al., 2000). This turtle is described as an ambush predator (Das, 1991, 1995) and eats crustaceans, mollusks, fish and aquatic plants. Nesting ground of this turtle was discovered along the Mekong River in Cambodia where Mekong Turtle Conservation Center was established in 2011. (Munthit, 2011).

P. cantorii has been virtually eliminated from India due to exploitation (Choudry and Bhupathy, 1993 as cited in Choudry et al., 2000). The CAMP/BCPP evaluations considered the species Lower Risk, near threatened in India (Rhodin, 2002). It is listed in the Red List as Endangered A1cd+2cdon and in CITES Appendix II. World over it is threatened due to habitat loss, nest poaching, pollution of water and in Bangladesh, Cambodia and Indonesia it is captured and sold in the market for food. (Asian Turtle Trade Working Group 2000). *P. cantorii* is protected under schedule I of the Indian Wildlife (Protection) Act of 1972 (Choudhury et al., 2000). A Turtle Conservation and Ecology Project was established in 1998 by the Cuc Phong National Park and the Forest Protection Department that was aimed at receiving and subsequent translocation of turtles confiscated from the wildlife trade, conducting research, public education, and training of regional authorities (Hendrie, 2000).

Presently this turtle along with relevant information is displayed in the information center of the Forest

Department at Baneshwar forest park near Nasrapur, district Pune, Maharashtra, India and is a popular exhibit and serves the purpose of mass education.

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Local fishermen, under the guidance of Dr. Satish Pande and Bharat Mallav reported the sighting of the turtle to the local forest authorities and persuaded them to preserve the specimen for educational purposes. Assistant Conservator of Forests Shri. Thube and his team took initiative to safely transport the turtle for taxidermy. Prof. Indraneil Das confirmed the identification of the specimen. Dr. R. M. Sharma, O/C, Zoological Survey of India, W. R. C. Pune gave initial assistance. With the permission and orders of the CCF (Territorial), and PCCF(Wildlife) Maharashtra, the taxidermy of the Cantor's Turtle was carried out under the guidance of Sunil Limaye the Director of Sanjay Gandhi National Park Mumbai by Dr. Santosh A. Gaikwad. M.V.Sc., D.H.M., Ph.D., Associate Professor of Anatomy, Bombay Veterinary College, Parel, Mumbai-12. He was assisted by Mr. Kiran Poodari.

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The ventral view of the dead Cantor's Giant Soft Shell Turtle at Sonawadi, taluka Daund, district Pune.



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Mounted specimen of Cantor's Giant Soft Shell Turtle exhibited at the Baneshwar Information Center of the forest department, Nasrapur, Bhor, district Pune to promote conservation awareness.



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Comparison with the attending forest officer exemplifies the large size of the turtle.

The territorial aggression of Indian Roller *Coracias bengalensis*

Prashant Borawake

(Paani Panchayat, Saswad, Tal. Purandar, Pune)

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Indian Roller *Coracias bengalensis* is a resident and locally migratory bird of western Maharashtra. It is a carnivorous bird and takes food from the ground. The food items include grub, insects, small reptiles, amphibians and eggs and chicks from the nests of ground dwelling birds. An interesting behaviour of the Indian Roller was recently observed.

One Indian Roller was regularly seen in the vicinity of an agricultural farm at Yadavawadi, Tal. Purandar, Dist. Pune. On 21.01.2015 between 09.15 to 10.50 AM the farmer was watering his ploughed field and the Indian Roller was eating the emerging grub. The Indian Roller was joined by a Jungle Crow, White-throated Kingfisher and Cattle Egret to eat the grub that was emerging from the soil. Interestingly, the Indian Roller became aggressive and attacked the other three birds whenever they tried to descend on the field and did not allow them to eat from the watered field. In the interval,



(All photos for this paper by Prashant Borawake)

Indian Roller attacking the White-throated Kingfisher which in turn is defending the attack.



Interaction between the Cattle Egret and the Indian Roller.

the Indian Roller continued to eat the emerging grub. All the three birds that were attacked by the Indian Roller share the food niche with it. The Jungle Crow and the Cattle Egret did not budge after the attacks from the Indian Roller but the smaller sized White-throated

Kingfisher flew away. Presumably, this is an expression of the territorial behaviour of the Indian Roller (Table 1). At 1050 AM the farmer stopped watering the field and the Indian Roller flew to a perch on an adjacent branch and the other birds flew away.

The chronology of aggressive behaviour of the Indian Roller and the response given by the attacked avian species.

Time	Aggression and response
09.15 AM	Attack on Jungle Crow
	Jungle Crow retaliated, did not fly
09.30 AM	Attack on White-throated Kingfisher
	Kingfisher only defended
9.43 AM	Attack on Black Drongo
	Black Drongo flew away
10.00 AM	Attack on White-throated Kingfisher
10.10 AM	Attack on Cattle Egret for Food
	Egret only defended
10.25 AM	Attack on White-throated Kingfisher
	Kingfisher only defended but did not fly
10.40 AM	Attack on White-throated Kingfisher

Yamuna and Kurma

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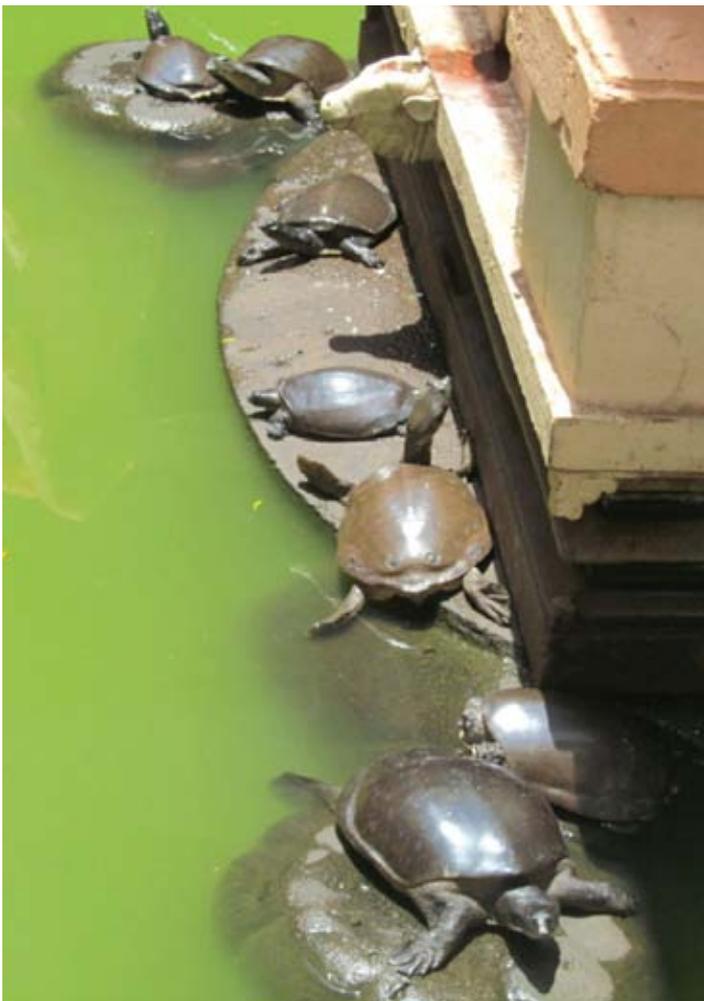
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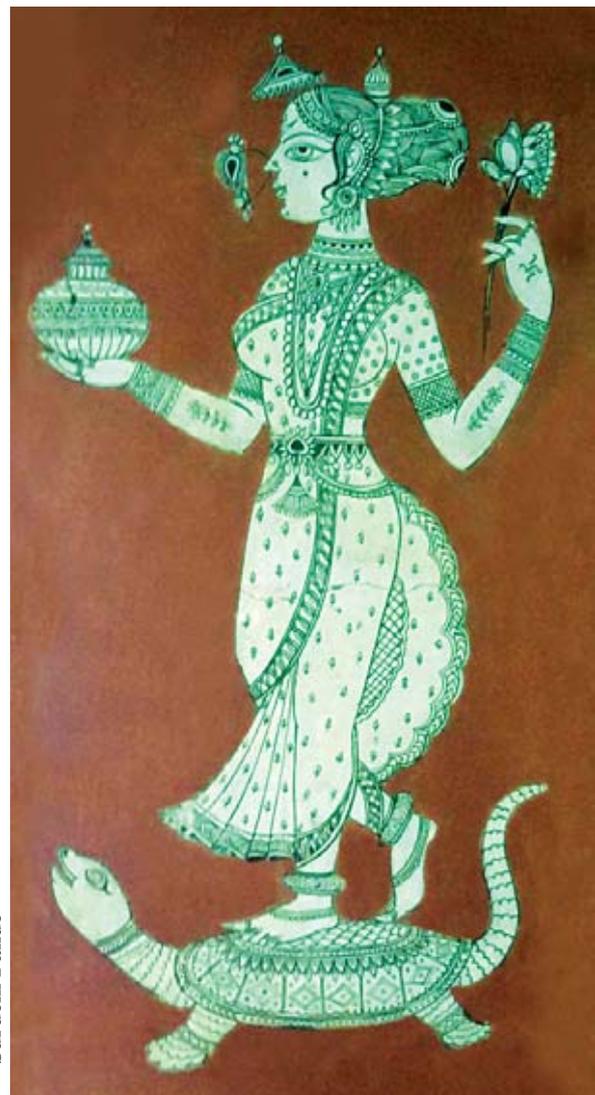
INTRODUCTION

Just like river Ganga, Yamuna is respected as the sacred river in India which is referred to right from the time of Rigveda (7.18.19). She is also called as '*Surya-tanayaa*' i.e daughter of the Sun. Waters of Yamuna appear rather dark coloured and she is depicted as standing upon a black tortoise and wearing a garland of blue lotuses.¹ Yamuna is also called as '*Kalindi*'. (The Sun is known as '*kalinda*' and Yamuna is the daughter of the Sun.). River Yamuna has significant place in relation to the life of Lord Krishna.



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Tortoises in a temple pond at Kolhapur



© Suruchi Pande

The painting of goddess Yamuna with
Kurma in Vishrambagwada (Pune)



© Suruchi Pande

Goddess Yamuna on Kurma in a temple at Varanasi on one of the ghats on the river Ganga.

Lord *Vishnu*'s second incarnation is believed to be in the form of a tortoise to support the mountain *Mandara* at the churning for the ocean. In iconography, *Vishnu* is shown as either a tortoise or with the lower part as a tortoise and the upper part in the human form but with four hands.

Kurma was related to the stories of creation in the Vedic literature. In the *Shatapatha Brahmana* text, the *Prajapati Brahma* was said to have taken the form of a tortoise. He did the 'karma' of creating the world and that is why that particular incarnation came to be known as 'kurma'. In the same text the 'kurma' is also called as 'kashyapa'. The Sanskrit root verb 'kash' means to go and to move. Later in the Puranic period a tortoise was connected to Lord *Vishnu*.

In Hindu temples, the 'kurma' is always established in the hall from where we enter the sanctum sanctorum. It is constructed with the belief that the foundation will be protected by the tortoise.

In Andhra Pradesh, at *Shri Kurmam* there is the temple of tortoise which is worshipped as the incarnation of Lord *Vishnu*.

'*Kurmikaa*' or '*Kurmaveena*' were the names of musical instruments.

Kurma is also the name of one of the five *upa-pranas* (minor vital-airs) which is believed to be responsible for opening the eyelids.

Kurmasana is a name of a particular posture in sitting.

WORD MEANINGS

The word 'Yamuna' means "*prayuvati gachchhati iti vaa*" = 'the river which flows by mixing the water of other rivers in her own flow'. And "*prayuvitam gachchhati iti vaa*" = 'the river which flows peacefully'.² Probably due to this is the reason and *Yamuna* was also known for its turtles, it was depicted as her vehicle whose speed is slow and peaceful.

SYNONYMS

The *Amara Kosha* (1.10.21) gives us three synonyms as '*Kurma*, *Kamatha* and *Kachchhapa*' for tortoise.³

The *Abhidhana chintamani* (4.419)⁴ lexicon states these synonyms for the tortoise:

"*Kachchhapa: kamatha: Kurma: krodapaada: chaturgati: |*

Panchangagupta: -douleyou jeevatha: ||"

- 1) *Kachchhpa* = '*Kachchha*' is a bank or any ground bordering on water; watery soil; marshy ground. And one inhabiting or adhering a marsh is '*kachchhapa*'.
- 2) *Kamatha* = One meaning of a word '*ka*' is water and the root verb '*math*' means to 'to dwell or to inhabit'; thus *Kamatha* means one who dwells in water.
- 3) *Kurma* = In this word the root verb is 'kirati' or 'kurati' which means to sound. Tortoises make peeping or whistling sounds.
- 4) *Kroda paada* = *Kroda* means a cavity or a hollow space and *paada* means a leg. One who keeps its legs in a cavity is '*kroda paada*'.



© Rahul Lonkar

Samudramanathan or the churning of oceans by gods and demons with the mount Meru on the Kurma, as depicted in a temple at Pravarasangam, Maharashtra.



© Suruchi Pande

Marble idol of Kurmavata, one of the ten incarnations of Lord Vishnu in Indian Mythology from a temple in Varanasi

- 5) Chaturgati = One who goes in four ways. Meaning is obscure, however the word also means the Supreme Soul.
- 6) Panchanga gupta = One whose five organs are kept hidden.
- 7) Douleya = One who is the offspring of 'duli' (i.e. female tortoise). Prbably the root verb in this word is 'dul' which means to swing cause to oscillate or to mover about.
- 8) Jeevatha = One who is long-lived.

CONCLUDING REMARKS:

Once upon a time the river Yamuna, who was also believed to be the sister of Yama (Lord of death), was known for its fresh water but now it is extremely polluted due to unpardonable human interference. There are some places like Bateshwar and Mathura where

people have contributed to the conservation of turtles by saving and feeding them out of religious feelings or out of sense of social responsibility.

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Apus – The Bird of Paradise

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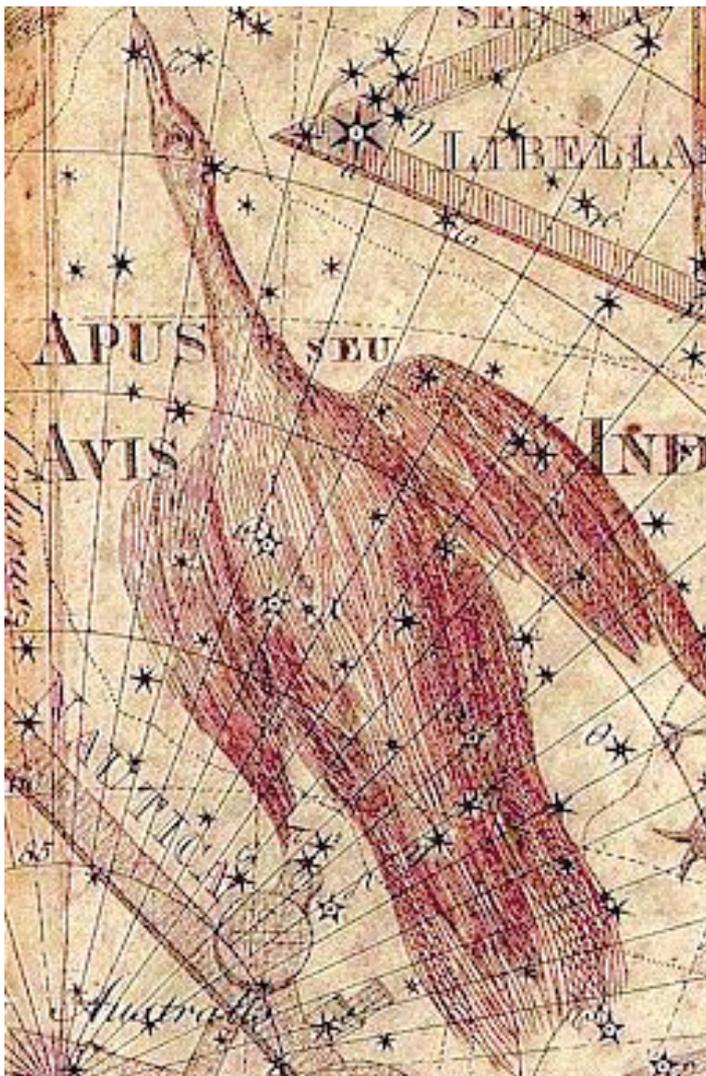
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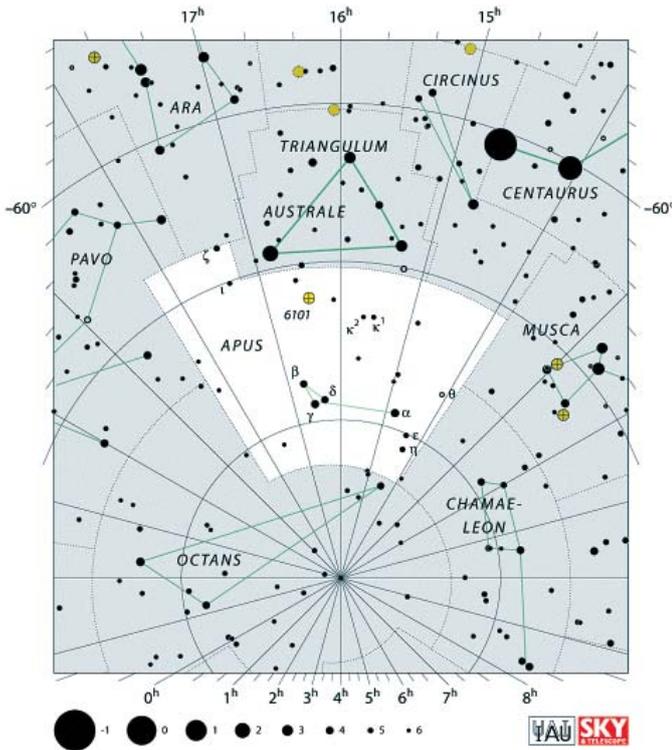
Apus is a faint constellation in the southern sky, first defined in the late 16th century. Its name means “no feet” in Greek, and it represents a bird-of-paradise (which were once believed to lack feet). It is bordered by Triangulum Australe, Circinus, Musca, Chameleon, Octans, Pavo and Ara.

Apus was one of twelve constellations created by Petrus Plancius from the observations of Pieter Dirkszoon Keyser and Frederick de Houtman. It first appeared on a 35 cm diameter celestial globe published in 1597 or 1598 in Amsterdam by Plancius with Jodocus Hondius. Plancius called the constellation *Paradysvogel Apis Indica*; the first word is Dutch for “bird of paradise”, of genus *Pteridophora*, but the others are Latin for “Indian Bee”. After its introduction on Plancius’s globe, the constellation’s first known appearance in a celestial atlas was in Johann Bayer’s *Uranometria* of 1603, where it was called “*Apis Indica*”. The idea that this group of stars should be associated with a bird of some sort seems to be unanimous. One English astronomer, J. Ellard Gore referred to it as the House Swallow, while the Chinese called it the Curious Sparrow. Koreans saw it as the Little Wonder Bird.

The Apus constellation occupies an area of 206 square degrees and does not contain any stars with known planets. It can be seen at latitudes between $+5^\circ$ and -90° and is best visible at 9 p.m. during the month of July.



All images provided for this paper by the author are sourced from wikipedia.



OBJECTS OF INTEREST:

There are no bright or prominent objects. The brightest star, Alpha Pavonis is 3.8 magnitude. Other objects are:

- NGC 6101 is a 14th magnitude globular cluster, located seven degrees north of γ Aps.
- IC 4499 is a loose globular cluster in the medium-far galactic halo. Its apparent magnitude is 10.6, and it is unique because it is younger than most other globular clusters in the same region as determined by its metallicity.
- IC 4633 is a very faint spiral galaxy surrounded by a vast amount of Milky Way line-of-sight Integrated Flux Nebulae.

Interesting Bird Sightings

Niraj Munot, Rajas Rajopadhye, Nikhil Fuge, Atharva Bahirat and Abhishek Kulkarni



© Niraj Munot

Indian Blue Robin in Pune.

Sighting of Amur Falcon *Falco amurensis*

On 23.11.2014 we recorded two flocks of Amur Falcons at Saswad, Tal. Purandar, District Pune. Initially 10 Amur Falcons were seen and subsequently 50+ Amur Falcons were observed. Both the sightings were on different places within a few km of each other. The falcons were seen soaring and there was no wing flapping. They rapidly ascended and disappeared. The Amur Falcons are known to migrate in winter from Mongolia and Eastern China, across NE India, coastal Kokan and then across the Arabian Sea to South Africa. Such sighting in their migratory route are therefore interesting.

Sighting of Indian Blue Robin *Luscinia brunnea*

On 19.10.2014 this rare and beautiful bird was seen near Pune.

01-02-2015 Fri 04:20:45



© Anant Gokhale

Ela Foundation studies the life of the secretive nocturnal species like the owl by installing night vision cameras. In this photograph the Barn Owl has brought a shrew to the nest to feed the young. Such information is used to promote conservation.



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'Rural Biodiversity Conservation Workshop' by Ela Foundation is in progress at Bhor, district Pune, Maharashtra. Dr. Suruchi Pande is addressing the participants on the importance of culture for the conservation of nature. This workshop was organized jointly by Pakshimitra Sanghatana, Bhor; Pune Jilha Vanyaprani Ani Sarparakshak Association; Jayadri Mitra, Jejuri & Ela Foundation. The workshops aim at conserving the biodiversity in rural areas with the participation of people from our rural regions. It was attended by over hundred participants from the civil society and forest department.

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Please report your bird sightings at:
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