

Kite flying: Effect of *Chinese manja* on birds in Bangalore, India

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Abstract

Flying kites during the Indian festival of *Makar Sankranti* has been an age-old tradition. This pastime has increased in popularity tremendously, and even taken a competitive turn in the past few decades. In recent years, the use of kite-flying threads has evolved from traditional cotton threads to nylon, or synthetic string, popularly called *Chinese manja*. During the sport of kite-flying, the aim is to cut the string of another airborne kite, by entangling their strings and allowing friction to wear away one. When the string of a kite is severed midway, it drops down along with the kite, and gets intertwined in the branches of trees, on tall buildings, and other tall man-made structures. Often birds get inextricably entangled in these manja strings and end up suspended from them, some at great heights, and / or get injured to various degrees, eventually dying, if not rescued by human intervention.

The present study discusses the effect of such jumbled manja strings on the birdlife in Bangalore, and analyses records, of rescue attempts of such avian victims, maintained since 2010 at the *Bruhut Bangaluru Mahanagara Palike* (=Greater Bangalore Municipal Corporation). A total of 268 birds comprising 10–13 species were rescued. These birds sustained various degrees of injuries due to which a few eventually succumbed. In many of the instances, the entangled and dangling birds had to be rescued manually, as the fire brigade's ladder could not reach the required height. Most of the birds were released after rescue. Some required basic medical treatment, while others required prolonged treatment, care, and a recovery period. While small birds were not affected, the effect of the manja was telling on the larger birds, with Black Kites *Milvus migrans*, and crows (*Corvus* spp.) being prime victims. Remedies to overcome this menace are discussed.

Introduction

The festival of *Makar Sankranti* is celebrated all over India during the third week of January with great gaiety. Traditionally, the flying of kites has been an integral part of the festive celebrations (Bareth 2003; Prakash 2003; Anonymous 2012; Soumya 2013; Wikipedia 2013). During the festival, people fly kites of different sizes and shapes. The focus of this sport and pastime is to fly one's kite into another flying close-by, and try and cut the string of that kite so that it falls from the sky. The string used to fly kites is popularly called, '*Manja*'. During these kite-flying events, the kite flyers seek strings that are made of a strong thread, so that the strings of other kites can be cut easily when engaged in a mid-air duel. In recent times, the traditional cotton threads that were used as *manja* have been replaced by much cheaper and stronger *Chinese manja* (NDTV 2011; Anonymous 2012). *Manja* can injure birds when they collide against it in mid air, and they may even suffer death due to the severity of the injuries sustained; *manja* can be fatal to human lives too (Bareth 2003; Prakash 2003; Anonymous 2012; Beauty Without Cruelty 2013; Soumya 2013). During *Sankranti*, in cities like Jaipur in Rajasthan, and Ahmedabad in Gujarat, the whole sky is filled with kites—a million or more kites are known to dot the sky at the same time—each trying to joust with neighbouring kites. This goes on all day, from before sunrise to after sunset (A. Prakash, verbally).

Once the string of a rival kite is severed (the length of the string could vary from a couple of centimeters to several meters),

it gets wind-blown and drifts along with the kite and settles or gets caught on tall trees or tall protruding artificial structures like electricity or telegraph poles and protruberances on tall buildings. As a result of the breeze, the kite strings too get twisted firmly on to the branches in the canopy or on other structures, wherever the kite settles. Being practically invisible, these suspended strings prove quite harmful to birds that get entangled in them while in flight (Chetan 2011, 2012, 2013; Vattam 2011). When these birds try to wriggle free of them, struggling in shock, they get further entrapped. Such trapped birds remain dangling from trees and other substrates for various periods of time until spotted by people. They undergo enormous stress and strain, may get maimed, or even die, if not rescued.

This paper examines the harmful effects of such severed kite strings that get entangled on trees, electricity poles, tall buildings, etc., on birds, in an urban set-up like Bangalore. We explore this by examining the database of all rescue attempts maintained by the *Bruhut Bangaluru Mahanagara Palike* (the Greater Bangalore Municipal Corporation; henceforth, BBMP).

Methods

Kite flying is practiced in Bangalore mainly during summer, from March to May, but not with such an intensity and fervour as in other Indian cities. According to one of the BBMP bird rescue volunteers, more kites are flown in Bangalore during summer than during the Sankranti festival (M. Rajesh Kumar, verbally,

2013). Also, we do not discount kites flown sporadically, on other occasions, throughout the year.

Between 2010 and 2014, details on birds found entangled in kite-flying thread were reported by the general public to BBMP, or the information was relayed to BBMP from other agencies in the city. After conducting a rescue operation, a report was filed with the BBMP by the rescue volunteer. Records of all such bird rescues have been maintained by the BBMP Forest Cell in a database, since 2010. This database was used, in the present study, to discern any noticeable patterns, to discuss the effect of such entangled strings on the bird-life in Bangalore, and to present an analysis of these rescue records.

The rescue process

As soon as the public notice any bird dangling from manja strings, they usually contact the police department's control room, the fire brigade, or the website: www.justdial.com. The call is then directed to BBMP's Forest Cell Helpline, and BBMP gathers information on the condition and location of the bird. The caller is then directed to one of the designated Zonal Volunteers. The volunteer reaches the spot in about 30 minutes. He assesses the situation and the resources required for a rescue operation. If the struggling bird is within his reach, the bird is rescued immediately, or he may enlist the help of local people, mainly a local tree climber. However, if the situation proves to be a difficult one, the fire brigade is contacted for a sky-ladder and, if there are power lines in the way, the Bangalore Electricity Supply Company (BESCOM) is requested to disconnect the electricity supply in the area for safety. The bird is then rescued. On an average such an operation takes approximately two to four hours, based on the complexity of the situation.

After the is rescued, the volunteer assesses its condition, releasing it immediately if it is uninjured and fit to fly. Efforts are made to de-stress the bird by covering its eyes with a cloth, so that the bird does not struggle further and suffer injuries or damage its body parts; then the manja strings that are wrapped around it are carefully cut and removed. If a bird is injured, it is wrapped in a cloth, placed in a cardboard box, and shifted to the BBMP Rescue and Rehabilitation Centre. If it has suffered grievous injuries, it is provided veterinary care, including surgery, if necessary. Such birds are held in the BBMP's rehabilitation centre till they recover and are fit to fly free. A report is duly filed with the BBMP Forest Cell on the outcome of the rescue and other related details.

Results & discussion

Between November 2010 and June 2014, there were 250 instances of birds being trapped in *Chinese manja* strings in the city of Bangalore. These comprised 268 birds belonging to about 10–13 species (Table 1; Fig. 1). BBMP volunteers and other associated agencies rescued them (N=250 instances; Table 2). Among the birds that were rescued, Black Kites were the single most commonly affected species making up nearly 70% of the birds found dangling from manja strings. From the data collected, it was also found that there was a strong correlation between the size of a bird and its chance of getting entangled in manja strings; larger birds, e.g., kites, showed a greater incidence of such possibilities (Fig. 2; Table 1). Although the sample size was not very large (N=268), birds smaller than a White-throated Kingfisher *Halcyon smyrnensis*, which is slightly smaller than a Common Myna *Acridotheres tristis*, were not found entangled in

manja strings. This could be due to the fact that the smaller birds were able to see these strings better and avoided the strings, or that people failed to notice smaller birds thus entangled. We also feel that, this may be a situation peculiar to Bangalore, and different from that in other Indian cities, where kite flying is prevalent, depending on the nature of the urban environment and habitat complexities.

Table 1. Birds found entangled in *Chinese Manja* strings*

Species	Number
Black Kite <i>Milvus migrans</i>	182
Crow† <i>Corvus</i> spp.	39
Rose-ringed Parakeet <i>Psittacula krameri</i>	11
Rock Pigeon <i>Columba livia</i>	8
Barn Owl <i>Tyto alba</i>	3
Asian Koel <i>Eudynamis scolopaceus</i>	2
Egret‡ <i>Bubulcus</i> sp. & <i>Egretta</i> spp.	2
Myna‡ <i>Acridotheres</i> spp.	1
Brahminy Kite <i>Haliastur indus</i>	1
White-throated Kingfisher <i>Halcyon smyrnensis</i>	1
Unidentified‡	18
Total	268
Notes	
*More than one bird rescued in some instances or location.	
‡Species' identities could not be ascertained from the volunteers: Possible species include, <i>Corvus splendens</i> , <i>C. culminatus</i> , <i>Acridotheres tristis</i> , <i>A. fuscus</i> , <i>Bubulcus coromandus</i> , and <i>Egretta garzetta</i> .	

From Fig. 1, it can be seen that a great majority of the birds entangled in manja strings were rescued from the centre of the city, and not its outskirts. The distribution of rescues also indicates that this is not a function of the availability of volunteers in a particular locality, as the volunteers had a much wider distribution (Fig. 1). Thus, we believe that this concentration of birds being affected by manja strings in the centre of the city is due to the fact that these areas happen to be part of old, densely-populated residential localities of Bangalore city where kites are flown traditionally from roof-tops, and with a greater intensity and concentration, than is done on the city's outskirts. This seems to be the case in other cities as well (e.g., Hyderabad, Soumya 2013).

Table 2. Agencies involved in the rescue of birds entangled in manja strings in Bangalore (N=250).

Mode of Recue	Percentage
BBMP FC Volunteer	60.16
BBMP FC Volunteer and fire brigade	24.70
BBMP FC Volunteer and help of locals	6.77
BBMP FC Volunteers, fire brigade, and YMCA	0.40
BBMP FC Volunteer and Mantri mall hydraulic ladder	0.40
BBMP FC Volunteer, fire brigade, rock climbers	0.40
BBMP FC Volunteer, Bescom, fire brigade	0.80
Fire brigade and BESCOM	0.80
Fire brigade	2.79
BESCOM	0.80
Local people	1.99

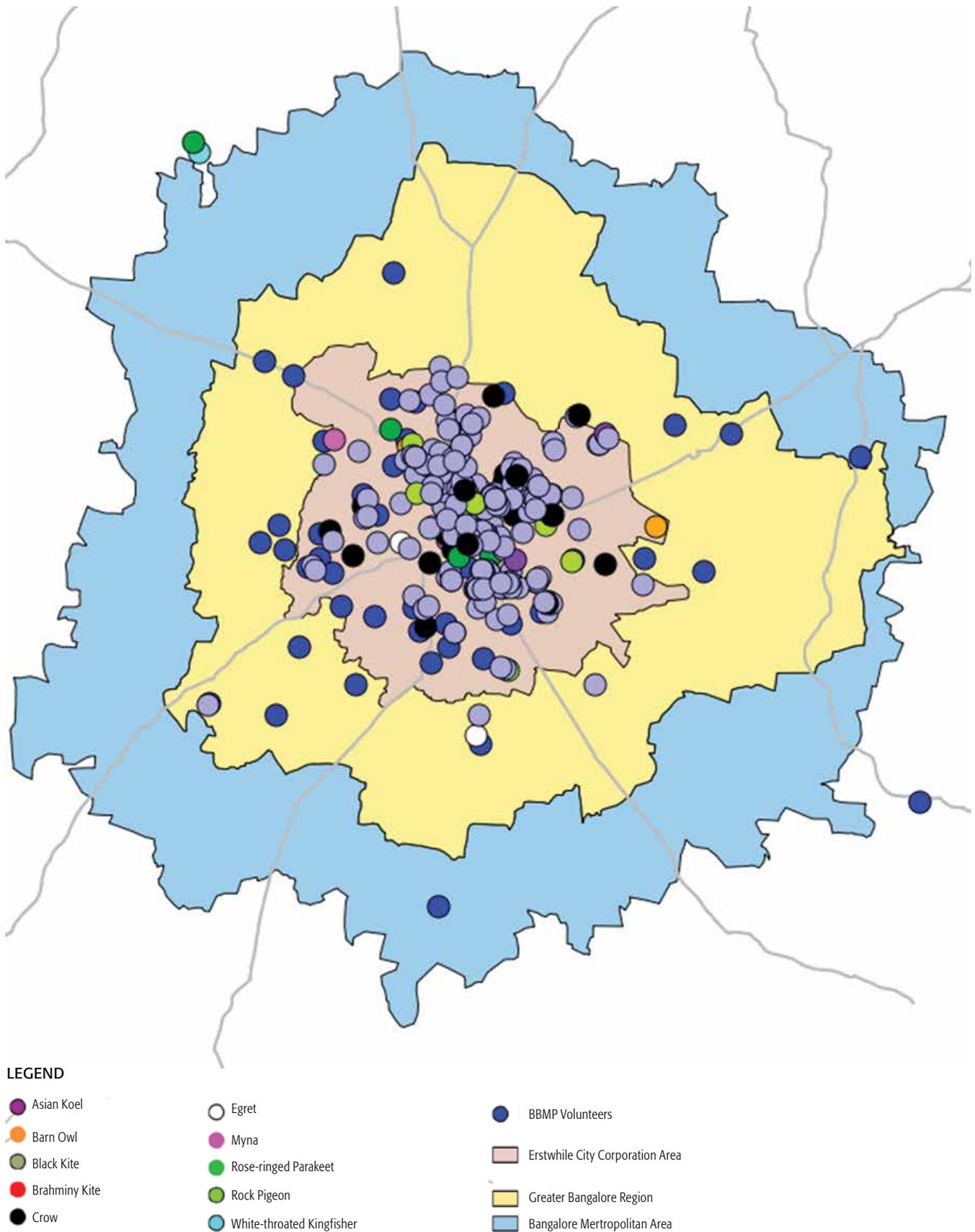


Fig. 1. Locations of birds rescued from manja strings in Bangalore (N=250).

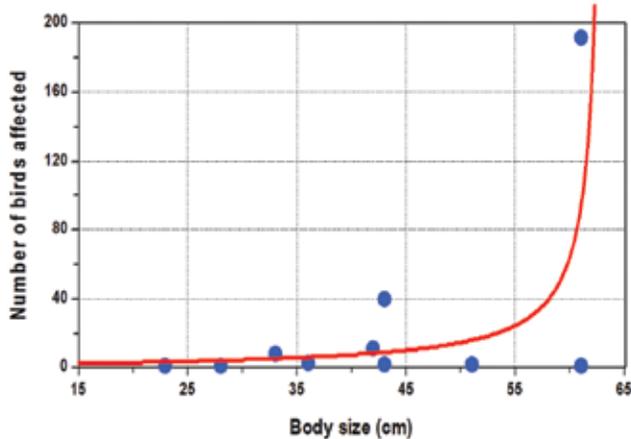


Fig. 2. Relationship between body size of birds and the number of birds found entangled in themanja strings (N=250).

It was also found that even though kites were mostly flown during summer, and less frequently at other periods of the year, birds suffered from the presence of severed manja strings throughout the year (Fig. 3). We suspect that the main reason for this is the greater durability of *Chinese manja* strings than traditionally used cotton strings, and that the former was not as easily biodegradable as the latter, and remained in the environment much longer, even beyond the kite-flying season (Soumya 2013), thus presenting a greater danger and lasting threat to birds in the city.

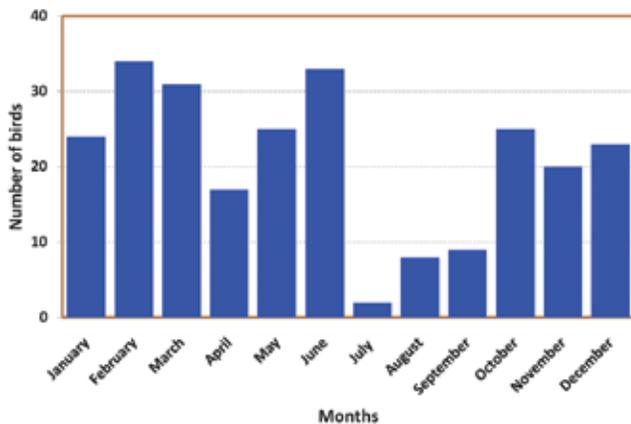


Fig. 3. Seasonality of birds found entangled in manja strings (N=250).

The average height at which birds were found suspended from manja strings was 12 m (Fig. 4), even though these affected birds were rescued from heights spanning 6–46 m above the ground. This variation could very well be peculiar to the urban habitat situation and a function of the substrates where the manja strings were entangled after being severed after kite-flying duels.

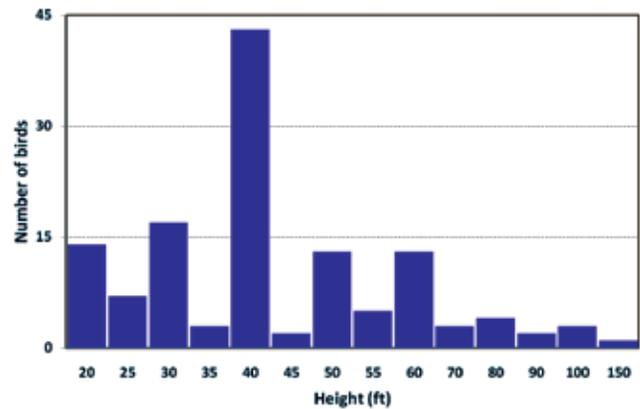


Fig. 4. Details of heights at which birds were found dangling from manja strings (N=130).

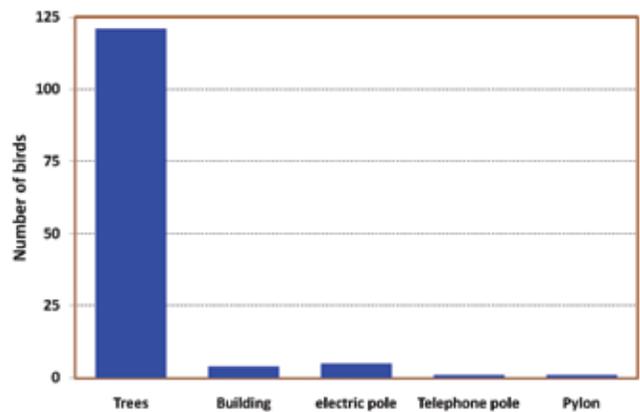


Fig. 5. Details of the substrates from which birds were found dangling from manja strings (N=132).

Over 90% of the birds were rescued from trees, where they must have got entangled when they flew into the canopy (Fig. 5). This also indicates that there is a greater likelihood of manja strings getting entangled in trees and thus posing a threat to birds.

From the rescue data available with BBMP, it is quite evident that more than one agency is involved in bird rescue attempts in Bangalore (Table 2; Chetan 2011, 2012, 2013; Vattam 2011). However, over 90% of the rescue attempts were handled by BBMP volunteers, making it the nodal agency involved in saving birds affected by manja strings in Bangalore. The rescue process clearly indicates that all the different agencies that were involved, worked in coordination with BBMP in most of their bird rescue attempts. We consider this as a unique model, where a city municipal corporation takes charge of the bird rescue and rehabilitation issues, and we would like to see this model being replicated in other cities across the country with a networking process similar to that in practice at Bangalore.

In Memoriam

ZAFAR RASHID FUTEHALLY
(1920–2013)

		
<p>Spools of Chinese Manja available in local Market</p>	<p>Kite flying in Bangalore</p>	<p>A House Crow entangled in Manja string</p>
		
<p>A Black Kite entangled in Manja string Kite flying: a festive passion</p>	<p>Dead pigeon hanging: a victim of Chinese manja</p>	<p>A special rescue vehicle of the Bangalore Fire Brigade</p>
		
<p>A rescue in progress</p>	<p>Maimed leg of a kite following manja entanglement</p>	<p>A Black Kite injured by Manja strings being cared for</p>

Plate 1. The problem of Chinese Manja on birds: their rescue, injuries, and death.

At present, these rescue attempts are being carried out in other cities by various agencies or individuals (Bareth 2003; Beauty Without Cruelty 2013; Soumya 2013). Towards this, there is a need to create a 'wildlife rescue and rehabilitation cell' within the city's municipal corporation with dedicated rescue staff and necessary infrastructure to handle such wildlife-related distress situations. A government directive already exists, under the Prevention of Cruelty to Animals Act, 1960, of the Ministry of Social Justice and Empowerment, Government of India (undated), which empowers every District Collector / Commissioner to set-up a local Society for Prevention of Cruelty to Animals (SPCA) at district level, of which he / she will be the Chairperson. Thus,

the care and rehabilitation of birds injured by manja strings can be entrusted to SPCA.

However, when one looks at the outcome of the bird rescue attempts, it is clearly seen that a small percentage of the birds entangled in kite strings end-up in prolonged care or even succumb (Table 3). Such birds may have remained entangled for long periods of time, which, in the case of a rescued Black Kite, was for about five days! In another rescue attempt, it took about 22 hrs for 32 men to rescue a Black Kite dangling from manja string (Chetan 2012). In an effort to reduce this time gap between entanglement and rescue, there is a need for a greater push for public education through a sustained campaign in the

Table 3. Outcome of the bird rescue attempts

Outcome after rescue	Number
Bird euthanized	1
Bird released immediately after rescue	216
Birds treated on the spot and released	8
Bird under prolonged care	10
Self release	1
Could not rescue	6
Bird Died	5
Nodata	3
Total	250

print and electronic media, detailing the life-threatening effects of severed kite strings, and also a campaign against the use of *Chinese manja* for kite-flying. Citizens should be urged to look for birds in distress, to promptly inform agencies like BBMP, and to aid in their rescue attempts.

The way forward

Considering the harmful effects of *Chinese manja* on free flying birds, and the consequent fatalities that they might suffer, we support and advocate a total ban on the use of *Chinese manja* for flying kites during different festivals or other seasons across the country. However, the very fact that the *Chinese manja* remains in the environment for a much longer period, is of great concern, and a good enough reason for proposing a ban on a wider scale across the country. It appears that *Chinese manja* has been banned in a few cities (NDTV 2011; Beauty Without Cruelty 2013; Soumya 2013), but such a ban is not enforced in all the states in the country. Now we learn that Maharashtra has banned 'manja' kite strings (PTI 2015). In Gujarat, local legislation restricts people from flying kites both, in the mornings, and evenings, when birds are most active (Gujarat Government Order No.ENV-10-2009-400 dated 12/12/2011). Nevertheless, there needs to be a greater level of law enforcement across the country, to prohibit this malady, and there needs to be proper policy for a country-wide ban on the use of *Chinese manja*. Also,

the ban on *Chinese manja* should not just be restricted to its sale and use, but should prevent its very manufacture within, and its import into the country.

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Editorial

Over a year ago we had announced of, and received manuscripts for, a special issue of *Indian BIRDS* on 'urban birds'. Due to various reasons beyond our control, this special issue has got inordinately delayed. We've now decided to publish manuscripts as and when they get ready, instead of bringing out a collective issue. The first of these is on the deleterious effects of kite flying on birds.

For every Indian child, the ability to fly a kite is one of the many rites of passage towards adulthood. Who among us has not been thrilled when the kite soared in the sky, straining at the string that held it back? Did we control the kite, or did the breeze? But the sport held our emotions; exultation when we cut a neighbouring kite after an aerial joust; disappointment, if our kite fell victim to another. And there were moments of grace when the world comprised wind, kite, and the kite-flyer. Who would have thought that a time would come when this idyllic pastime would spell doom for birds? The culprit is a new type of string imported from China, and also made in India, which endures abrasion, and strands that float freely from kites that have been cut, and are stuck in natural or artificial projections, ensnare birds that fly unwittingly into them; getting inextricably enmeshed while trying to struggle free. It's a tragic coincidence this, both being symbols of unfettered freedom, the free-flying bird, and the soaring artificial paper kite. Babu, Subramanya, and Dilawar record these fatalities in their paper, and provide some remedies.

Vyas and Upadhyay's paper on the breeding of Ashy Woodswallows carries pictures of the birds' eggs, nestlings, etc. These border on the risky side of the rules of the game, but the methodology used to take photographs was ethical, where the safety of the birds was paramount. It is a compelling visual scientific record of the woodswallow's breeding biology.

We welcome Prasad Ganpule on to *Indian BIRDS'* editorial board. We will benefit from his strengths.