

**Conservation
of Endangered
Greater Adjutant
Stork in
Assam, India**



Abstract

The Greater Adjutant *Leptoptilos dubius* is an endangered bird, with an estimated global population of less than 1000 birds. Habitat loss and poaching are major threats to this bird and its population is displaying a decreasing trend across globe. Assam is considered to be its last stronghold. In Assam, this colonial nesting bird makes nesting colonies in the Brahmaputra valley, and mainly on privately owned trees within thickly populated villages. In recent years, many nesting colonies in Assam have disappeared, and the population is declining. Nest-tree owners were cutting down the trees to avoid having rotten and smelly nest materials and the excreta of this carnivorous bird in their backyards. Many nest-tree owners cut the nesting trees to support their income too. The participation of the nest-tree owners is key to the conservation of this bird. We initiated a community conservation programme for this bird in its biggest nesting colony, in Kamrup District, Assam. Using various community conservation tools, we were able to develop an "ownership feeling" for this bird amongst the villagers. We consciously avoided giving any cash incentives for the protection afforded to the bird by the villagers. As a result, the population of this bird has increased in this nesting colony, which represents about 50% of its global population.

Keywords: Assam, community conservation, ownership feeling, endangered, Greater adjutant, waterbird

Introduction

Till the early 1990s, the sighting of a Greater adjutant *Leptoptilos dubius* in the wetlands of the Brahmaputra valley in Assam was quite common. This colonial nesting waterbird had many nesting colonies along the Brahmaputra valley and probably had a stable population. But for unknown reasons the Greater adjutant suffered a massive population decline (BirdLife International 2014). Till a few decades back, this bird was widely distributed in India, South Asia and South-east Asia, but currently it is known to be distributed only in Assam and Bihar in India (Sarkia & Bhattacharjee 1989, Rahmani *et al.* 1990, Mishra & Mandal 2009) and in a few South-east Asian countries in very small numbers (Clements *et al.* 2007). Out of the nine stork species found in India, the Greater Adjutant is the rarest. In India, Assam is considered to be the stronghold of this species, with about 75% of its estimated global population being found here (Choudhury 2000). A breeding population in Bihar, which has been found to be stable, is a comparatively recent discovery (Mishra & Mandal 2009). The decreasing trend of this bird's population and habitat destruction has been identified as major threats to this species (BirdLife International 2014). Other physiological threats or diseases, if any, are still unknown or have not been studied. The current global population of this bird is estimated to be about 800-1200 mature individuals, with the majority of the populations being localized in Assam (BirdLife International 2014). In Assam this species was distributed in some historical nesting colonies along the Brahmaputra valley only (Singha *et al.* 2003). A recent report suggested that that population of this large sized colonial nesting waterbird has declined drastically in the last couple of decades, essentially due to destruction and disturbance of its traditional nesting colonies (Ooswami & Patar 2007). Many amateur bird watchers too have reported that many traditional nesting colonies of this bird have disappeared and that the birds have simply vanished from those areas. Very recently this bird was identified as an "edge" species by the Zoological Society of London, which opined that this bird is slowly moving towards a more dangerous zone (Jetz *et al.* 2014).

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Kamrup District, of Assam, is known to be a historical stronghold of this bird. Almost 75% of its Assam population is found in this district (Singha *et al.* 2003). Sighting records are significantly less frequent in other areas of Assam (Goswami & Pator 2007). Currently, Kamrup District harbors about 500 individuals (Barman 2009, 2012), and urgent conservation actions need to be considered to secure the future of this bird. In one breeding colony in the villages of Dadara, Pacharia and Singimari, in this district, we recorded about 450 individuals in November 2013. This may be the largest number recorded of this species in any of its breeding colonies. Local villagers informed us that they started seeing nests of Greater adjutant in their villages since 1978.

In Assam the bird's nesting colonies are located mainly outside the protected area network. Almost all the existing nesting colonies are located within thickly populated human habitations. Felling of nesting trees and destruction of nesting colonies by people for various reasons are concerns regarding the sustainability of these nesting colonies. The bird's future is essentially in the hands of the nest-tree owners, and hence their co-operation is quite important in its conservation.

The authors initiated a community conservation programme in the Dadara-Pacharia-Singimari area. Before this effort, the local villagers were not aware of the importance of this bird. They either avoided having this carnivorous bird in their backyards (because of the foul smell of the nest materials and dead nestlings falling below) or cut the nesting trees for their livelihood. But slowly the villagers responded to the conservation message, and now this bird is protected by the villagers around this nesting colony. Its population in Kamrup District has increased, and now it is estimated that 50% of the global population can be seen in this district alone (Barman 2011).

This paper describes how community conservation protected this globally endangered bird in the Dadara-Pasariya-Singimari nesting colony.

Study Area

Dadara, Singimari and Pachariya (26° 13 ' 13.47 " N or 26.2204083 N and 91° 38 ' 03.03 " E or 91.6341750 E) are three adjoining small villages located about 12 km from Guwhati city of Assam (Figure No. 1). These villages are very close to Poondoba beel (*beel* means "wetland" in Assam), Digheli *beel* and Jeng *beel* and stand at the foot of a small hillock named Alamara. The straight-line distance to Deepor Beel Wildlife Sanctuary, which is a Ramsar site, is about 8 km. The River Brahmaputra is about 4 km from these villages. The climate of the area is, like other parts of the Brahmaputra valley, of the humid mesothermal Brahmaputra type, with minimal local variations. The maximum temperature is 38.5°C, and the minimum temperature recorded is 7°C. The annual rainfall in this district is between 1500 mm and 2200 mm.

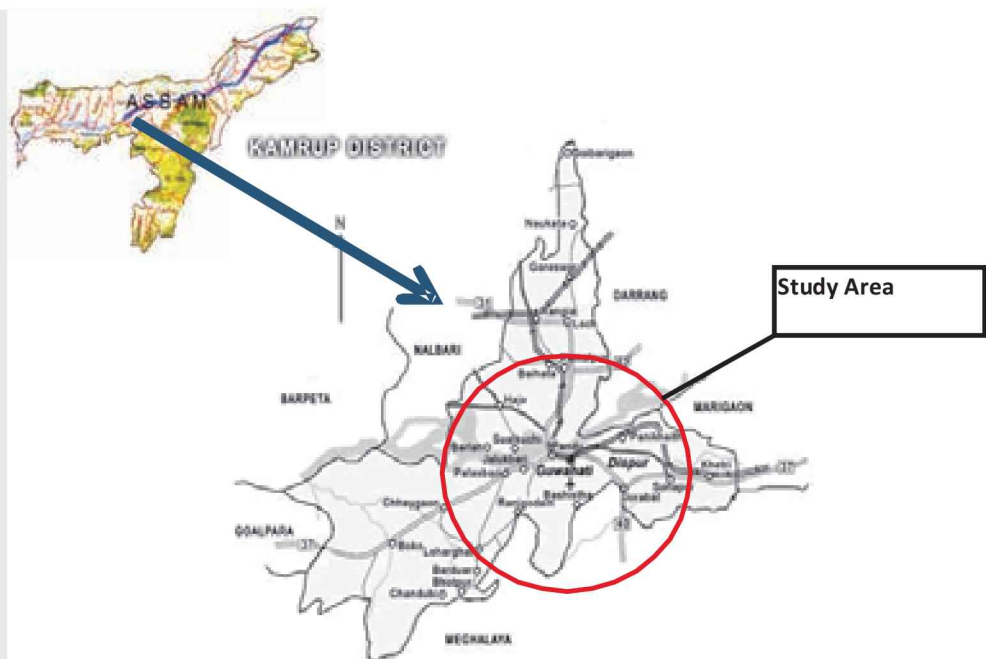


Figure 1 : Location map of the study area

Conservation Problem

The Greater adjutants build nests in the home gardens of villagers. They prefer tall trees and mainly nest on *Neolamarckia cadamba*, *Bombax ceiba*, *Artocarpus lacocha*, *Artocarpus heterophyllum*, *Pithecellobium monadelphum* and *Archidendron bigeminum*. There may be upto 15 nests in one nesting tree. While the birds are raising chicks, they bring fish, snakes, and waste and bones from butchers to the nests. Often these fall to the ground. They rot, and the ground becomes very smelly. Chicks fall to the ground and die. The excreta from the birds also makes the ground very dirty and smelly. The area below the nest becomes very unhygienic and unfit for human use. Thus nest-tree owners disturbed the birds to make them vacate the nesting trees. Many nest-tree owners cut nesting trees to earn some money to meet their needs, especially when their children got married. Further, many nest-tree owners believed that conservation of birds is the responsibility of the government and that if they allowed the birds to make nests in trees owned by them, the government should pay them for this. The government (forest department) does not have such a policy. We found that till 2008, the local villagers and nest-tree owners did not have any idea that the Greater Adjutant is an endangered bird and that this nesting colony is one of its most important factor for its survival.

Methods

We started with a pre-campaign survey in Dadara-Pacharia-Singimari to understand the motivational needs of the nest-tree owners. The survey indicated that the villagers were not aware of the importance of this globally endangered bird. They were also not fully aware of the importance of wildlife conservation in their daily lives.

We designed various community conservation activities to motivate the nest-tree owners. We identified various key groups in the villages that could convince the nest-tree owners to allow the Greater Adjutants to make nest on their trees. We approached young students, youth groups, women and elderly, respected persons from the locality to generate an "ownership feeling" among the villagers regarding having the Greater Adjutant in their villages. We also invited local celebrities to the villages and requested the local people to conserve this bird. We consciously avoided making any cash offer to the nest tree owners to support the nesting colony of this endangered bird. Because, sustainability of cash offers to nest tree owners as these might be very difficult to maintain in the long run and might create bigger problems for the bird in the future.

Results

Conservation Activities

Educating School Students : At the beginning we started environmental education activities for local school students. Rather than going from one school to other, we concentrated on a small private school, Sankardeva Sisu Niketan, located at the heart of the nesting colony villages. Most of the pupils of this school were children of nest-tree owners. We introduced the students to the importance of biodiversity and wildlife conservation through plays and group activities. After regular environmental education activities had been instituted, the students were slowly introduced to the Greater Adjutant. The students were all surprised to learn that they lived with an endangered bird in their home gardens. We also conducted quiz competitions, drawing competitions and poetry competition to involve the students in conservation of the Greater Adjutant in their villages.

Scholarships for The Children of Nest-Tree owners : We introduced a token scholarship programme for local students who secured good marks in the board examinations. Local students were the beneficiaries, and almost all of them were children of nest-tree owners.

Working with Women Folk : We worked with the women of the locality to make them understand the importance of Greater Adjutant conservation. They were shy as expected about participating in any formal discussion on conservation. We organized a cooking competition in which they could participate during *bihu*, the Assamese festival. During this cooking competition they spontaneously participated in a discussion about conservation of the Greater Adjutant in their villages. They were amazed to learn during the course of the discussion that this endangered bird has chosen only their villages to breed in. With this knowledge, their motherly instincts, they opined, would not allow them to disturb the birds in their villages during the breeding season. They even had celebrations and publicly wished the bird a successful nesting season in their villages, just as they do for their own female relatives who are expecting their first children.

The women of these villages are also famous for their expertise in weaving the traditional Assamese towel, *the gamosa*. The local women made traditional Assamese *gamosas* with a stork motif for spreading the message to conserve the endangered bird.



Stork motif in Assamese gamosa.

Photo: Purnima Devi Barman



Motivating Youth Groups : We organized many group meetings with local youth, both male and female, in their 20s. We informed them about the importance of the storks and very specifically mentioned that if they successfully conserved the nesting colony, this village could become a destination for bird tourism. A few bird tourist groups were introduced to the youth groups, and they guided them on birding trips in the nesting colony. The youth were also taken to Assam State Zoo to introduce them to other conservation initiatives. Many young chicks die in the nesting colony due to injuries sustained after falling out of nests. Though this is natural process, saving a chick of a globally endangered bird with a population less than 1000 will have a positive impact. After learning the importance of this bird, the youth groups even rescued many chicks that had fallen out of nests and handed them over to Assam State Zoo for further treatment and rehabilitation. Previously, the youth had no concern for the birds that fell out of the nests and eventually died. The released birds were named after young students to raise the motivation for conservation further.

Local youth performing a street play.

Photo : Purnima Devi Barman



Roping in a local celebrity : A popular Assamese film actress was invited to visit the nesting colony. She was requested to interact with the local people to conserve the Greater Adjutant. The local people were overwhelmed by the presence of the celebrity in their own villages, sitting with them and having tea with them. The message from the celebrity left a deep impact, especially with the young brigade. The young people promised the celebrity that they would support the endangered Greater Adjutant in their villages.

Assamese celebrity felicitating nest-tree owner.

Photo : Purnima Devi Barman



Motivating local police : In an Indian situation, it is always important to have on board the law enforcing authorities when implementing any community conservation programme. In this effort too we made the local police stakeholders. We invited the Kamrup Police Department to participate in the conservation efforts. They actively participated in all the conservation programmes and even voluntarily put up a hoarding with a conservation message. The involvement of the police made a real difference, and poachers did not have the courage to disturb or kill birds in the colony.

Integration with local religious programme : The mythological story about the stork delivering a baby was narrated by elderly local women. Women folk specially liked this story and decided to include stork figurines (volunteers wearing stork costumes) in the local religious procession to celebrate the breeding season of the stork in their villages like a "baby shower". The villagers now celebrate the breeding season of the Greater Adjutant stork every year.

Apart from these measures, education material (posters and leaflets) about the programme was published and freely distributed among the local students.

Cultural procession for stork conservation.

Photo : Rathin Barman



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Discussion

The conservation efforts were made continuously for three years, and the local people stopped disturbing the birds in the nesting colony. Nobody cut any nesting trees and, most important, the villagers developed the feeling of ownership. During this period (from 2009 to 2014) there was not a single record of any tree owner cutting down of a nesting tree. School children became highly aware, and they convinced their parents not to cut the trees. The women celebrated the breeding season of the birds in unique ways, similar to the celebration of baby showers. The village youth became protectors of the birds. When they come across any injured bird that had fallen out of a nest, they rescue the bird immediately and volunteered to carry it to Assam State Zoo. They composed street plays with the message of conservation of this bird. In 2009-2010, when the first author visited the nesting colony, only 65 successful nests were recorded. The next year (2010-2011), we recorded 90 successful nests. In year 2011-2012 the number of successful nests increased to 114. In 2012-2013, it increased further to 152. In 2013-2014 we recorded 148 successful nests. The villagers of the nesting colony have become protectors of the Greater Adjutant.

We felt that the villagers of the nesting colony had provided an example of successful community wildlife conservation in Assam. The success needs to be sustained with continuous efforts from the conservation fraternity. Conservation groups should visit these villages continuously. Though the forest department does not have any active role in this conservation effort as this locality does not fall within the protected area network, the villagers want the department to play an active role, especially in rescuing and rehabilitating the chicks that fall out of nests.

We needed funds to attend to an average of 50 chicks every year, and raising these funds was a difficult problem. The response from the forest department in this aspect also needed improvement. A temporary facility for rescuing and rehabilitating birds that fall out of nests might have a great impact on the population. Any cash incentive will be detrimental as there will be no end to the aspirations of human beings. Bird tourism in these villages might help conservation of the species, but this needs to be carried out with the active participation of the local people and should not be operated for the sole benefit of tour operators.

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