Recommendations for Amur Falcon Conservation

With Specific Reference to Amur Falcon Festival and eco-tourism

Doyang Reservoir Important Bird Area and Pangti Forest, November 2018

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Introduction to Amur Falcons (*Falco amurensis*)

Amur Falcons migrate through North East India, coming from Siberia. Large flocks—observed to be tens of thousands of birds, have been seen in Manipur and Nagaland and parts of Assam. The largest congregation noticed so far is in Doyang reservoir in Wokha district, Nagaland.

Amur Falcons, like other wild birds, have been historically hunted in the states of Nagaland and Manipur. As interactions with villagers reveal, the hunting in Doyang increased substantially after the reservoir was created as falcons congregated over the water, chasing insects. In 2012, hunting of Amur Falcons in very large numbers was reported but this has since completely ceased after interventions from the Nagaland Forest department, and a coalition of NGOs including BNHS and NWBCT.

Conservation Actions and the Amur Falcon Festival

Since 2012, the Nagaland Department of Environment Forests and Climate Change has been instrumental in conservation of Amur Falcons. The forest department has held several interactions with the hunting villagers, and reinforced no-hunting messages.

In keeping with its mission of natural history and education, BNHS has been running eco-clubs in Doyang, Pangti, Asha and Sungro along with the Nagaland Wildlife and Biodiversity Conservation Trust (NWBCT). Additionally BNHS also runs eco-clubs in Lilien, Okhotso, Bongkolong and Jalukie.

The eco-clubs have been a means of spreading a conservation message and the village council has responded through bans on hunting. More than 200 children have been taught in these clubs.

The momentum for this combined conservation action should be maintained. In 2018, a mass tourism activity, the Amur Falcon Festival was held at Doyang reservoir and within the Pangti forest, which is a roosting area for the largest known Amur Falcon congregation in the world. Activities such as angling and camping were held in the falcon migration season. This was observed creating disturbance to the birds. It is imperative that the hard-won conservation gains are not squandered and only low-impact eco-tourism be held in the area without allowing vehicles into the roosting area. This report records observations and recommendations on the same.

The Habitat: Doyang Reservoir and Key Biodiversity Area

Doyang Reservoir was created by a hydroelectric dam on the Doyang River in 2000. The reservoir is surrounded by forest which is owned by local communities, mainly people from Pangti village. Since the reservoir was created, migratory Amur Falcons come to the water body and have been observed to feed on insects flying over the water. These insects include termites and grasshoppers. BNHS has been working in the area since 2013.

Over 100,000 Amur Falcons have been observed in the Doyang Reservoir since 2013, which is also estimated to be the largest congregation of falcons in the world. Due to this large congregation, the site qualifies as Important Bird Area (Rahmani et al. 2016[1]). Recently, the

[1] Rahmani, A.R., Islam, M.Z. and Kasambe, R.M. (2016) Important Bird and Biodiversity Areas in India: Priority Sites for Conservation (Revised and updated).

Key Biodiversity Area (KBA) prioritisation scheme has been launched (IUCN, 2018[2]) which automatically qualifies IBAs to be KBAs. Thus this site is important from the overall biodiversity perspective.

Observations on Amur Falcon behaviour

In 2013, 2014 and 2015, Amur Falcons were observed to be roosting closer to the road. Flocks of falcons were observed sitting near Doyang dam, utilising trees near the road next to the reservoir. They were also observed sitting on electric lines.

In the last two years, the falcons have been observed to move away from the road and deeper into tree cover. Three watch towers have been made in the past years. In 2018, flocks of Amur Falcons were noticed over three days (November 9-12) only from one watch tower indicating a shift in roosting spots. GPS Coordinates of the watch tower are as follows: NL 26° 14' 33" and EL 94° 18' 19.

In 2018 as well as in previous years (2013-2017), Amur Falcons were observed to be roosting on the tallest trees in the area. Several trees have been spotted totally covered in Amur falcons suggesting that these birds prefer communal roosting. In other locations such as Phalong in Manipur (2014-2018) and Umro village in Assam (2013), Amur Falcons have been spotted in communal roosts in bamboo brackets. Thus, in order to allow successful roosting of birds we need to conserve large trees, as well as bamboo brackets where applicable.

[2] IUCN (2018), A Global Standard for Identification of Key Biodiversity Areas, Version 1.0

Last Image: Amur Falcons are observed to roost communally on large trees.

Thus, preserving large trees will be important for Amur Falcon conservation.

Image 2: the birds fly in flocks in the sky and roost in groups on trees

Observations on Flock sizes of Amur Falcon.

A reconnaissance survey was done to choose an area where the birds could be seen clearly by foot.

As the birds fly high in the sky, a clear view unobstructed by trees was needed. A transect was walked for three days – 9, 10, 11 November. Three observations were taken from each observation spot on the transect, with a distance of 100 metres between each observation point. GPS Coordinates were taken for each location.

The same observations were taken on each day from the same locations.

Approximately 100,000 Amur Falcons were observed in flocks at one time, with 5,000 birds captured in one frame.

Image: Portion of a flock spotted on 10 November at 8:11 AM.

Image: Portion of a flock sighted from watch tower on November 11, 2018 at 8:00 AM.

Methods:

The following methods have been adapted for flock size estimation.

Counting of raptors: from 'Ecological Census Techniques a handbook Second Edition,' Edited by WILLIAM J. SUTHERLAND, 2006

1. When roosts are small and easily viewed, birds can be counted at the roost. When they are large or hidden, for example in trees or on rooftops, it is best to count flocks of birds entering or leaving the roost. This is particularly the case at dusk when flocks of birds coming to roost may be visible against the sky, but are invisible once on the ground or in the trees.

Because these species are often widely dispersed at other times of year, often over huge areas with sparse human populations, counting birds at bottlenecks, particularly when they are limited in number, can be an extremely efficient census method.

It is useful if one observer counts to the north, one to the south and one overhead. Ideally, the teams should communicate with radio transmitters to avoid duplicate counting.

2. Where numbers become too great to count, it may be sensible to photograph the passing flock, project the image onto a screen, and count the dots.

Adapted from the above, a transect was also walked in the on 9th, 10th, 11th November in the morning and evening as falcons return to roost at twilight. An image from the same is below. Images were processed for counting the birds. ImageJ software was used to process the photos. An estimation of the how far the flock spread out in the sky was taken (about 10 photo frames, with approximately 5,000 birds per frame).

Image: Portion of Amur Falcon flock on 11 November at 16:42 PM.

Changes in habitat in Pangti forest and Doyang Reservoir

In 2018, changes in the habitat utilised by the Amur Falcon were observed. Birds had gone deep inside the forest next to the Doyang reservoir, and this could be because of increased number of tourists for the 'Amur Falcon festival' in November 2018. Birds were spotted by the BNHS team only inside the 'restricted area' maintained by villagers, where tourists and outsiders are not allowed entry. Between 203-2015, birds were seen on electric lines near the road next to the reservoir. These roosting numbers were seen to be gradually decreasing between 2016 and 2017 perhaps due to increasing traffic on the road. No birds were seen on the transmission lines in 2018.

The following are other changes observed:

1. Several cars and bikes entered the roosting area for angling and other tourist activities for the Amur Falcon festival in November 2018. At one instance, over 20 vehicles were observed going in. Field observations have shown that Amur Falcons are very shy birds. Between 2013-2017, the birds have been observed to move away from roosting on electric lines as number of vehicles using the road next to Doyang reservoir have

increased. In 2018, the Amur Falcons were observed deep in the forest next to the reservoir. It is a cause of concern that this year's Amur Falcon festival led to several two-wheelers and four-wheelers directly entering the roosting area and going deep into the forest.

Image: Disturbance within the roosting site in full view of the Amur Falcons

2. Construction of a metalled entry road has started, which will take people from the main road to roosting area of the falcons. This was earlier a 'kaccha' or non-metalled road. Several butterflies have been spotted mud-puddling and taking nutrients from the bare patches of earth on the road. This is a process wherein the butterflies take salts and minerals from soil.
   Since the road is being made, care should be taken to ensure some patches of earth are left bare on either sides of the road so that butterflies can access nutrients in the otherwise wooded area. It is also very important that number of vehicles entering should be regulated and speed should be controlled to avoid wildlife mortality and disturbance.

Image: Blue Crow butterfly basking on vertical stick next to road construction at the site.

3. Angling tents were set up within the roosting site.
4. Jungle crows and House crows were spotted in stray numbers in 2016 and 2017. However, in 2018 they were observed in larger numbers (small flocks of 4-5 individuals). This could be attributed to spread of garbage. In one instance, crows and corvids were seen chasing off Amur Falcons.
5. Spread of the plant *Mikania micrantha* is observed. As per the IUCN Global Invasive Species Database, the *Mikania micrantha* is a weed in India that kills off other plants. It is native to South America. As observed Mikania has taken over large patches of vegetation around the reservoir. Habitat management to control the species should be undertaken.

Image: spread of the invasive Mikania (with white flowers) is observed

Recommendations

1. Individual cars and bikes entered the roosting site during 2018 Amur Falcon festival. There were more than twenty vehicles in the roost area at single points of time. This was observed as disturbing the roosting birds, as they all moved deep inside the forest and 'restricted area'. It is recommended that individual vehicles should not be allowed inside the roosting site, which is the refuge of the Amur Falcons. Instead, a car-pooling system should be worked out, or people can go on foot. This will avoid harmful impacts of noise pollution and habitat disturbance.

2. The road to the roosting site should retain patches of bare earth on both sides so the lost habitat for butterflies is compensated. The area can also be developed as a bird, butterfly and moth destination which will support tourism throughout the year and not just in the Amur Falcon season. A list of butterflies and birds found in Pangti village is attached.

Image: moths in the Pangti village home stay. Just one light bulb attracts many different species of moths.

3. Angling activities should not be done in the Amur Falcon arrival and roosting season – which is end of October to beginning of December. Angling, camping and tenting

activities can take place during the Hornbill festival in December or any other part of the year.

4. Naturalist training programmes for young men and women from the village should be held in which BNHS can assist. Suggested modules include:
   a) Early morning and evening bird watching
   b) Butterfly watching when the sun is out (midday)
   c) Twilight and crepuscular moth watching- learning how to use a screen to attract moths, observing and identifying moths in homestays
   d) Introduction to citizen science modules- e-bird, Common Bird Monitoring Programme (BNHS) taking field notes, using GPS/ Compass.

5. As suggested above, there is also a need to manage the habitat in an ecologically sound way, which includes removing weeds like Mikania and keeping mud-puddling sites for butterflies.

Image: Blue Crow butterfly at Doyang reservoir IBA.

Image: Common Stonechat (Female) at Doyang Reservoir

Way ahead

At the moment, there is small-scale eco-tourism in Pangti and Asha villages in the form of home stays that benefit locals. The Amur Falcon festival was a departure from the small scale and brought in a lot of tourists all at once, with very little regulation. There is a need to harmonise existing approaches to eco-tourism so that the community can benefit, but also so that the habitat and the Amur Falcons are not disturbed.

One of the ways forward is to train locals to become naturalists. BNHS and Nagaland Wildlife and Biodiversity Conservation Trust (NWBCT) have over the years conducted over 5 workshops on eco-tourism, identifying birds, and some field skills. More than 50 people have received basic training in eco-tourism and hospitality.

The community is now ready to receive specialised Naturalist training.

- BNHS, NWBCT and the forest department can come together to train identified men and women from the villages of Pangti, Asha and Sungro.
- They will be taught in such a way that supports year-round tourism.
- The training will focus on bird, butterfly and moth identification and capacity building of conducting nature trails.
- Apart from teaching naturalists the skills of birdwatching and nature guiding, there will should be a holistic focus on habitat conservation and restoration.

Appendix: Checklist of species at Doyang IBA and Pangti forest, 2018

Birds:

1) Amur Falcon *(Falco amurensis)*
2) Brown Shrike *(Lanius cristatus)*
3) Pied Starling *(Gracupica contra)*
4) Spotted Dove *(Spilopelia chinensis)*
5) Indian roller *(Coracias benghalensis)*
6) Cattle Egret *(Bubulcus ibis)*
7) Common Myna *(Acridotheres tristis)*
8) Eurasian collared Dove *(Streptopelia decaocto)*
9) Chestnut-headed Bee-eater *(Merops leschenaulti)*
10) Lesser racket-tailed Drongo *(Dicrurus remifer)*
11) Common Drongo *(Dicrurus adsimilis)*
12) Long-tailed Shrike *(Lanius schach)*
13) Common Bushchat *(Saxicola caprata)*
14) Spotted Forktail *(Enicurus maculatus)*
15) White Wagtail *(Motacilla alba)*
16) Citrine Wagtail *(Motacilla citreola)*
17) House Crow *(Corvus splendens*)
18) Indian Jungle Crow (*Corvus culminates)*

Butterflies:

1) Common Jester (*Symbrenthia lilaea)*
2) Swift *(Pelopidas mathias)*
3) Assam Pale four-line blue (*Nacaduba hermus nabo)*
4) Common Emigrant *(Catopsilia pomona)*
5) Common evening Brown *(Melanitis leda)*
6) Fluffy Tit *(Zeltus amasa)*
7) Grass Blue *(Pseudozizeeria maha)*
8) Mime Tiger *(Papilio clytia)*
9) Grey Pansy *(Junonia atlites)*
10) Lemon Pansy *(Junonia* lemonias**)**
11) Blue Pansy *(Junonia orithya)*
12) Oriental Yellow Pansy *(Junonia hierta)*
13) Punchinello *(Zemeros flegyas)*
14) Common Oriental Sergeant *(Athyma perius)*
15) Common Sailor *(Neptis hylas)*
16) Common Birdwing *(Troides helena)*
17) Lime butterfly *(Papilio demoleus)*
18) Yellow Owl *(Neorina hilda)*
19) Plain tiger *(Danaus chrysippus)*

20) Chestnut Tiger *(Parantica sita)*
21) Rice Swift *(Borbo cinnara)*
22) Painted Lady *(Vanessa cardui)*
23) Blue Crow *(Euploea mulciber)*

Dragonflies:

1) Blue Dasher *(Pachydiplax longipennis)*
2) Scarlet Dragonfly *(Crocothemis erythraea)*

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