Executive Summary

The Forest Owlet *Heteroglaux blewitti* is a small sized diurnal owl, endemic to India. Owing to its small and isolated population, it was placed in Critically Endangered category of IUCN (Birdlife International 2017) and is listed under Schedule I list of Indian Wildlife Protection Act.

Since 2005, Wildlife Research and Conservation Society (WRCS) is working on the status and distribution of Forest Owlet in Central India. In 2012, a long-term study on Ecology of Forest Owlet was initiated in Khandwa District in Madhya Pradesh. The field study was carried out from December 2012 to April 2017.

The study was supported by Department of Science and Technology (DST), New Delhi and Raptor Research and Conservation Foundation (RRCF), Mumbai with additional support from the Mohamed Bin Zayed (MBZ) Species Conservation Fund, UAE. The Peregrine Fund, USA donated radio tags, antenna and receiver for the study.

Although several surveys and two ecological studies have been carried out on the Forest Owlet in the country, there is a lot that remains to be understood about the spatial and ecological requirement of the species. Forests of Khandwa Divisions are managed forests where regular logging operations are carried out. The Reserved Forests are also used by the local communities for collecting fuel wood, grazing their cattle and for collecting minor forest produce. There is considerable pressure on the habitat due to illegal tree cutting by the villagers.

Existence of the Forest Owlet in these forests for all these years indicates that Forest Owlet is capable of surviving in managed forests. However, the impact of forestry operations on the Forest Owlet is not known. It is important to understand why the species is rare, which factors are affecting its survivability and what interventions are required for its long-term conservation in the country

The long -term goal of this project is to understand various ecological, environmental and biotic factors that affect the presence of Forest Owlet in the study area. The study is planned in two phases at the chosen site. During the first phase, we shall carry out an ecological study on the Forest Owlet and in the second phase implement a monitoring and conservation program. This report is based on the findings of our study in the first phase.

After a rapid survey of the area, we selected a compact area of about 100 km^2 to monitor the presence of Forest Owlet. The selected area was overlaid with 2 km x 2km survey units (main grids). Each 2 km unit was further divided in to sixteen 25 ha or 500 m x 500 m survey stations (sub-grids). Each survey unit had a geo-referenced central co-ordinate.

Totally 25 survey units were selected to monitor the forest owlet in the study area. Of these, 18 survey units were in a compact cluster and were selected because it had presence of forest owlet in the area. Additional 7 survey units were selected to assess the impacts of timber harvesting on the forest owlets.

Forest Owlet habitat assessment was carried in a grid-wise manner in each 500 x 500 m grid of the study area. Quadrats of size 20 x 20 m were laid at the centre of each grid. The vegetation was divided in three strata: tree, shrub and ground cover. The study was carried out in 434 sub grids.

The Forest Owlet occupied sites were mostly in plain area with low elevation range. Also had low to medium slope and narrow elevation range. It occupied forests with trees with medium GBH and tree height. The Forest Owlet occupied areas with good forest cover and close to agricultural fields.

To study demography of the Forest Owlet, we obtained permission for color-banding. We have colour-banded 50 Forest Owlets in the study area. This included 23 females, 19 males and 8 juveniles. The total banded birds included 14 pairs of Forest Owlets.

Colour-banding was found to be most useful in studying movement, territoriality and breeding success of Forest Owlet in the study area. Our findings indicate that Forest Owlets are territorial during their breeding season. The same nest continues to be used by the same pair in the next breeding season. Female Forest Owlets are more localized than the males. Forest Owlets have localised movement and we found a few banded individuals who moved from 2 to 6 km within the study area.

We studied the diet of Forest Owlet by examining the regurgitated pellets. During the study, we have collected 526 pellets of the Forest Owlet and have separated 1436 prey items from them. We compared the diet of Forest Owlet with two co-occurring species in the area, namely, the Spotted Owlet and the Jungle Owlet. The results of the first-year diet analysis indicate that the Forest Owlet feeds mainly on small mammals while the other two owls feed primarily on invertebrates. The Forest and Spotted Owlet preyed on small to large sized mammalian prey while Jungle Owlet fed on smallest sized prey. The three owls appear to be able to co-exist mainly due to differences in their foraging time, hunting mode and prey size consumed.

We could locate 15 nests of Forest Owlets in the study area. We could detect totally 17 nests of Forest Owlet during the study. All nests were not used each year by the Forest Owlet. In 201314, we observed maximum number of pairs (11) using the nest. In subsequent years there were 4 to 6 breeding pairs in the area.

Forest Owlets did not show specific preference for tree species for nesting. However maximum (41%) nests were found on *Garuga pinnata,* followed by *Tectona grandis* and *Terminalia tomentosa* .

We radio-tagged three Forest Owlets in the study area. This included 1 breeding male, 1 nonbreeding male and I non-breeding female. This study was carried out for 4 months towards the end of the project. Through this study, we have developed preliminary insights in the behaviour of the Forest Owlet. The movement pattern of a breeding male is different than a non-breeding female.

The Reserved Forests are being managed for timber harvesting. There are villages in the area who use the forests for livestock grazing, collecting fuel wood and collecting forest produce. The tree felling, while being conservative, may be creating local disturbance for the owls.. Forest Fires also cause a lot of damage to the habitat, especially when the juveniles are out of the nest. Fires also affect the prey availability in the area. The speeding vehicles plying on SH 46 causes many road kills of birds and animals in the area.

To address the above issues, we have engaged with the Forest Department at various level. We obtained excellent field support from senior and field officers of Madhya Pradesh. We have arranged two workshops for the field staff to generate awareness on types of owls found in the study area, their nests and their importance in ecosystem. Totally 160 field staff participated in the owl conservation workshops.

We have engaged with the local communities of the area and included them as conservation partners. We have generated awareness on the importance of owls in controlling rodent in their farms and tried to convince them against the use of rodenticides.

We have established Self-help Groups (SHG) in two villages in the study area. Each group consists of 3 to 4 young women. We are promoting their products under a brand named “Athena”. Under Athena, the SHG ladies have been trained in making handicraft items based on owl theme. Athena groups are making tote bags, key chains, cushion covers and t-shirts made on owl shaped appliqués. WRCS is marketing the products and the proceeds of the sale are diverted towards the ladies as an incentive to protect the owls and their nests in their farms. One person has also been making owl shaped wooden items and earning income through WRCS. This initiative has become successful and will be carried on further to benefit the owls and the local farmers.

We have shared the findings of this study in scientific and public platform in various ways:

10 oral talks and 3 poster presentations in conferences and meetings

1 publication in a peer-reviewed International journal on raptors
1 publication in a peer-reviewed Indian ornithology Journal

A 200-page detailed technical manual on Prey Identification from Owl Pellets has been prepared through this project which describes techniques for pellet collection, pellet analysis, prey identification and prey quantification for all major taxa of owl prey. This is the first of its type of technical manual prepared in India.

2 field guides cum booklets on owls have been prepared for the field staff

2 popular articles on Owls have been published in magazines

We have submitted 8 quarterly progress reports and 2 annual reports

2 M.sc Students have worked for their M.sc dissertations on this project

Through this project, we have been able to train many students on field-based owl research. 13 students have been trained in various methods of field–based research on owls including occupancy survey, color-banding, radio-tagging and tracking, demography and breeding studies, pellet collection and habitat sampling. At the office, students have been trained in data analysis, pellet analysis, paper writing, poster making and presentation skills.