

## **Project Update - August 2016**

During the first 6 months of the project (20th January – 20th July 2016), primary data capture has been undertaken and completed, community members trained, data entered and compiled, and initial results presented during a regional conference in Singapore.

### Data capture:

Field data capture was carried out on 23 islands and three mainland control sites (along 13 mainland transects) from January through to May 2016. The scope of the fieldwork was ambitious and compares favourably with the scale of research undertaken in other hydroelectric projects globally (just one recent avifauna study in Brazil was larger). A total of 150 survey points were established and 10-minute point counts completed: 11 points on small islands (0.6-6 ha), 35 on medium-sized islands (9-14 ha), 44 on large islands (19-56 ha), and 60 mainland points. Three replicates were completed, for a total of nearly 450 counts. A few sites were discarded due to prolonged elephant birthing activity but otherwise all data was successfully captured. Audio recording was undertaken throughout each point count, offering a tangible and permanent dataset which can be monitored for quality. Data was entered from audio recordings at field level, using solar panels to generate electricity in remote camp sites. In addition, 115 detailed habitat structure surveys were completed - up to four per island, depending upon island area, and on each of the mainland transects.

### Capacity building:

The field team consisted of a local boat driver / naturalist, an experienced wildlife sanctuary staff, and a local youth. During preparation of survey sites, additional staff were briefly employed. A member of the advisory committee, who had completed PhD work in the same locality some 20+ years earlier, visited in early February 2016 for training on the habitat survey. Though experienced members of the team were well-versed on mammals of the forest complex, they knew very little about avifauna. During completion of the research, opportunity was offered for teaching about the avifauna, basic biology, and vocalisations - in situ. A pair of binoculars was procured for the boat driver / naturalist, which built upon his insatiable curiosity about wildlife, and thus transformed his natural ability to learn about birdlife. In addition, a motor guide (trolling motor) was acquired to adequately survey for birds along edges of islands, and this was donated to the boat driver, who will use it for more animal-friendly and bird-friendly eco-tours. With assistance of two additional members of the thesis advisory committee, bird field handbooks were provided to the boat driver / naturalist and Khlong Mon Substation.

### Preliminary results:

Nearly 7,500 observations were recorded in the database, of which 82% were identified to the species level. 98.5% of these were identified by ear alone. Improvement was noted over the course of the study in the ability to identify birds by their vocalisations. Still, approximately 1,300 "mystery" observations remain to be identified. The proportion identified is respectable for avifauna studies in the tropics. The forest was highly depauperate of bird species, with only 100 resident forest species identified. Accumulation curves and estimated species

richness was completed using EstimateS, without substantially adding to the number of observed species - most likely just a few species were missed, if any. The species-area relationship held, as expected, as richness on mainland control sites (93 species) is higher than on islands (81 species), and 95% confidence intervals do not overlap. Small islands had a total of just 40 species. The community was highly nested, with the community on small islands comprising a subset of those on larger islands, and so forth. Among feeding guilds, insectivores appeared are most effected by fragmentation, particularly those gleaning insects from higher in the canopy.

Data has yet to be cleaned and properly analysed; however, important insights can be gleaned from the findings thus far. Of particular interest is species that are missing from the islands and the mainland control sites. Of the species observed, just 33% were endemic to rapidly disappearing Sundaic lowland forests. Of those that were expected but not observed, 67% were Sundaic lowland forest residents. Expected Sundaic species that are missing from the dataset include short-tailed babbler (NT), scaly-crowned babbler (LC), rufous-crowned babbler (NT), ferruginous babbler (LC), rail babbler (NT), Malay honeyguide (NT), crested jay (NT), several broadbill species, both frogmouth species, trogons such as scarlet-rumped trogon (NT), chestnut-naped forktail (NT), and many others. Some of these were documented in the study area prior to inundation, and all are present elsewhere in the forest complex. Straw-headed bulbul has been extirpated from Thailand, but locals contend that it was commonly found prior to dam construction. A rail babbler was found dead soon after dam construction, and is now extirpated from the forest complex. Small isolated areas of lowland habitat remain along stream beds just outside the study area, offering a glimpse of what was lost. The fact is that the dam destroyed a vast lowland ecosystem of narrow and moist interconnected stream channels, at the heart of the largest contiguous protected area in peninsular Thailand, leaving the lowland forest avifauna with no place to go.

Presentations:

Preliminary results of the study were presented 30th June 2016 in Singapore, during the Joint Meeting for the Society for Conservation Biology Asia chapter and Association for Tropical Biology and Conservation Asia-Pacific chapter. A scholarship from the organisers supported the author's participation in the event. In addition, an invitation has been accepted from the Seub Nakhasathien Foundation for a presentation on 10th September 2016 in Bangkok under the theme: "From Forest to the City: Lessons Learned from the Animal Rescue Mission at Chiew Larn Reservoir (26th Anniversary Commemoration)".

Next steps:

Audio recordings will be shared with experts to identify "mystery" species and to quality-check point count data. All 80 hours of audio recordings will be reviewed for accuracy. Habitat data will be entered. Data will be cleaned, analysed, and prepared for international peer-reviewed journal submission.

Informational brochure will be developed with guidelines for responsible ecotourism, and disseminated locally.

An additional rapid field visit will be undertaken to explore avifauna in the locations just beyond the study area which were less affected by the dam construction, to ascertain which lowland forest specialist species remain.



GoogleEarth view of 4 of the 23 islands

