

Project Update: June 2020

Project summary

Introduction

Giant nuthatch (*Sitta magna*) is restricted to montane habitats of southwestern China, eastern Myanmar, and northern Thailand and is globally endangered (BirdLife International 2016). Although giant nuthatch is an endangered species, it is poorly known globally and has received little attention, particularly regarding habitat management. While the most recent global population estimate of giant nuthatch was <2500 mature individuals (BirdLife International 2016). This population estimate was still a rough approximation, not yet sufficient for taking management action because the extent of giant nuthatch habitat remains poorly defined. The goals of this project are: 1) to obtain a relatively precise estimate of the size of the Thai population; and 2) clarify the characteristics of suitable habitat of the giant nuthatch as well as the extent of habitat remaining for this species in Thailand. To achieve these goals, we will conduct the field surveys at 8 potential sites to estimate the giant nuthatch population and habitat requirements. We will then develop potential habitat maps for giant nuthatch to estimate the long-term habitat viability. The results from this study are very importance for effective conservation of giant nuthatch in Thailand.

Point count survey

Point count survey was conducted between November 2019 and February 2020. We have established 67 survey points in the natural mixed pine (*Pinus kesiya*) and broadleaf forests and pine plantation forests at eight sites in five protected areas (Doi Pha Hom Pok National Park, Pha Dang National Park, Chiang Dao Wildlife Sanctuary, Mae Lao - Mae Sae Wildlife Sanctuary and Lum Nam Pai Wildlife Sanctuary). Each survey point was approximately 1 km apart to avoid double-counting individuals and was sampled five times within 5-8 consecutive days. In total we conducted 335 surveys. From those 335 surveys we got 118 detections from 36 out of 67 points in seven study sites. Surprisingly, we detected giant nuthatches near the natural forest edge in the big pine plantation patches surrounded by agriculture areas, roads and human settlements.



Picture 1: Researchers during the morning survey looking for Giant Nuthatch

Vegetation sampling

Vegetation and landscape variables were measured at 67 survey points using a 12.6 m in radius circular plot included 1) proportion of *Pinus kesiya* and oak trees which are dominant species in giant nuthatch habitat (for foraging and nesting) 2) diameter at breast height (DBH) of trees (DBH>10 cm) 3) number of stems of trees with DBH >10 cm 4) elevation (m above mean sea level) 5) percentage canopy cover and 6) evidence of fire. Most of survey points are dominated by *Pinus kesiya* and oak trees (Fagaceae).



Picture 2: Researchers during vegetation variables measurement.

Preliminary density estimates and habitat characteristics of Giant Nuthatch in Thailand

The preliminary estimate for density of giant nuthatch in our study sites was 3.42 individuals/km² or approximately 65 individuals in the area of ~19 km². *Pinus kesiya* was the dominant species at the sites with the detections of giant nuthatch. The average DBH of trees at the sites with detections of giant nuthatch was 35.5 cm with the 71% canopy cover. The stem density of trees with DBH >10 cm at the site with detections was 360 trees/ha. There was no different of evidence of fire between sites with and without detection. All detections of giant nuthatch were at the elevation range from 1,200 –1,830 m.



Picture 3: Habitats of Giant Nuthatch in Thailand; natural mixed pine and broadleaf forest (left), mature (>30 years old) pine plantation in protected area (middle) and large mature (>30 years old) pine plantation patch surrounded by agriculture lands and road (right).

Future plan

We will estimate the extent of available giant nuthatch habitat remaining using medium resolution SPOT satellite images (6-m resolution) which will provide more detailed and more current habitat information. We will then use programme ArcGIS to estimate and create a map of the extent of available habitat remaining in Thailand. The estimated Thai population of giant nuthatches will be calculated by multiplying the estimated total suitable habitat area by the average density derived from the point surveys.



Picture 4: Giant Nuthatch (*Sitta magna*) in Doi Kham Fah, Pha Dang National Park, Chiang Mai, Thailand.