Nesting Surveys at Finca Las Piedras

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Summary

The Madre de Dios region of Peru is one of the most biodiverse regions in the world, and avian diversity is no exception. However, basic information of the natural history of many species in the region such as nesting habits and habitats is lacking. There is a need to better the understanding of avian nesting patterns, particularly under the current threat of deforestation and habitat degradation and their possible detrimental effects on bird populations throughout Amazonia. In order to contribute to this field, nesting surveys were methodically undertaken at Finca Las Piedras biological station, located at the edge of a disturbed forest. Data collected from this study will contribute to effective avian biodiversity conservation, as understanding nesting habitats and habits will allow informed decisions to be made in regard to which habitats are a conservation priority for various avian species.

Introduction

The Amazon Basin is one of the most biodiverse regions in the world. The Madre de Dios region located in Southeastern Peru encompasses a terra firme tropical humid forest and contains a particularly vast number of avian species. Although it is considered the Peruvian capital of biodiversity, the Madre de Dios region is also considered a hotspot for deforestation. Impacts associated with fragmentation and habitat degradation in avian communities are inevitable, particularly when considering bird nesting, foraging, mating, and refuge. While it is known that the region is home to a wide variety of avian species, the nesting habits of many of these species remains unknown.

Understanding nesting behavior implies the study of plants used for nesting, particular habitats species rely on, and how much investment is required from parent birds to take care of their chicks. This information can be used to inform population dynamics and potential risks due to the threat of deforestation.

One method to better understand the life cycles and habitats of avian species in the Madre de Dios region is to conduct surveys of nests. Broadening the understanding of nesting habits of a variety of bird species will contribute to knowledge of the region's birds, their nesting plants, parental behavior, and implications for populations in the face of deforestation. This information can be extremely useful when used in the context of biodiversity conservation, as protecting the correct habitat is crucial to protecting a species. Understanding where various avian species nest will allow the proper habitats to be prioritized. It will also assist in evaluating impacts of ecosystem changes over time to various species. Nesting surveys will be

continuously conducted in order to track changes to nesting patterns and avian populations over time, which is crucial for effective conservation (Sekercioglu, 2012).

The objective of this project is to gain a better understanding of where avian species nest in Finca Las Piedras, a biological station located at the edge of a disturbed forest in the Madre de Dios region. Data was analyzed per species and type of habitat. Characterizing nesting behavior will be fundamental to improve our knowledge on the basic natural history of Amazonian birds and for further implementation of conservation projects with respect to this diverse group.

Methods

The area of study was the Finca Las Piedras biological station. The station encompasses old growth forest, disturbed forest, forest edges, and anthropogenic areas. Each of these different habitat types were included in the study. The forest at Finca Las Piedras is a seasonally humid tropical forest, in the western Amazon Basin.

The method of conducting these surveys was through visual field surveys. A team methodically conducted a visual search of both the secondary forest and old growth forest located at Finca Las Piedras. When a nest was found, data was collected on the habitat the nest is in. Such data included height, size, nest material, and vegetation cover. Bird identification, time of activity, behavior description, number of eggs, number of chicks, and description of paternal/maternal care were considered. The present surveys were part of an ongoing long-term bird nesting research study conducted throughout the year in order to be able to track changes in nesting patterns (Sutherland et al., 2004).

Species of Study

There were two species involved in this study, as there were two nests identified. The first avian species under study was the short tailed pygmy tyrant, *Myornis eucadautis.*

The second species under study was the silver-beaked tanager, *Ramphocelus carbo.*

Results

One short tailed pygmy tyrant nest was identified at Finca Las Piedras on August 8, 2021, in disturbed forest. The nest was found roughly four meters high. An exact diameter of the nest was not able to be determined, but a visual estimate of the nest size is about twelve centimeters. The nest was built from foraged organic materials such as twigs and grasses. The nest was built hanging roughly ten centimeters from a tree branch. The parents were active engaging in nesting behavior primarily in the morning. No eggs were ever observed in the nest. Both parents were observed in and around the nest. The nest was observed three times at various times of the day for a week. The third observation revealed that the nest had reached a size in which the nest was useable, and the parents could enter and exit the nest. A final observation of the nest revealed that the nest had been destroyed. Remnants of the nest remained but it was no longer useable by the tyrant parents.

Another nest observed under this study was a silver-beaked tanager nest found in an anthropogenically disturbed area of Finca Las Piedras. The nest was found roughly 3 meters off the ground within a tree. The tanager parents were primarily active in the mornings and afternoons, with little to no activity at dusk the week of August 9th through 11th, 2021. Unlike the tyrant nest, the tanager nest was obscured from view and located within the

foliage. Two chicks were observed in the nest, though the egg stage of their development was not observed. Both parents were observed in the nest interacting with the chicks. The male parent was observed more often than the female engaging in the feeding of the chicks.

Discussion

The short tailed pygmy tyrant nest provided an example of competition among species in the forest. The nest was most likely destroyed by a toucan. Channel-billed and white-throated toucans are common in the area and are known to raid nests of smaller bird species in order to feed on the eggs. Fortunately for the tyrant parents, no eggs had yet been laid in the nest. The tyrant pair lost a nest that required many days of labor to create, but they did not lose any potential offspring in the destruction of their nest.

The silver-beaked tanager nest provided an example of parental care undertaken by the species. Both parents were observed performing parental care, with the male parent exhibiting more frequent feeding of the chicks. There may have been communal care for the chicks, as multiple pairs of tanagers were seen around the nest, but more careful observation will have to be undertaken to determine if tanagers other than the parents engage in parental care such as feeding.

References

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