HABITAT DISTRIBUTION OF COMMON PAURAQUES AND THEIR PREY IN AN OPEN FIELD AT PALO VERDE

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Abstract: The Common Pauraque (*Nyctidromus albicollis*) is a nocturnal insectivorous bird, abundant in partly open habitats. Its distribution within these habitats is poorly studied, but is likely driven by either prey availability or predation risk. I examined pauraque distribution and the distribution of potential insect prey at night in a large mowed field In Palo Verde NP, Costa Rica. I found pauraques exclusively in localities close to trees or forest, but insect abundance did not differ between the forest edge and the middle of the field. Predation risk may be driving pauraque distribution, although it is unclear whether proximity to cover reduces predation risk to these birds.

Key Words: Nyctidromus albicollis, Common Pauraque, *distribution*

INTRODUCTION

Like other members of the family Caprimulgidae, the Common Pauraque (*Nyctidromus albicollis*) is a nocturnal insectivore. Pauraques typically hunt from the ground, sallying to catch moths or beetles and landing in the same spot a few seconds later. They are most common in partly open environments, such as brushland or open woodland (Janzen 1983), but their distribution within these open habitats is poorly described.

I set out to describe and explain the distribution of pauraques around a mowed field. Based on previous sightings, I suspected the birds hunt near the cover of forest or a tall tree. As pauraques were not breeding at the time of my observations, their distribution was probably driven by either prey availability or predation risk. I hypothesized that prey abundance drives their distribution. I quantified flying insect abundances to evaluate this hypothesis.

METHODS

I observed pauraques on January 11-13 at the former airstrip at Palo Verde National Park, Costa Rica. Pauraques do not breed at this time of year. The site, a 400 m x 35 m mowed field, is surrounded by closed forest on 3 sides. The field's southern border is a row of scattered tall trees along the shore of the Palo Verde marsh. A gravel road follows the forest edge on the opposite side of the field.

I observed pauraques between 8:30 pm and 1:30 am over the three nights. I located birds by systematically scanning the study site with night-vision binoculars to spot eyeshine. I recorded the substrate (grass, gravel road, bare ground) from which the bird hunted and the location of the bird relative to the edges of the field. I measured the distance to nearest cover, defined as forest or a tall tree. I used a one-tailed t-test to compare the mean distance from birds to cover to the mean distance to cover from random points in the field.

I investigated the distribution of flying insects (mainly moths) at the study site, by comparing abundances between the middle of the field and the edge of the field. For each count, I used night-vision binoculars and recorded how many insects flew through the field of vision in a 5-minute period. I stood 2 meters from the forest edge and looked along the edge for the edge count, and stood in the middle of the field looking down the length of the field for the middle count. I performed three such counts each, for the middle and edge of the field, and used a one-way ANOVA to determine if the abundance of insects differed between the forest edge and the middle of the field.

RESULTS

I encountered 14 pauraques throughout the study, including at least 5 different individuals. Their distribution was highly non-random: I found no individuals more than 6 m from the perimeter of the field (i.e. from cover), even though the field was 35 m wide.

Pauraques hunted only from either bare ground or gravel road, even though these substrates, which were almost exclusively near cover, covered a small proportion of the study site (visually estimated as 10%). Six of 14 observed birds hunted from a gravel road bordering dense forest. The birds that hunted from the gravel road were not randomly distributed within the road, showing a significant preference for proximity to cover (t_5=2.14, $P<0.0001$).

I found no significant difference in the abundance of insects between the forest edge and the middle of the field (ANOVA. F_5=4.57, P=0.10). Mean number of insects per five-minute count was 34 ±1.53 at the forest edge and 29.7 ±1.33 in the middle of the site.

DISCUSSION

The distribution of the Common Pauraque within the study site is apparently not driven by the distribution of insect prey. There is no clear reason why foraging efficiency would be higher closer to cover for reasons other than insect abundance. Due to the birds' cryptic coloration and sit-and-wait hunting style, it seems unlikely that insect prey can detect birds better in more open environments.

As insect abundance does not seem to drive pauraque distribution, reduced predation risk is a likely alternative. However, it is unclear whether nearby cover actually reduces predation risk to birds. If owls are the major predators, for example, pauraques would likely be more susceptible to attack in open environments, and therefore prefer forest edges. But pauraques did not fly into the forest when I flushed them, suggesting that they do not use it as a refuge from predators. Furthermore, proximity to forest edges could increase susceptibility to ground predators.

Further work on prey abundance may be informative. Although not significant with the small sample size, the mean number of insects per five-minute count was higher at the forest edge than in the middle of the site. My counting technique may have missed smaller insects, which could be an important food source

for pauraques, and may be more abundant near the forest edge.

LITERATURE CITED

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