

# Do parents adjust predator warning calls to the age of nestlings: experiments on *Parus minor*?



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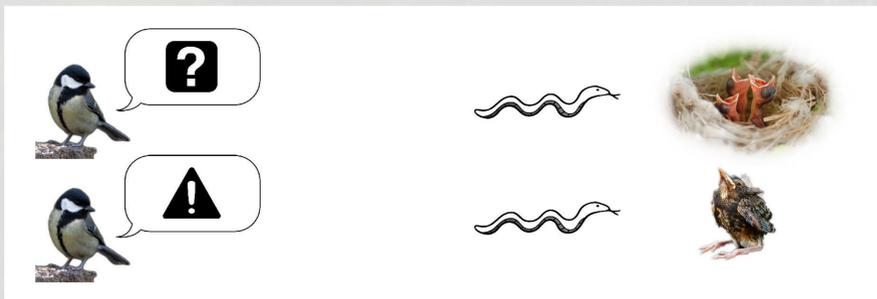


## Summary

The Oriental tits *Parus minor* is known for their specialized ‘snake call’ to make their nestlings jump out from the nest box when the snake is approaching (Suzuki 2011). Hence, the function of “snake call” is to induce jumping out of the nest because staying in the nest makes nestlings vulnerable to snake predation. But, when nestlings are too small to be able to escape (1-10 days old), this function of “snake call” cannot be realized. Do the parents use the call at all, or in a different manner, when nestlings are young? We tested this idea by presenting live Ratsnake *Elaphe dione* to breeding pairs at their nest boxes. We found no statistically significant support for the idea that the parents adjust the use of their alarm calls to the nestling’s age.

## Focus

- Do parents change the type of alarm calls by nestling age?



Any changes on parents’ calling by nestling age?

## Materials and Method

### Targets

8 breeding pairs of Oriental tits at Gwanak Mt.  
Two age groups of nestlings; 4-7 & 14-16 days

### Procedure

#### Preparing snake box installed over the nestbox

Snake kept inside transparent plexi box & covered with thick canvas cloth

#### Removing cover cloth after time for habituation

Parents were assumed as habituated when they enter the nestbox or after 1 hour

#### Sound recording & analysis

Omni mic beside the tree trunk where the nestbox is  
Parabola mic directing nestbox

Adobe Audition : Checking overall sonogram trend  
Raven pro 1.4 : Making detail sound measurements

#### Statistical analysis

Wilcoxon signed-rank test by SAS

## Results

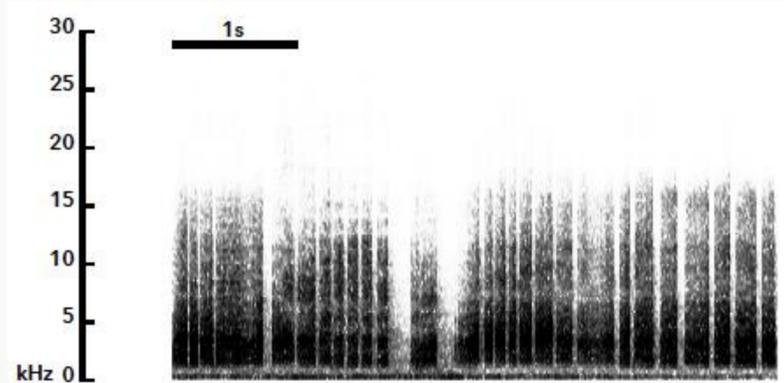


Fig1. FFT Sonogram of Snake Call

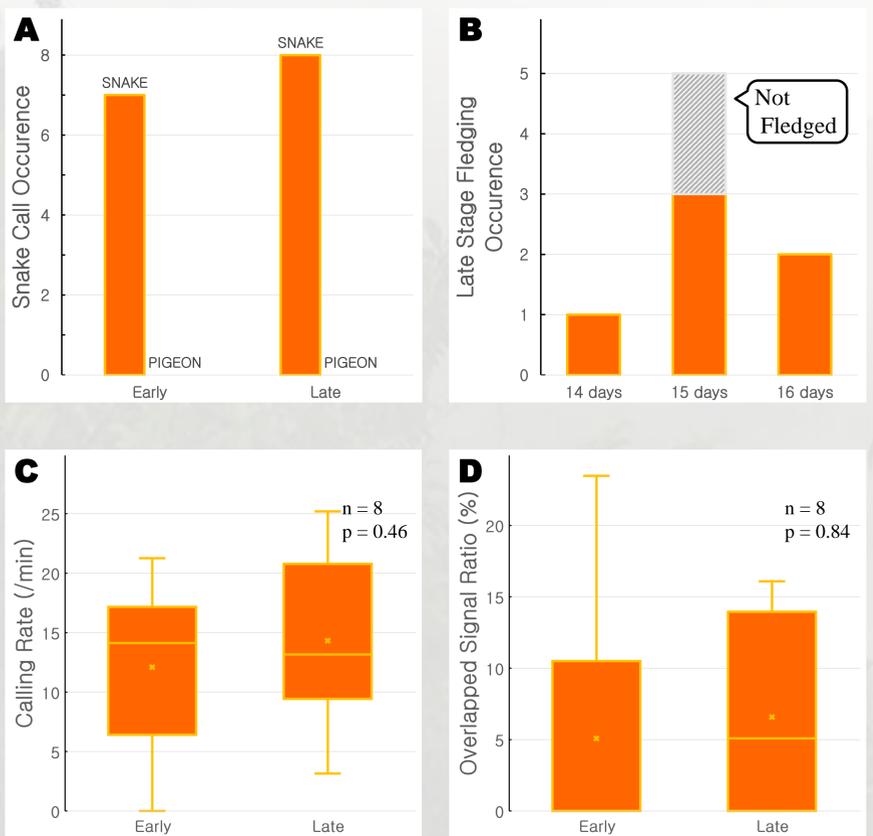


Fig2. Statistical analysis result of (A) Snake Call Occurrence, (B) Late Stage Fledging Occurrence, (C) Calling Rate and (D) Overlapped Signal Ratio

## Conclusion and Discussions

The results showed the snake call emerged in the most case, with fledging of nestlings in late stage, though some of nests didn’t show escapes (n=2). Also, the calling rate and ratio of overlapped signal to total signal length didn’t have statistical significance by ages.

The singing of female parents was frequently observed as described by other paper (Mahr et al. 2016).

Other birds also attracted by alarm calls of parents and mobbing together; 5 Marsh tit *Poecile palustris* & 1 pair of Oriental tits.

## References

- Suzuki, T. N. (2011). Parental alarm calls warn nestlings about different predatory threats. *Current Biology*, 21(1), R15-R16.  
Mahr, K., Seifert, C. L., & Hoi, H. Female and male Blue Tits (*Cyanistes caeruleus*) sing in response to experimental predator exposition. *Journal of Ornithology*, 1-5.