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Preliminary report on the departure time from the nest of Japanese flying squirrels *Pteromys momonga*

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Flying squirrels are suggested as umbrella species for the conservation of forest-dependent species. The Japanese flying squirrel *Pteromys momonga* is endemic to the forests in Japan. The studies of *P. momonga* have reported on their habitats, habitat use and selection. However study of circadian activity which is important to understand the ecology of nocturnal mammals has not been done, so we observed the departure from the nest to research circadian activity in *P. momonga*.

Methods

Our study area was a patchily-mixed forest consisting of conifers *Cryptomeria japonica*, *Chamaecyparis obtuse* and broad-leaved trees in the Tanzawa Mountains, Japan. We checked fourteen tree cavities and four nest boxes in our study area from June 2009 to March 2011. We classified the nest as “recently used” when we found nest material inside. We observed the nest from before sunset to one hour after dark. Observing departure behavior, we recorded departure time.

Results

We recorded twenty-four departure instances. Departure time of *P. momonga* varied both seasonally and interannually. The mean departure time in November and April (42 minutes after sunset) was significantly later than in the warmer months (from May to October, 14.5 minutes). We did not observe any nest departure activities from December to March. In addition, the mean departure time in 2010 (16 minutes after sunset) was significantly later than in 2009 (27.4 minutes).

Discussion

This study showed that the departure time in November and April was later than that in the warmer months. We suspect that *P. momonga* may have low basal metabolism to reduce exposure to the cold outside air in common with *P. volans* and *Glaucomys volans*. The fact that we did not detect any departure behaviors from December to March is consistent with this prediction. The mechanisms of the yearly variations in departure time are uncertain, but for further analyses, we need more research to evaluate the effects of ambient temperature and presence of predators as possible explanations.