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## Population Dynamics of Lanyu Scops Owls (*Otus elegans botelensis*)

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**Abstract.**—Monthly visits to Lanyu Island have been made to study Lanyu Scops Owls (*Otus elegans botelensis*) since 1986. This population has been surveyed by regular census and playback counts, by color banding, by monitoring the survival, reproduction and movements of individual owls, and by mapping and documenting the change in nest trees.

Annual playback counts of Lanyu Scops Owl from 1990 suggest that the population has been stable. The number of owls found each month fluctuated. The highest numbers of owls were seen at the beginning of the breeding season, while the lowest numbers were seen in September and October when owls were molting.

Some individuals lived 10 years after they were banded as adults. Given that most individuals do not enter the breeding population until 2 years of age, these individuals have very likely lived at least 12 years. Based on 12 years of data, on average only 37.5 percent of the fledglings survived to 1 year of age. After 1 year of age, survival rate varied between 78 percent and 95 percent.

The Lanyu Scops Owl starts breeding at 2 years of age. The number of owls remaining in the breeding population decreased with age, but their nesting success rates increased with age. Thus, for each age group, although the number of breeding owls decreased with age, most of the survivors could breed successfully (producing at least one young) at an older age. For owls that survived at least 5 years after banding, the number of fledglings each adult produced decreased with age. For the first 2 years, they fledged an average of 1.5 to 2 young. By the 4th to 6th year, this decreased to 1.1 and 1.2 young, respectively. After 8 years, success rate was reduced to zero.

Breeding success was limited by the availability of good nest cavities, and the success rate of owls using different cavities varied greatly. Nest cavities were natural tree cavities produced by rotting. The usability of these natural cavities change with age. Very few trees were used more than 4 years.

Dispersal is carried out primarily by juvenile females which moved significantly farther from their nest sites than males. Adults also moved between suitable breeding habitats, but the frequency and distances moved were not different between the sexes.

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