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Distribution and habitat characteristics of breeding pair of owls

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DESCRIPTION

Opinion Article

According to IUCN 20163, the Red List of IUCN endangered species; tawny owls are widely distributed as birds inhabiting southern Turkey and northern Finland. However, the area of the Korean Peninsula was not covered. The territory of animals is the territory where all behavioural activities take place, and the territory is actively protected by animals against the same species. Home range studies require animals to be tracked using methods such as radio transmitters. Can be used to capture behavioural data such as migration routes and time spent at specific locations. For tawny owls, follow-up surveys provided insights into population dispersal due to subsequent juvenile migration in the second half of the breeder season.

Tawny owls are nocturnal birds of prey that are distributed from Scandinavia to East Asia. This species prefers jungle habitats, but is also found in small gardens, parks and urban areas. Tawny owls stay in the same place as resident birds if they choose their habitat as a young animal. Males are less likely to leave the territory and remain in a favourable habitat, especially during nonbreeding seasons, and females may leave the territory after breeding. However, tawny owls have short wings at high heights, providing mobility in the forest, but are disadvantageous for long-distance flights. Females tend to be slightly larger, but the two genders show little overt sexual dimorphism and visual sex determination is difficult. Still, acoustic identification by clear horn call is possible. Outside of Asia, a long-term nest box survey in the United Kingdom monitored stable breeding of approximately 20,000 pairs of tawny owls. Both males and females can breed by the age of one, but pairs tend to secure habitat and often do not mate until the age of three, when food is adequate.

The tawny owl is a resident bird and a natural monument in South Korea. From 2001 to 2014, 37 regions were documented as tawny owl habitats in South Korea. Already categorized as grade II endangered wildlife by the Ministry of Environment, the species was recently classified as vulnerable on the Korean Red List because of a gradually decreasing population. Existing studies on tawny owls in South Korea have either examined bird calls or performed literature reviews to document mating pair distribution and reproduction periods by region. With the exception of one study, no research exists on tawny owl habitats and migration during the breeding season in South Korea. In order to protect the species in South Korea, it is necessary to investigate the minimum habitat of the breeding season tawny owl and propose appropriate potential habitat. Therefore, we conducted case studies of breeding pairs and tracked them throughout the breeding season to obtain data on habitat use and home range. Such information is important for the survival of the tawny owl. As a case study, our results may provide basic knowledge to help in key efforts to predict the area of tawny owls.

The home range of the tawny owl was investigated around Andong, Gyeongsangbuk-do during the 2016 and 2017 breeding seasons. The study area was located in a relatively low altitude forest area on the southern slopes of the Taibak Mountains. The average annual rainfall in this area was 1018.5 mm, and the number of days of rainfall was about 103 days. GPS attachment and data collection

In 2016, a net was placed in front of the subject's nest and the female was successfully captured. In 2017, males from the same nest were caught on bait and recorded vocalizations near their habitat during the breeding season. Both owls were weighed to confirm that the solar-powered wireless transmitter weighed less than 5% of their body weight. Then I attached the transmitter to the back with a strap. Test birds were released within 10-20 minutes of capture. Next, by monitoring daily activities, including flight, we confirmed that the transmitter was suitable for tracking birds for three days. The capture procedure has been approved by the Ministry of the Environment and the Korean Cultural Heritage Administration. Wireless transmitters broadcast GPS data over wireless satellite signals. Twice a day, the couple's position coordinates were recorded on a central server *via* a mobile communication system-based procedure. Home range analysis a woman previously tracked by GPS. After she confirmed that he lived in the same nest, she removed the radio transmitter. Core habitat and home range have been determined. Kernel

density estimation (KDE) was calculated using the geospatial modeling environment version 0.7.2.1 (GME). The GME Isolate tool extracted 95% and 50% KDE regions from the kernel density distribution. The estimates were then analyzed with the following GME settings: PLUGIN bandwidth, GAUSSIAN kernel, and 30 m cell size. The publicly available land cover map average classification system was used to determine the land cover type of the owl's home range.