ДВ Орн. Журнал, 2016. №5, С.11— 14
Far East. J. Orn.5: 11— 14 (2016)

PUBLISHER'S TRANSLATION INTO ENGLISH

Antonov A.I. (2016) Results of 2015 Owl Population Surveys in the Plains of Khingansky Nature Reserve // *Far East. J.Orn.* 5: 11–14.

SUMMARY

Aural population surveys of owl species were conducted in the Antonovskoye Forest District of Khingansky Nature Reserve for the first time in 2015. The Ural owl was found to be the most abundant owl species with a breeding density of 5 pairs /20 km^2, followed by Oriental scops owl (4 pairs/20 km^2), Northern boobook (2 pairs / 20 km^2), and lastly by Eurasian eagle owl, Long-eared owl, and Short-eared owl (1 pair each/20 km^2). Northern boobooks appear to be expanding their range and increasing their populations across the entire Amur Province, and owl species that feed on rodents are fluctuating with dependence on that food source.

The referred figures and tables are in the original article in Russian, pp. 11—14

Dedicated, systematic efforts to estimate the size of owl populations in Khingansky Nature Reserve (Amur Province, Russian Far East) have been lacking despite several decades of ornithological monitoring there. Although owls have certainly been recorded during raptor counts when such birds were detected, existing survey methodologies have focused primarily on diurnal birds of prey and have not included regular, nocturnal owl vocalization surveys. Thus, when needing to estimate population densities of owl species, scientists have only had incomplete data—daytime observations and random nest discoveries—to base their assessments on. The first complete owl survey of the Antonovskoe Forest District in Khingansky Nature Reserve was conducted in 2015 using aural counts of vocalizing owls and vocal lures.

MATERIALS AND METHODS

The Antonovskoe Forest District in Khingansky Nature Reserve includes a 40 km^2 study plot to count diurnal and nocturnal birds of prey. This semi-open mosaic of forest, wetland, and meadow is situated on a high floodplain in the lower reaches of the Bureya River. There are numerous oxbow lakes, the banks of which are remnants of ancient floodplain terraces and covered by forest vegetation. Forests of Black birch (*Betula davurica*) and Mongolian oak (*Quercus mongolica*) and of Quaking aspen (*Populus tremula*) and Japanese white birch (*Betula platyphylla*) occupy at least 30% of the area. The relative altitude above sea level is approximately 100 m. In 2015, four sites within the Antonovskoe Forest District (totaling 20 km^2) were the focus of a comprehensive owl survey. Investigations were carried out on clear, windless nights in May and in the first half of July.

Owl vocalizations were documented starting with the first calls of the night. Recorded vocalizations of common owl species were broadcast after sunset as an acoustic stimulus to elicit response. The owl species vocalizations chosen to broadcast were based on multi-year, anecdotal experience with owls in the reserve. Vocalizations of owls whose distributions are poorly known in the region (but might be found there) were broadcast as well.

Following Fuller and Mosher (1981), broadcast vocalizations of the smallest owl species were played first, followed by species of increasing size after a pause of unfixed duration. The rationale is to avoid biasing against smaller owls that might be reluctant to respond if they suspect larger owls (i.e., potential predators) are nearby. Recordings were played along transects, with nights spent at a stationary location at the center of each of the four respective survey sites. Practice has shown that the majority of owl species calls are detectable to 800 m due to

E-mail: <alex_bgsv@mail.ru>
(Received 17.11.2015; Accepted 22.03.2016)

Translated by Rada Surmach with edits by J.K. Slaght

the semi-open landscape, but recorded vocalizations were not detectable to the human ear >400 m. With this in mind, vocalizations were repeated every 300 m of the transect. Each territorial male detected via vocalization was recorded as a provisional territorial pair. Breeding success was not determined and nest searches were not specifically conducted. Scientific species names follow Gill and Donsker (2015).

Additionally, as part of an on-going experiment at Antonovskoe Forest District, 16 owl nest boxes were erected there from 7-15 May, 2015. Fourteen of these were for smaller owl species (the entrance diameter was 10 cm), while the remaining two were for larger owl species (the side entrance was 35 x 35 cm). A small amount of woody debris and forest litter was placed on the floor of each nest box to provide a soft, natural substrate.

RESULTS

A total of six owl species were detected on the study area; five of these species from vocalization surveys. These were Northern boobook *(Ninox japonica)*, Oriental scops owl (*Otus sunia*), Long-eared owl (*Asio otus*), Short-eared owl (*Asio flammeus*) and Ural owl (*Strix uralensis*). In addition, the Eurasian eagle owl (*Bubo bubo)* was detected by visual encounters.

The most abundant species in the study area was the Ural owl (5 pairs/20 km^2), followed by Oriental scops owl (4 pairs), Northern boobook (2 pairs), and Long-eared owl, Short-eared owl and the Eurasian eagle owl (one pair each; Table 1).

Most species vocalized without prompting (i.e., before broadcast vocalizations were played); only one species (Ural owl) vocalized exclusively (and in all cases) in response to the stimulus. One Oriental scops owl began calling for the first time at 02:00, or three hours after the final broadcast recording. It is not possible to say with any certainty whether the vocal activity in that case was caused by artificial stimulation.

No direct owl nesting activity was found at the nest boxes. Fresh clutches of Mandarin duck (*Aix galericulata*) were found in 2 of the 16 nest boxes (on 11 and 16 July) with 9 and 7 eggs respectively (Table. 2). Many boxes contained wasp nests. Two visual encounters with Eurasian eagle owl took place on 14 July near the boxes designed for large owls (they are located at a distance less than 1 km from each other). Further monitoring will show if that case was a coincidence.

DISCUSSION

In many ways, given the acute shortage of systematically-collected data, it's difficult to discuss the number of nesting owls and other population dynamics. However, some local population trends, both periodic and long-term, are already clear. For example, the dependence of rodent-eating owl species on rodent populations is well-known and supported in Khingansky Nature Reserve by available data. The number of Ural owls in the Kleshenskoe Lake area in 2014 was 3 pairs; all three known pairs bred successfully (Kvartalnov, 2014). Two pairs of short-eared owls and one non-breeding individual of Great grey owl (*Strix nebulosa*) were observed in the vicinity of the monitoring site in 2014 (Kvartalnov, 2014).

In 2015, the number of owls hunting mainly small rodents (especially the Ural owl), was significantly lower at the same site. Short-eared owls and Great grey owls were not found, and there was only one detected pair of Ural owls. A male Long-eared owl was also actively vocalizing in May. There was no evidence of successful reproduction of any of these owls. According to Reserve data, the number of rodents from six trap lines averaged 29.9 individuals per 100 trap-nights; this number dropped to 4.7 individuals per 100 trap-nights at the same trap lines in 2015.

The number of Northern boobook and their associated distribution across the Amur Province has increased noticeably over the long term. This species was not observed in Khingansky Nature Reserve and its surroundings until at least the early 1980s (Smirenski, 1974; Vinter, 1983), although there are records in other areas of the Amur Province that date to 1970 (Pankin, Potorocha, 1976). According to our data, the northern limit of Northern boobook distribution in the province is currently just north of the Baikal-Amur Railroad (or "BAM"), along the widest part of the Zeya Reservoir (i.e., an area that covers almost all of Amur Province). The reasons for this expansion are not clear but may be related to global climate change.

The population sizes of other owl species have not changed significantly in many decades. Perhaps there has been some increase in the number of Eurasian eagle owls, and in general a wider penetration of forest species to the Reserve plains following an increase in forest regeneration as reported in Antonov, Kvartalnov (2014).

ACKNOWLEDGEMENTS

This study was supported by the Amur-Ussuri Centre for Avian Biodiversity (grant number 2/2015). Data on rodent numbers were analyzed and provided by Yu.A. Melnikova.

LITERATURE CITED

Antonov A. I., Kvartal'nov P. V. (2014) An addition to the list of birds breeding in Khingansky Nature Reserve // *Amurian Zoological Journal*. VI (1): 85-87. (*in Russian*)

Fuller M. R., Mosher J. A. (1981) Methods of detecting and counting raptors: a review // *Studies in Avian Biology*, 6: 235-246.

Gill F., Donsker D. (Eds). IOC World Bird List (v 5.3). 2015. doi: 10.14344/IOC.ML.5.3.

Kvartal'nov P. V. (2014) Report on the research at Khinganski Nature Reserve in 2014. Moscow. 2014. 31 p. (*in Russian*)

Pan'kin N. S., Potorocha V. I. (1976) Northern Boobook at Zeya-Bureya Plain // *Ornithology*. V. 12, p. 242. (*in Russian*)

Smirensky S. M. (1974) About the birds of Khingansky Nature Reserve // Transactions of VI ornithological conference of USSR. Moscow. V.1, pp. 232-234. (*in Russian*)

Vinter S. V. (1983) Birds of Bureya-Khingan lowland and issues of rare species conservation. PhD thesis. Leningrad, 149 p. (*in Russian*)