AUTUMN MIGRATION OF THE ISABELLINE SHRIKE (*Lanius isabellinus*) IN MONGOLIA

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ABSTRACT

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Our study was carried out from 4 Aug. to 6 Sept. 1996, at Khovd, Mongolia. We banded 86 Isabelline Shrikes and recaptured 11 of them. Each bird was aged and weighed. We estimated the amount of pectoral muscle in a scale from 0 to 3 and the stored fat from 0 to 8. We separated two age groups: juveniles and adults. The adult Isabelline Shrikes began their autumn migration at the same time as juveniles (6 August) but there was a definite difference in the course of migration of the two groups. Ten juveniles and one adult were recaptured. The arrival period of birds consisted of 7 pentads. There was no significant difference in amount of fat and weight between the pentads in case of young birds, while the adult birds got fatter and heavier with time. The adult birds were heavier than the young ones.

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Key words: Isabelline Shrike, Mongolia, migration

INTRODUCTION

Many shrike species of the Palearctic have been declining in most parts of their breeding range to smaller or greater degree (Tucker and Heath 1994). Our knowledge is mostly limited to *Lanius* species of the western Palearctic and there are fewer studies on species of the eastern Palearctic.

The Isabelline Shrike occurs in the eastern Palearctic. This species is polytypic, having 4 races. Populations belonging to these 4 races winter from northwestern India to Kenya. Western populations migrate mostly to eastern Africa and eastern populations winter in the Arabian Peninsula and India. The wintering areas of different subspecies are not fully separated (Cramp and Perrins 1993).

STUDY AREA AND METHODS

Our study was conducted between 1 August and 4 October at River Kobdo in Western Mongolia (48°N, 94°E). The River Kobdo crosses a huge semi-desert area

making a green corridor for the migratory birds. The riverside was covered by willow (*Salix* sp.) and caragana (*Caragana* sp.) shrubs grew in the semi-desert.

Birds were captured with mistnets and clapping traps. The nets and traps were placed in the *Salix* groves and among the *Caragana* shrubs in standard places. The nets and the traps were checked every hour, from dawn until darkness. A total of 86 Isabelline Shrikes were captured and ringed.

Age and sex were determined according to Dementiev (1947) and Svensson (1994). The birds were weighed with Pesola spring balance to the closest 0.1 g. Stored fat was estimated on a scale from 0 to 8 (Kaiser 1993).

The migration period was divided into three parts for each adult and juvenile age group as follows:

(1) Early part – from the time of capture of the first bird to the time of capture of 10% of the total number of birds.
(2) Middle part – between 10% and 90% of the total number of birds captured.
(3) Late part – from the time of capture of 90% of the total number of birds to the time of capture of the last one.

Differences in condition and body mass of birds arriving in subsequent pentads were compared in both age groups. Changes in condition and body mass of recaptured birds were analysed.

RESULTS

The first Isabelline Shrike was captured on 5 August, the last one was captured on 5 September (Fig. 1). We began our study four days earlier than the first capture and finished it a month after the last capture, thus we probably sampled the entire autumn migration period of this species at this site.

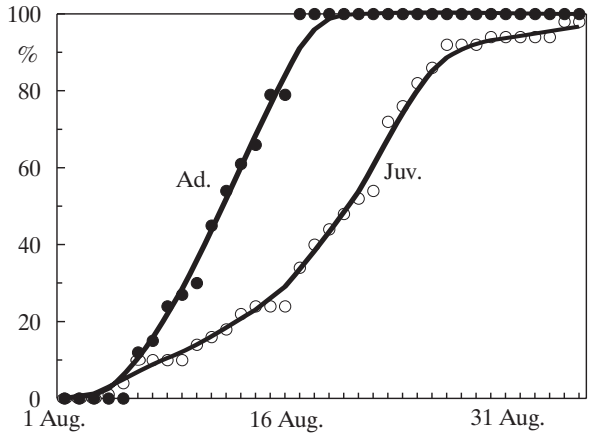

Fig. 1. Cumulative seasonal migration dynamics of juvenile (Juv.) and adult (Ad.) Isabelline Shrikes

Birds captured at the study area belonged to two races of Isabelline Shrike: *Lanius isabellinus speculigerus* and *L. i. phoenicuroides* (Dementiev 1947, Svensson 1994).

During the early migration period, adult and juvenile birds reached the study area at the same time. The migration season of Isabelline Shrikes was 15 days for adults (until 19 August) and 32 days for juveniles (until 5 September). Apart from the earliest and latest migrants (the first and last 10%), the main period of migration lasted 11 days for adults and 19 days for juveniles.

Of 86 birds, 12 were recaptured at the site (14%). Of these 12 recaptured birds, 11 were juveniles and 1 was an adult. The average time between the capture and recapture of juveniles was 5 days. The same interval for the recaptured adult was one day. Juveniles usually stayed at the area only when there was suboptimal weather for migration, for example strong wind from the south or west.

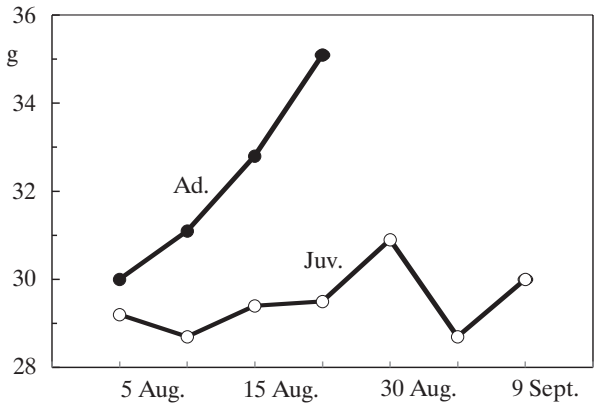

Fig. 2. Average body mass of captured juvenile (Juv.) and adult (Ad.) Isabelline Shrikes in subsequent pentads.

Average body weight of juveniles in each pentad was lower than weight of adult birds ($p = 0.05$, paired t-test; Fig. 2). The average body weight of adult birds increased to the end of migratory period from 30.0 to 35.1 g (1.7 g/pentad) but the average body weight of juvenile birds did not. Of the 11 recaptured juveniles, 6 had an increase in body weight and 5 decreased ($m = +0.23$, $SD = 1.52$). The trends in quantity of stored fat for each age class were similar to the trends in body weight.

DISCUSSION

Populations of some western-Palearctic *Lanius* species tend to decrease significantly in the last decades. This process is still going on in most parts of Europe except for certain eastern regions (Tucker and Heath 1994, Hagemeijer and Blair 1997). The decrease in number of these species could have different causes, *i.e.*

diminution of suitable areas for breeding or wintering (for example, because of transformations of agricultural system), climatic changes, *etc*. The influence effected by these events is different for each shrike species. That is why there cannot be a general solution for the problem of shrikes' disappearing, despite of many studies on it. There are much less numerous studies on *Lanius* species of the eastern Palearctic and we have only little information about them.

Most of the Palearctic shrikes are long distant migrants, wintering in tropic regions of Africa and Asia. Migration strategies of shrikes are diverse, differing largely even among close related species. For example, all the populations of Red-backed Shrike migrate to East-Africa while populations of Woodchat Shrike (*L. senator*) cross the Mediterranean Sea at much broader front and winter at different, separated areas south of the Sahara, although these shrikes are really close relatives (Biebach *et al.* 1983, Cramp and Perrins 1993)

Isabelline Shrike and Brown Shrike (*L. cristatus*) are sibling species of the Red-backed Shrike. The breeding areas of these three species are separated. Overlapping regions are small, where interspecific hybridisation is not rare (Lefranc and Worfolk 1997). Our study area is not far from the breeding area of Isabelline Shrike. The birds we studied covered a short distance compared to the 7000-8000 km-long total migration distance. The beginning of the migration route follows a green corridor as the habitat along the river Kobdo is rich in insects and the birds are able to gain enough energy in a short time for moving further on.

Dominant, experienced adult birds migrate faster than juveniles as they stay at certain feeding places less than juveniles.

Before reaching large geographical barriers, the Isabelline Shrike seems to minimise energy, just like Red-backed Shrike in Europe, which does not make large fat deposits until it reaches the shores of the Mediterranean Sea.

Isabelline Shrikes passing through the study area did not have large fat reserves yet, although they had to cross seas and high mountains. Knowing where the Isabelline Shrikes add their fat reserves is important.

ACKNOWLEDGEMENTS

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