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New Data on Interrelations of Red-backed and Brown Shrikes (*Lanius collurio* and *L. cristatus*, Aves) in the Zone of Sympatry

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Abstract—Red-backed (*Lanius collurio*) and brown shrikes (*L. cristatus*) are clearly distinguishable species. A new map of their distribution in the zone of sympatry in Western Siberia is presented. According to field observation, both species have slight habitat preferences, especially in disturbed sites, and overlapping nesting periods. One of the species usually prevails in number. Despite differences in phenotypes and mating behavior, including vocalization, they form mixed pairs that subsequently either separate or produce fertile hybrids. The first description of a hybrid male with intermediate coloration and size is provided. Distribution of intraspecific hybridization within the family Laniidae is discussed.

INTRODUCTION

The origin and maintenance of reproductive isolation remain the key problem for both species theory and practice of taxonomic decisions. The forms isolated to different extents are of particular interest for elaboration of this problem. The group of small Palearctic species of the genus *Lanius* compose a suitable model for such a study. It includes "true" species that are clearly isolated in zones of sympatry (*Lanius cristatus* L.–*L. isabellinus* Hempr., Ehrenb.), as well as so-called "semispecies" with zones of secondary intergradation (*L. collurio* L.–*L. phoenicuroides* Schal., *L. collurio*–*L. isabellinus speculigerus* Tacz.). At the same time, in the zones of sympatry of even quite divergent, well-distinguishable *Lanius* species, hybrid individuals or mixed pairs occur. This requires careful examination of such situations, their causes, and consequences. This works aims at analyzing sympatric zones of *L. collurio* and *L. cristatus*, determining its boundaries and ecological conditions of the contact, elucidating reproductive interrelations and, in particular, factors maintaining species integrity.

MATERIALS AND METHODS

Materials were collected in 1978–1984 in the zone of sympatry of two species. Fragmentary observations were conducted in some localities of Altai and Kuznetsk Alatau mountains, stationary studies at 20 km NW from Lake Teletskoe near the village of Kebezen' and in northern foothills of the Kuznetsk Alatau near the village of Novyi Berikul'. We studied timing of arrival and occupation of territories, habitat distribution, territorial and breeding relations, composition of pairs, and peculiarities of nesting. Censuses of birds were conducted in transects of unlimited width.

RESULTS

Spatial Relationships

The zone of sympatry of *L. collurio* and *L. cristatus* has larger area than considered earlier (Mauersberger and Portenko, 1971). In addition to extreme localities of their ranges that were described earlier (Kryukov, 1980), new map of the distributions extends the range of *L. collurio* eastwards (Fig. 1). Summer records have been made recently in Khakassia, Malaya Sya River valley; records on nesting sites were made in northern and eastern foothills of Kuznetsky Alatau, in villages of Novyi Berikul', Komsomolskii, Efremkino, and Tisul' (observations by S.P. Gureev); and the records of males at May 20 and June 3 in surroundings of Nazarovo City in Krasnoyarskii Krai (V.S. Zhukov, pers. comm.).

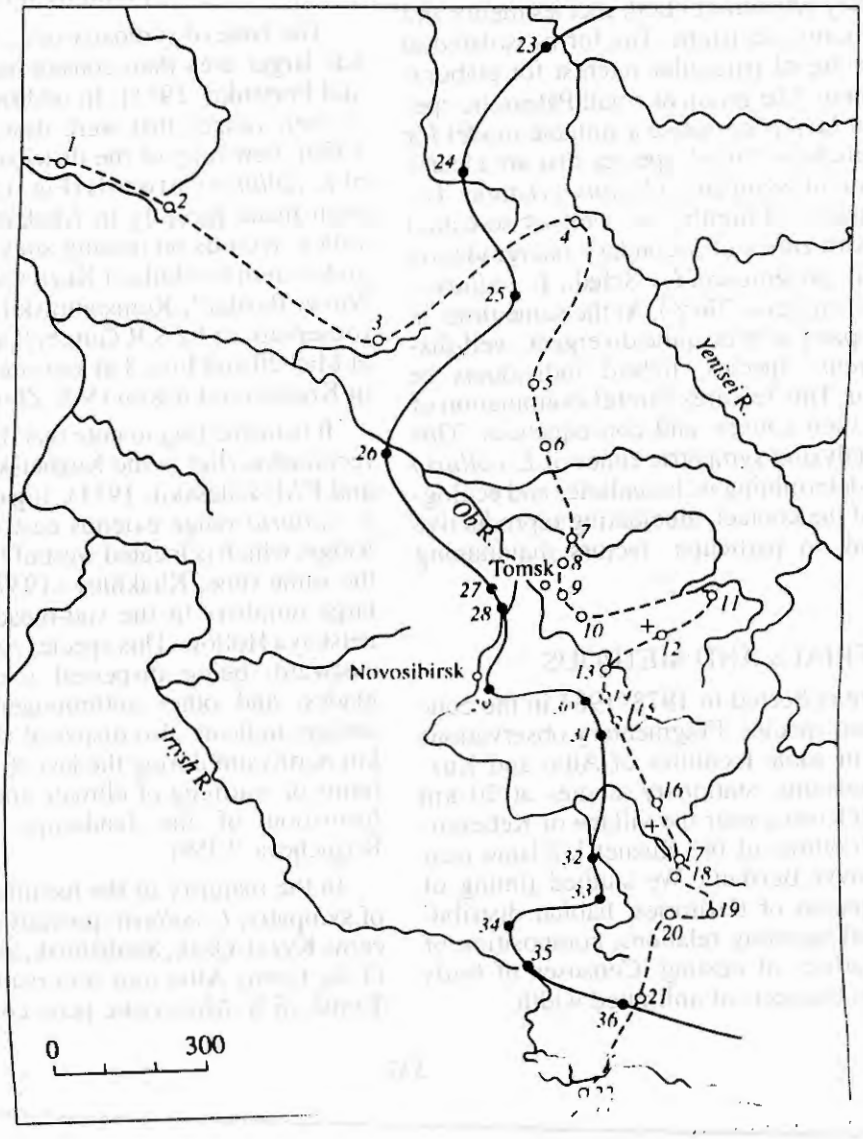
It is interesting to note that this species had not been recorded earlier in the Kuznetsk Alatau (I.M. Zalesskii and P.M. Zalesskii, 1931). Iogansen (1935) noted that *L. collurio* range extends eastward only to the Salair Ridge, which is located west of the Kuznetsk Alatau. At the same time, Khakhlov (1937) found these birds in large numbers in the sod-meadow zone of the Kuznetskaya Hollow. This species seems to move gradually eastward, being dispersed over burned-out forests, glades, and other anthropogenic landscapes. Some authors indicate also dispersal of *L. cristatus* 250–300 km northward during the last 50 years and explain it in terms of warming of climate and anthropogenic transformation of the landscape (Syroechkovskii and Rogacheva, 1959).

In the majority of the localities studied in the zone of sympatry, *L. collurio* prevails numerically. This concerns Kyzyl-Ozek, Shabalinsk, and Turochansk regions of the Gorny Altai (our observations), surroundings of Tomsk (S.S. Moskvitin, pers. comm.), middle reaches

of the Ob River (A.A. Ananin, pers. comm.), surroundings of Leninogorsk (Kuzmina, 1948), and many localities in the southern taiga subzone of Western Siberia (Ravkin and Luki'yanova, 1976). On the contrary, *L. cristatus* clearly prevails in the middle reaches of the Kara and Tom-Chumysh rivers in the Salairsky Ridge, according to three-year observations by Chunikhin (1965). Our recent observations in Kuznetsky Alatau, at the eastern range margin of *L. collurio*, gave similar results.

Habitat distribution of both species is unclear. In general, *L. cristatus* is more "sylvatic" and "montane" species. According to A.A. Ananin (pers. comm) for the floodplain of the Middle Ob in Krivosheinsky District of Tomskaya Oblast, *L. collurio* has been noted in all years of observation (1979–1983) whereas *L. cristatus* only in dry years without spring flood (1981 and 1983). In the Northern Altai, *Lanius* inhabits margins of light conifer forests in low hills (Ravkin, 1973), rarefied forests, glades, and thickets on flat slopes. In surroundings of Kebezen' Village both species nest together on forest edges and piles of fallen trees removed from territories prepared for plowing (Kryukov, 1980).

In surroundings of the Novyi Berikul' Settlement, northern foothills of the Kuznetsk Alatau, different stages of anthropogenic succession: felling areas, pastures, hay meadows, etc., are formed at the background of the main forest formation, black taiga. *Lanius* inhabit there rarefied forests and edges with developed grass cover and shrubs, as well as shrubby meadows: hay meadows and pastures, felling areas of different age with young primary frees, remains of undergrowth, and fallen trees (Table 1). Maximum density was observed there in the overgrowing glade clearing 100–120 m width made for a power transmission line (Fig. 2). These conditions: fallen trees, bushes, and trees on the edge, open areas, and hiding sites have become suitable for *Lanius*. Therefore, the both species



of *Lanius* actively penetrate anthropogenic landscape finding there optimal conditions.

We managed to monitor colonization by *Lanius* of a glade clearing cut in 1979. Separate individuals of *L. cristatus* appeared there in 1980. Later, the overgrowing clearing became more and more suitable for *Lanius* nesting. In 1981, the number of *L. cristatus* there was quite high and exceeded that of *L. collurio* 20 times, whereas the density on meadows with young, rarefied, birch forest was equal for these species (Table 1). In 1982, the numbers of both species on the glade have become more similar, probably due to migration of *L. collurio* from meadows.

Total number of both species of *Lanius* in the habitats described at the years of observations is shown in Table 2.

Figure 3 represents an example of spatial distribution of the both species on one of areas with fallen trees and forest margins edges near Kebezen' Village (see Kryukov, 1980). Here we can see centers of home ranges of territorial birds and sites where other birds were encountered. Forty-eight *L. collurio* (20 pairs and 8 single birds) and 29 *L. cristatus* (10 and 9, respectively) were found in a 12.2-km stretch of free piles and forest margins. Mean density of populations of the both species, including non-nesting birds, composed 6.3 individuals per 1 km of a transect with mean pile width of 22 m. Such a high level corresponds to favorable conditions of this secondary landscape for *Lanius*. It is important to note that the territories of the both species adjoined one another. Therefore, both species remain in contact, especially in anthropogenic habitats.

Nesting Time

In the zone where the two species are sympatric, dates of their arrival usually differ by 1–2 weeks: *Lanius collurio* arrives in the middle of May, whereas *L. cristatus* arrives at the end of May. As a rule, the males arrive few days before the females. Occupation of territories and formation of pairs takes 1–1.5 weeks. Nesting periods are quite extended and overlap, but in the context of our work they are less important than periods of pairing.

At least half of all the noted pairs of *L. collurio* and only 1 of 11 pairs of *L. cristatus* were formed toward the beginning of our observations near Kebezen' Village in 1978. From June 2 to 5, we observed the formation of three pairs of the first species and seven pairs of the second. Therefore, there were 11 pairs and nine single birds of *L. cristatus* compared to 20 pairs and 8 single birds in *L. collurio*. All these data indicate some shift in nesting times of both species, which is also confirmed for other sympatric localities. A certain proportion of single males is retained further, forming a certain population reserve. After the arrival of *L. cristatus*, we repeatedly observed their occupation of territories adjacent to the areas already occupied by *L. collurio*. Interchange of territories and increase in the density has taken place, and in one case, the nests of two pairs

Fig. 1. The zone of sympatry of *Lanius collurio* and *L. cristatus*. Points designate the extreme sites where birds were found during the nesting period. Crosses designate stations. (1)–(22), are extreme eastern localities of the *Lanius collurio* range:

(*1*) Kazym River (Johansen, 1952); (*2*) Lake Numto (ind. from Tomsk University, male no. 4198 on July 1); (*3*) Vakh River, Laryak (Sharonov, 1954); (*4*) Elogui River, 60 km from the mouth (ind. from Tomsk University, male no. 4199 from July 23); (*5*) Tym River, upper reaches (Johansen, 1952); (*6*) Lisitsa River (ind. from Tomsk University, male no. 13279 on July 21); (*7*) Chulym River, Sergeevo (Gyngazov and Milovidov, 1977, on June 9); (*8*) Tomsk oblast, Itatka (S.P. Milovidov, pers. comm., a pair on June 19), Chernaya Rechka (the same, on June 20); (*9*) 40 km SE of Tomsk (ind. from Tomsk University, male no. 16514 on July 11); (*10*) Kemerovo oblast, Shcheglovsk (ind. from Tomsk University, males nos. 1389 on June 17 and 1392 on June 15); Kemerovo oblast, Yashkinskii Raion, Verkhnyaya Pacha (ind. from Tomsk University, female on July 23); (*11*) near the town of Nazarovo (V.S. Zhukov, pers. comm., encounters of males on May 5 and June 3); (*12*) villages of Novyi Berikul', Komsomol'skii, Efremkino, and Tisul' (S.P. Gureev, observations at the nesting period); (*13*) Kemerovo oblast, Krapivinskii Raion, Berdyugino Village (ind. from Tomsk University, 2 males on June 30 and July 8); (*14*) Salair Ridge, Belovo and Bachaty (ind. from Zoological Museum of Moscow State University, 9 males on June–July), Pomortsevo (ind. from Tomsk University, male no. 12171 on June 12); (*15*) Salair Ridge, Aleksandrovka (ind. from Tomsk University, males nos. 4239 on July 17 and 4165 on July 20; Iogansen, 1935, 3 males on June 16, July 7, and July 20); (*16*) Lebed' River (Sushkin, 1938, encounters on July 7), lower reaches of Shoksha River, a tributary of Baigol River (the same, male on July 11); (*17*) Lake Teletskoe, Chiri Cordon (ind. from the Institute of Systematics and Ecology of Animals, Siberian Branch of Russian Academy of Sciences, males no. 78 on July 3 and July 4); (*18*) Bashkaus River, mouth (Folitarek and Dementiev, 1938, nesting female); (*19*) north of the Chu Steppe (ind. from Zoological Institute, Russian Academy of Sciences, male no. 48 on June 22, coll. A.P. Kryukov); (*20*) Central Altai, Chihit (Sushkin, 1938, 2 males and female on June 2); (*21*) Lake Markakol' (ind. from Institute of Zoology, Alma-Ata, 4 males on June–July; ind. from Institute of Systematics and Ecology of Animals of Siberian Branch of Russian Academy of Sciences, 2 males on June 9; Sushkin, 1938, male from July 1); (*22*) Saur Ridge, Temir-Su (ind. from Zoological Museum of Moscow State University, male no. 11181 on July 27); (*23*)–(*36*) are extreme western localities of *L. cristatus*: (*23*) Yenisei River, Angutikha (Syrocchkovskii and Rogacheva, 1959, female in July); (*24*) Taz River, middle reaches (Skalon and Sludskii, 1941); (*25*) Elogui River, upper flow (the same place); (26) Tomsk oblast, Kargasok Raion, Lozunga (ind. from Tomsk University, female on June 14); (*27*) Tomsk oblast, Shegarskii Raion, Pozdnyakovo (ind. from Tomsk University, male in July); (*28*) Tomsk Oblast, Kozhevnikovo (Ravkin, 1978, male in the beginning of June); (*29*) vicinity of Novosibirsk (Gyngazov and Milovidov, 1977), Ust-Inya (ind. from Tomsk University, male no. 4180 on June 15); (*30*) Salair Ridge, Bachaty (ind. of Zoological Museum of Moscow State University, 3 males on June 14–17); (*31*) Salair Ridge, Aleksandrovka (Iogansen, 1935, ind. from Tomsk University, male on July 10 and 4 females on July 17–19); (*32*) Central Altai, Malaya Ul'gumen' River (Kashchenko, 1900, female on July 8); (*34*) 25 km NW of Leninogorsk, Tatarka Mountain (Kuzmina, 1948, male on July 17); (*35*) Bukhtarma River, mouth (Stegmann, 1930); and (*36*) Lake Markakol', northern shore (Sushkin, 1938, juv in July).

Table 1. Nesting density of *Lanius collurio* and *Lanius cristatus* in low hills of Kuznetsk Alatau

Years	Habitats				
	aspen forests	grass meadows, birch forests	birch–aspen–spruce forests	Felling areas (1–3 years old)	birch–silerian pine–spruce light forests
1980	0/0	x	1/0	4/0	x
1981	0/0	27/30	2/0	57/3	x
1982	0.4/0	7/18	0/0	37/26	18/2

Note: We give data on population density, ind./km^2, according to censuses taken in the first half of summer, *Lanius cristatus/L. collurio*. (x) censuses were not taken.

of both species were at a distance of only 25 m from one another.

In Kuznetsk Alatau, *L. collurio* usually appears on May 20–25, whereas *L. cristatus* appears on May 25–June 1. Thus the interval in the years with warm winters is 5–8 days. However, in 1983–1984 (years with cold springs), both species arrived simultaneously, on May 25, due to the delay of *L. collurio*.

Formation of Mixed Pairs

At least 6 mixed pairs have been recorded by us in total. Below, we present our brief observations on them.

In surroundings of Kebezen' Village, we noted courtship of the male *L. collurio* to female *L. criatatus* on his territory on June 1, 1978. In addition to demonstrations, the male fed the female and ousted neighboring males of the both species. The female displayed aggressiveness and flew away several hour later, and the male remained on that territory for at least 5 days. Then, 4 June, we observed repeatedly feeding of a *L. cristatus* female by a *L. collurio* male. This pair existed about one day and night but was also dissolved. In the third case, we noted courtship of a *L. cristatus* male by a *L. collurio* female on 2 June. The female immediately flew away and mated with a conspecific male, probably having been stimulated by the heterospecific male. Therefore, all the mixed pairs separated a short time after their formation. Their proportion composed 8.3% of all the pairs of both species. This value is too high, because it does not take into account the number of dissolved conspecific pairs. However, it can be regarded as an upper limit for the proportion of heteromorphic pairs.

In surroundings of the village of Novyi Berikul', we noted also three similar pairs. All these were encountered on a clearing, i.e. in the most favorable conditions. It was noted that occupation of different habitats

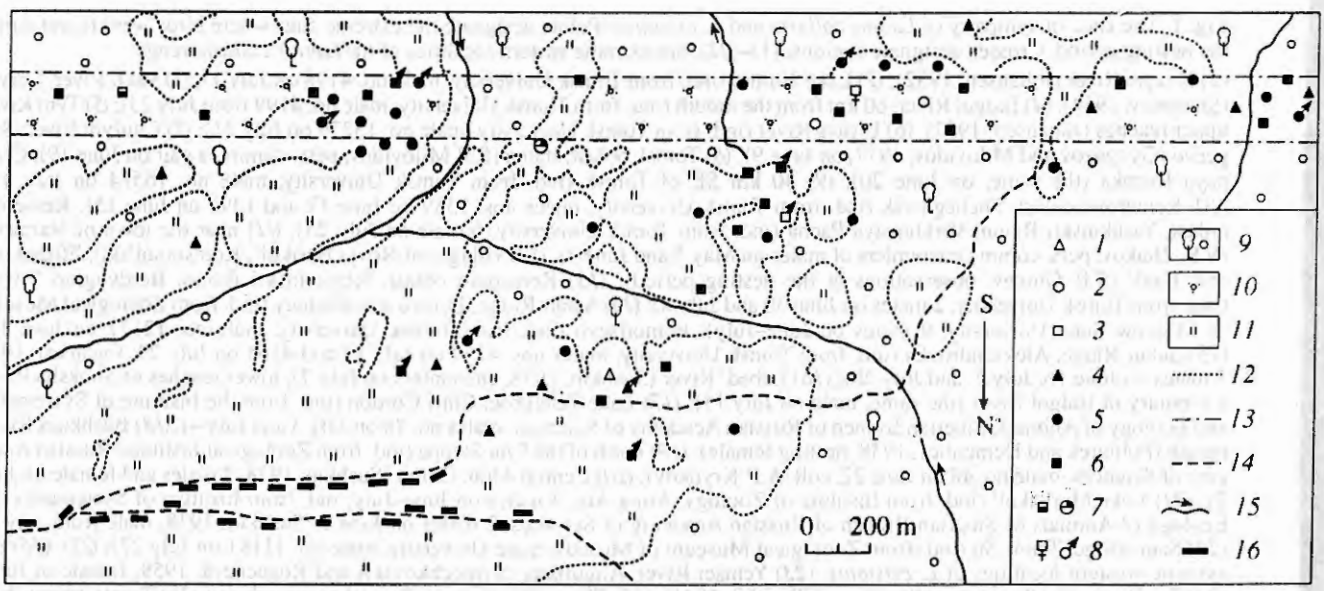


Fig. 2. Biotopical and territorial interrelations of *Lanius collurio* and *L. cristatus* in the vicinity of Novyi Berikul' Settlement, Kuznetsk Alatau: (*1*) centers of home ranges of *L. collurio* pairs in 1981; (*2*) the same, 1983; (*3*) the same, 1984; (*4*)–(*6*) the same for *L. cristatus*; respectively; (*7*) mixed pairs; (*8*) single individuals of the same species, respectively; (*9*) forest; (*10*) shrubs; (*11*) meadow; (*12*) habitat margins; (*13*) margins of the clearing; (*14*) road; (*15*) brooks; and (*16*) buildings.

Table 2. Number of encounters of *Lanius collurio* and *L. cristatus* in different habitats in surroundings of Novyi Berikul' Settlement, 1981–1984

Species	Habitats				
	outside the clearing		inside the clearing		
	forest margins	meadows, hayfields	aspen forests	shrubs	meadows, hayfields
Lanius cristatus	5	32	22	28	3
Lanius collurio	–	3	1	5	6

takes place in the following order: aspen forests and rarefied areas of a clearing, meadows hay meadows, and felling areas, and neighboring meadows. The quality of the territory offered by a male is known to have high value for a female. Analysis of conditions of formation of mixed pairs reveals that the females had to choose heterospecific males when there were no single conspecific males in those habitats, whereas their courtship in meadows was quite intensive. In other words, the males that have enough time for occupying the territory on the clearing had better chance to form a pair (even mixed pair) due to more attractive territory. When new pairs appeared, territories of two species widely overlapped, and home ranges decreased in size to the zone of active protection around nests, and the latter were sometimes located as close as only 15–20 m from one another.

One of the mixed pairs was formed 28–29 May 1984 and soon dissolved. Another consisted of a male *L. collurio* and a female *L. cristatus*. Two neighboring pairs of *L. cristatus* were formed at the distance of 100 m from it 2 weeks and 3–4 days earlier. On June 6, 1984, we found a nest of mixed pair with 2 chicks and 5 eggs, four of which were pecked. On June 8, there were 6 chicks and 1 unfertilized egg. On July 21, the chicks flew, and the male with 2 of them left the territory, whereas the female with the others fed there until August 8.

The third pair consisted of a hybrid male and a female of *L. collurio*. The closest nest of *L. cristatus* was at a distance of 200 m. This mixed pair was formed on about June 8, 1983, and on June 11 we found a nest with 2 eggs. There were 6 eggs on June 16. Five chicks and one egg were found on 29 June. The parents fed their 6 chicks on July 2, and 4 chicks remained on July 7. Dipteran larvae abundant in that nest might have caused the death of those chicks. The remaining chicks flew on July 12. We shot the male on July 10, 1983. It is now kept in the Zoological Museum of Biological and Soil Institute of the Far Eastern Branch of Russian Academy of Sciences.

Therefore, nesting success of these mixed pairs was not lower than that in each of these species. This indicates the basic possibility of introgression.

Description of the Hybrid Individual

The forehead and anterior part of the upper head region are gray with clear brownish tint. Beak and skin on the beak are black. The latter is joined with a black band above the beak. White eyebrow widens to ear parts. Brown color on the posterior part of neck and nape, to the level of shoulders, is more intense than on the forehead, then the back and upper part of tail are still more brown. Dorsal coloration not so bright as usually in *L. collurio*, and corresponds to coloration of

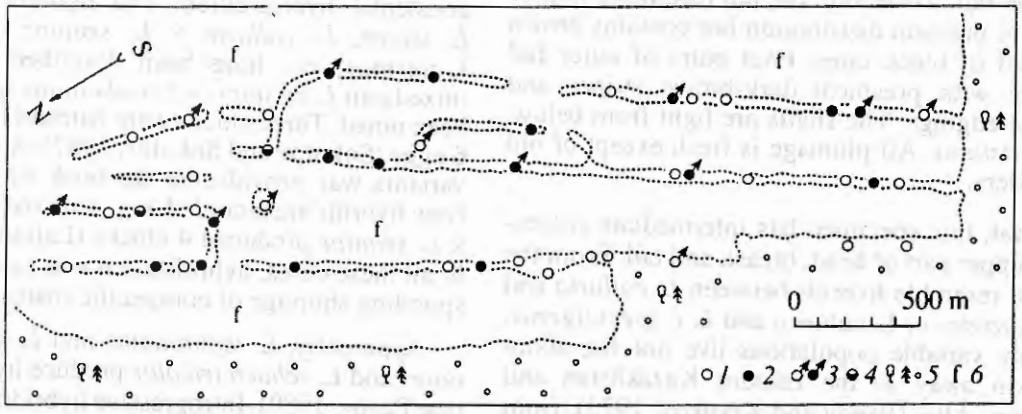


Fig. 3. Biotopical and territorial interrelations of *Lanius collurio* and *L. sibiricus* in the vicinity of Kebezen' Settlement, Northern Altai: (*1*) centers of home ranges of *L. collurio* pairs; (*2*) the same for *L. cristatus*; (*3*) single individuals of the same species, respectively; (*4*) mixed pairs; (*5*) forest; and (*6*) field.

Table 3. Dimensional characteristics of the male collected, as compared to other samples

Male collected, other samples		Trait						
		1	2	3	4	5	6	7
	n	*M* ± *m*	*M* ± *m*	*M* ± *m*	*M* ± *m*	*M* ± *m*	*M* ± *m*	*M* ± *m*
The hybrid collected	1	93.8	83	13.4	8.1	0.0	6.5	39.3
L. cristatus, Kemerovo and Tomsk oblasts	42	87.2 ± 0.5	84.7 ± 0.7	21.5 ± 0.6	7.3 ± 0.1	−6.7 ± 0.4	8.3 ± 0.4	30.4 ± 0.3
L. collurio, Kemerovo and Tomsk Oblasts	54	93.8 ± 0.4	77.6 ± 0.4	9.8 ± 0.4	7.9 ± 0.3	+2.1 ± 0.3	3.6 ± 0.5	44.3 ± 0.5
L. collurio × *L. i. speculigerus*, South eastern Altai	22	92.6 ± 0.4	80.6 ± 0.7	10.2 ± 0.4	9.1 ± 0.1	−4.1 ± 0.4	5.0 ± 0.5	no data
L. collurio × *L. phoenicuroides*, Lake Zaissan	42	92.4 ± 0.3	78.1 ± 0.5	10.6 ± 0.2	8.4 ± 0.1	−1.7 ± 0.1	4.6 ± 0.3	no data

Note: (*n*) sample size, (*M*) mean, (*m*) doubled standard error. Traits, mm: (1) wing length; (2) tail length; (3) distance between the ends of outer and middle tail feathers; (4) width of the middle fail feathers; (5) distance between the ends of 2nd and 5th primary feathers; (6) distance between the ends of the 1st primary feather and covering feathers of the wrist; and (7) distance between the ends of 1st and 2nd oar feathers.

L. cristatus. Oar feathers are dark-brown, external vanes of the third-order oar feathers have light-brown edges. Mirror bright, white, but completely hidden with covering feathers when the wing is folded. Crop and throat white, as in both species. Breast and belly sides intensively pinkish-brown. This coloration is intermediate between that of *L. collurio* and *L. cristatus*. Middle of belly and inner part of tail almost white.

Middle fail feathers are dark brown, and the tail from above resembles that in *L. cristatus*. Apical spots on all other fail feathers have the same coloration. On the outer fail feathers, spots are 18 and 27 mm in length on the left and right side, respectively. All fail feathers are white at the base, except for the middle pair, but the white zone become narrower from the periphery to the center of the fail. Therefore, the tail resembles that of *L. collurio* in pigment distribution but contains brown areas instead of black ones. Four pairs of outer fail feathers are with preapical dark-brown stripes and white apical edgings. The shafts are light from below, like in *L. cristatus*. All plumage is fresh except of old middle rudders.

In general, this specimen has intermediate coloration of the upper part of head, breast, and tail. From the first view, it resemble hybrids between *L. collurio* and *L. phoenicuroides* or *L. collurio* and *L. i. speculigerus*. Their highly variable populations live not far, about 600–800 km away in the Eastern Kazakhstan and South-Eastern Altai (Panov and Kryukov, 1973), from where the immigration could taken place. However, in difference to *L. phoenicuroides*, the lower part of the body in our specimen is not white, the fail is not so red; unlike *L. speculigerus*, this bird has a small mirror. In addition to coloration, obviously staggered tail and other dimensional traits indicate the involvement of *L. collurio* genes (Table 3).

This table shows measurements of the males of *Lanius* obtained during the nesting period and kept in collections of the museums listed below. Note that all measurements were taken "by the same hand". Their analysis shows that our male is intermediate between *L. collurio* and *L. cristatus* by majority of traits: 2nd, 3rd, 5th, 6th, and 7th. In two remaining traits, it is closer to *L. collurio*. At the same time, our individual is more distant by all dimensional traits from corresponding parameters of hybrid populations of *L. collurio* × *L. phoenicuroides* and *L. collurio* × *L. i. speculigerus*.

DISCUSSION

Interspecific hybridization is a quite frequent event in the family Laniidae. As a rule, this concerns the so-called accidental hybridization. The hybrids *L. collurio* × *L. minor*, *L. collurio* × *L. senator*, *L. cristatus* × *L. tigrinus*, etc. have been described. Nesting of a mixed pair *L. cristatus* × *L. isabellinus speculigerus* has been noted. Three chicks were hatched from a clutch of 6 eggs (Sokolov and Sokolov, 1987). A review of these variants was provided in the book by Panov (1989). New hybrids are recorded, e.g., a mixed pair *L. collurio* × *L. senator* produced 4 chicks (Lefranc *et al.*, 1989). In all these cases, hybridization was caused by a corresponding shortage of conspecific mates.

Apparently, *L. tephronotus* and *L. schach erythronotus* and *L. schach tricolor* produce hybrids regularly (see Panov, 1989). Introgressive hybridization of *L. collurio* and *L. phoenicuroides*, *L. collurio* and *L. isabellinus speculigerus* has been studied sufficiently (Panov and Kryukov, 1973). It was demonstrated that, in the zones of sympatry and hybridization, these forms occur in the habitats that are intermediate and even unusual for each parental species (the first pair of species), as in our case, or in the habitats typical for any form (the sec-

ond pair). Times of their reproduction also differ only by 1–2 weeks and widely overlap. At the same time, behavioral differences are insignificant, including those in vocalization (Kryukov, 1982). It is interesting to note that the Siberian and Daurian *Lanius* in Transbaikalia which are phenotypically similar but differ ecologically to a similar extent are relatively strictly isolated, probably, because of existing behavioral differences.

Lanius cristatus and *L. collurio* are so different phenotypically that many ornithologists attributed them to different genera (e.g., Bogdanov, 1881). It is interesting to note also the different extent of sexual dimorphism in coloration of the two species: significant in *L. collurio* and weak in *L. cristatus*. In addition to phenotypic factors of isolation between the two species, it is necessary to note their differences in the motor activity during courtship and acoustic signals. This concerns postures of the male at pair formation, noticeability of the ritual flight over the territory, and the main signal of the male (Panov, 1978; Kryukov, 1982). At the same time, according to our data, the species differ also in frequencies of occurrence of similar behavioral acts at different stages of the nesting cycle. Analysis of habitat distribution of the both species evidences for a certain spatial segregation, which seems to be typical for only undisturbed habitats.

On the other hand, some factors promote encounters of heterospecific partners in the period of their readiness for reproduction. Fluctuations in population density of the both species by years, usual for the marginal parts of their ranges, and their relative rarity in some habitats put obstacles for search of a conspecific partner. In addition, both species readily inhabit anthropogenic landscapes. It is important that interspecific territoriality in *Lanius* is weak. As indicated above, in some years, the times of arrival and pairing are overlapped. All these ensure effective interspecific contacts.

Whole set of observations on mixed pairs and hybridization success, intermediate state of coloration, and some dimensions make evident that our individual was the hybrid of *L. collurio* and *L. cristatus* but not other species. Moreover, according to viability and fertility of the hybrids, the only open problem is what generation does it represent.

The intermediate state of our hybrid cannot be explained in terms of clinal variation or convergence of traits under transitional conditions in the zone of sympatry. We demonstrated earlier the lack of convergence or "shift" of some metric and coloration traits in the area of sympatry of these species (Kryukov, 1980, 1983).

Field observations did not discover more hybrid individuals. Such individuals are also absent from collections, despite the fact that they should be collected first of all due to their unusual pattern. Among 123 nesting males of the both species from Tomsk and Kemerovo oblasts and Altaiskii krai (i.e. the zones of sympatry) examined by us in the ornithological collections mentioned above, there were no individuals with traces of hybridization in coloration or sizes. Among more than 40 collected females from this zone, no hybrids were found either. There is only one mention in literature about a male "which can be considered hybrid," from a series of about 40 ind. from the vicinity of Tomsk (Iogansen, 1935). The collection where this individual is stored is unknown for us. The same author also indicated that on the Salair Ridge, where both *Lanius* "nest near one another, in similar stations, we have not found obvious hybrids between these two species" (Iogansen, 1935, p. 41). Therefore, this event is quite rare.

The efficiency of isolation depends on the balance of tendencies noted above and the results of contact, i.e. by the proportion of mixed pairs and hybrids recorded. In this way, it is possible to try to estimate the gene flow without expensive molecular and genetic approaches. In our case, due to limitation in the gene exchange discovered between the two species, there is no reason to attribute any significant evolutionary value to it. Even at widening of contacts between the two species in anthropogenic landscapes, a cascade-like increase of hybridization seems to be unlikely. In general, the situation corresponds to accidental sympatric hybridization and does not give us evidences for doubts in the species rank of *L. collurio* and *L. cristatus*.

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