

Distribution, systematics and nomenclature of the three taxa of Common Stonechats (*Aves*, *Passeriformes*, *Muscicapidae*, *Saxicola*) that breed in the Caucasian region

Распространение, систематика и номенклатура трёх форм черноголовых чеканов (*Aves*, *Passeriformes*, *Muscicapidae*, *Saxicola*), гнездящихся в Кавказском регионе

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Abstract. Geographic distribution and habitat preferences of *Saxicola rubicola rubicola* (Linnaeus, 1766), *S. maurus variegatus* (S.G. Gmelin, 1774), and *S. m. armenicus* (Stegman, 1935) inhabiting the Caucasian Isthmus and adjacent areas are described in detail. We examined the individual, sexual, age, seasonal and geographical variations of seven main diagnostic features of both plumage and morphometrics (exactly, the length of wing and tail) using 381 skin specimens. Substantially improved diagnoses of *S. m. variegatus* and *S. m. armenicus* are provided. After a thorough examination of the materials and history of the expedition of Samuel Gmelin in 1768–1774, and his description of *Parus variegatus*, it was concluded that the type locality of this taxon was the vicinity of Shamakhi in Azerbaijan not Enzeli in North-Western Turkey. It is also shown the fallacy of the recently proposed attribution of the holotype of the northern subspecies *S. m. variegatus* to the southern taxon *S. m. armenicus* and synonymisation of these names, as well as the replacement of the name *S. m. variegatus* by its junior synonym *S. m. hemprichii* Ehrenberg, 1833 for the northern subspecies.

Резюме. Детально описано географическое и биотопическое распространение черноголовых чеканов *Saxicola rubicola rubicola* (Linnaeus, 1766), *S. maurus variegatus* (S.G. Gmelin, 1774) и *S. m. armenicus* (Stegman, 1935), населяющих Кавказский перешеек и прилегающие территории. Индивидуальная, половая, возрастная, сезонная и географическая изменчивость семи основных диагностических признаков окраски оперения и линейных измерений длины крыла и хвоста исследована у 381 коллекционной особи. Приведены существенно уточненные диагнозы *S. m. variegatus* и *S. m. armenicus*. В результате тщательного изучения материалов и истории экспедиции Самуэля Гмелина в 1768–1774 гг., а также его описания *Parus variegatus* установлено, что типовой местностью этого таксона являются окрестности Шемахы, Азербайджан (а не Ензели, Северо-Западная Турция). Показана ошибочность недавно предложенного отнесения голотипа северного подвида *S. m. variegatus* к южному таксону *S. m. armenicus* и синонимизации этих названий, а также замены названия *S. m. variegatus* его младшим синонимом *S. m. hemprichii* Ehrenberg, 1833 для северного подвида.

Key words: Caucasus, geographic distribution, habitat preferences, diagnosis, expedition of S. Gmelin, nomenclature, Stonechats, *Saxicola rubicola rubicola*, *S. maurus variegatus*, *S. m. armenicus*

Ключевые слова: Кавказ, географическое и биотопическое распространение, диагнозы, экспедиция С. Гмелина, номенклатура, черноголовые чеканы, *Saxicola rubicola rubicola*, *S. maurus variegatus*, *S. m. armenicus*

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Introduction

The Caucasian Isthmus and the adjacent territories are inhabited by the three forms of Stonechats: the nominotypical subspecies of the European Stonechat, *Saxicola rubicola rubicola* (Linnaeus, 1766); Variegated Stonechat *S. maurus variegatus* (S.G. Gmelin, 1774); and Armenian Stonechat *S. m. armenicus* (Stegman, 1935); the latter two being subspecies of the Eastern Stonechat *Saxicola maurus* (Pallas, 1773). All three forms have long been considered as subspecies of a single species, the Common Stonechat *Saxicola torquatus* (Linnaeus, 1766), with 25 subspecies distributed in Africa and Eurasia. This point of view arose from the concept of broad polytypic species comprising all phenotypically similar allopatric forms (Hartert, 1910; Vaurie, 1959; Ripley, 1964; Roselaar, 1988). According to the recent taxonomic revisions including those obtained as a result of molecular studies (reviewed in: Wittman et al., 1995; Wink et al., 2002; Urquhart, 2002; Illera et al., 2008; Zink et al., 2009), there are five distinct species instead of the former Common Stonechat: (1) the European Stonechat *S. rubicola*, with two subspecies; (2) Eastern or Siberian Stonechat *S. maurus*, with five subspecies; (3) Stejneger's or Japanese Stonechat *S. stejnegeri* (Parrot, 1908), monotypic; (4) African Stonechat *S. torquatus*, with 14 subspecies; and (5) Reunion Island Stonechat *S. tectes* (J.F. Gmelin, 1789), monotypic. Certain authors (Dickinson & Christidis, 2014) treated *S. stejnegeri* as a subspecies of *S. maurus*. The five aforementioned species together with the Canary Islands Stonechat *S. daotiae* (Meade-Waldo, 1889) form a superspecies.

Field identification of the three Caucasian forms of Stonechats is rather difficult. This is especially true for females and young birds in the nesting plumage as their discriminations require some experience. It is much easier to identify the darkest and smallest species of *S. rubicola* than to distinguish between *S. m. variegatus* and *S. m.*

armenicus. Sometimes the visual discrimination between the latter two subspecies is very difficult if at all possible, not only in the field but even in museum collections. As a result, there are many erroneous data on their distributions in numerous articles and books, both old and modern. Therefore, one of the main goals of this publication was to clarify the geographic distributions and habitat preferences of these two forms in both lowland and highland regions of the Caucasian Isthmus during the breeding season. To achieve this, we, along with other things, specified their taxonomic status. The latter task required a detailed study of intraspecific variations (including individual, sexual, age, seasonal and geographical) of the main diagnostic features of plumage and morphometrics. This, in turn, have resulted in a more exact morphological diagnosis of both *S. m. variegatus* and *S. m. armenicus*.

In the last decade, some propositions were published involving a radical change in views on the type locality of *S. m. variegatus*, boundaries of the breeding area of *S. m. armenicus*, and the nomenclature of both these taxa (Mlikovský, 2011; Svensson et al., 2012; Shirihai & Svensson, 2018). Opaev et al. (2018) noted that these statements are unwarranted but did not present substantial evidences thereof; here we clarified these issues.

Material and methods

The nine plumage and morphometric parameters (i.e. the colour of plumage of seven different parts of the body, and the length of the wing and tail) were described or measured in 381 specimens from the following collections: Zoological Institute, Russian Academy of Sciences, St Petersburg (ZIN), 221 specimens; Zoological Museum of Moscow State University, Moscow (ZMMU), 114 specimens; Zoological Museum of Kiev University, Kiev (ZMKU), 16 specimens; and Zoological Museum; National Museum of Natural History, National Academy of Sciences of Ukraine, Kiev

(NMNH), 30 specimens. We examined 95 specimens of *Saxicola rubicola rubicola* originated from the south-eastern part of its breeding range, 243 specimens of *S. maurus variegatus*, and 43 specimens of *S. m. armenicus*. The specimens of the latter two forms originated from all over their breeding ranges. Most birds were collected from the second part of April until the late August.

The life history of the Stonechats was studied by G. Bakhtadze (hereafter GB) in 1979–2004, mostly in different parts of Rostov Province of Russia, and also in different parts of the Ciscaucasia (i.e. Krasnodar and Stavropol' Territories, and Dagestan), and in the deltas of the Volga and Ural rivers. V. Loskot (hereafter VL) carried out eleven spring and summer field seasons in the Caucasus Mountains and in Transcaucasia in 1973–1994, mainly at stationary points, but three times (in 1973, 1974 and 1976) on lengthy expedition trips by trucks.

Data on the altitudinal and habitat distributions of *S. m. armenicus* in the Zagros Mountains, Western Iran, are compiled from the unpublished manuscript "From Shat-el'-Araba to [Mount] Ararat along the Persian-Turkish Border. Diary of the journey and zoological studies in 1914" by Petr Vladimirovich Nesterov. Nesterov completed this manuscript on 1 May 1916; the manuscript includes 283 pages of Russian text written in black and blue ink. The manuscript is stored in the archive of the ornithological department of ZIN. During the expedition (from 7 March to 12 September, 1914), Nesterov collected 19 specimens of the Stonechats, and B.K. Stegman (1935) described *Saxicola torquata armenicus* based on the holotype (adult male) from this collection.

For each of the three forms of the Stonechats, we provided a list of breeding places with a detailed information on the corresponding specimens (i.e. collection time, sex, age, number of specimens from a location, name(s) of collector(s) and collections). Each geographic location was indicated on the schematic map (Fig. 1).

We used the terminology (with some modifications) suggested by Jenni & Winkler (1994) to describe plumage, moult and age classes. The primaries were numbered from the outermost (P1) inward; the rectrices were numbered from the central pair (R1) outward. Characters useful for subspecies identification as well as age and sea-

sonal plumages determination were revised. As a result, many specimens (over 30) were identified or re-identified at the subspecies level. The presences of the type specimens of *S. m. armenicus* Stegman, 1935 and *S. rubicola amaliae* (Buturlin, 1929) [that is, the junior synonym of *S. rubicola rubicola*] (Fig. 4), as well as the males in the fresh first autumn-winter plumage from the type locality of *S. m. variegatus* in the data were very useful for us to specify the correct diagnoses of different subspecies.

Here, we used the following abbreviations: **juv.** – juvenile birds in the nesting plumage, from fledging to the postjuvenile moult; **1-st year** – young birds after their postjuvenile partial moult, that is in the fresh first autumn-winter plumage; **sad.** – subadult, that is young birds in their 1-st spring-summer worn plumage; **ad.** – adult birds after the first complete moult, that is older than one year; **MaC** – marginal coverts; **MeC** – medial coverts; **CC** – carpal coverts; **Al** – alula feathers 1–3; **GC** – greater coverts 1–10; **PC** – primary coverts; **T** – tertial feathers 7–9; **S** – secondaries 1–6; **P** – primaries 1–10; **R** – rectrices 1–6.

To study plumage variations, the following important diagnostic characters were described for each specimen: (1) the colour of the back; (2) the colour of the rump and uppertail coverts; (3) the size of the white patch on neck-side (for males collected in summer only); (4) the colour of the throat; (5) the reddish-chestnut colour on the breast (males only); (6) the saturation of the rufous colour of the venter; (7) the colour of the rectrices.

Linear measurements were taken by VL using a dial caliper to the nearest 0.1 mm. Student's t-tests were used to evaluate the significance of the differences between the means.

Results

Plumage

1. Juvenile (nesting) plumage

The juvenile plumage is spotted in all the Chats of the genus *Saxicola* (Fig. 2) as well as in young birds of most Muscipidae.

The nesting plumage of *S. rubicola rubicola* is noticeably darker than that of *S. maurus armenicus* and, especially, *S. m. variegatus*. In addition, R of males and females of *S. r. rubicola* are com-

pletely dull black having no white or pale rufous basal patch. Besides, contrasting blackish or dark brown elongated streaks are located on the bright rufous rump and uppertail coverts of *S. r. rubicola*. By contrast, rump and uppertail coverts of the subspecies of *S. maurus* usually absent the streaks, and feathers of these plumage parts are white with rufous tips (males) or mainly rufous (females). Therefore, the colour of the R, rump and uppertail coverts allows the reliable identification of males and females of *S. r. rubicola* of all ages.

Differences between *S. m. armenicus* and *S. m. variegatus* are small: the former, however, is usually somewhat darker above (Fig. 2). In both subspecies, males differ from females by having the white bases of R; a small (5–7 mm) basal patch on the tail of females is usually rufous or pale rufous. Tail colour of males of *S. m. variegatus* is quite variable individually, and most of individuals differ from males of *S. m. armenicus* by their larger white patches on the R (for more details, see the description of plumage of adult males).

Postjuvenile moult. Juveniles of all the three forms moult and acquire the first autumn-winter plumage in their breeding grounds. This incomplete moult lasts from early June – late July to early August – mid-September in different broods from different parts of the study area. Most birds replace all head and body feathers, MaC, MeC, GC, CC, T, and sometimes also Al 1, 2 and S 6, 5.

2. First autumn-winter (fresh) plumage

Birds of this age group differ from adults in fresh plumage by the colour contrast between the newly grown wing feathers and the old ones that remained from the nesting plumage (for details, see the *Postjuvenile moult* section above): newly grown feathers, especially GC, are black and thus noticeably darker than the old brownish P and PC. Rectrices of the 1-st year birds are also usually brownish not black, and have more pointed tips in the autumn (Fig. 3 C, F).

The plumage differences of *S. r. rubicola* (Fig. 4) from both studied subspecies of *S. maurus* (Fig. 3) are the same as in juveniles (see above).

Males of *S. m. armenicus* normally have somewhat darker upperparts than males of *S. m. variegatus*. The buff tint of feather fringes is more brownish than yellowish (Fig. 3) in *S. m. armeni-*

cus; white colour on the belly appear to be less distinct. *S. m. armenicus* had less white on the base of R, usually no more than one-third of their length (for details, see the description of adult males).

Comparing to *S. m. variegatus*, most females of *S. m. armenicus* have a more intense rufous underparts (Fig. 5). Some of them have slightly darker upperparts than that of females of *S. m. variegatus*. However, many females of these two subspecies have virtually indistinguishable upperparts.

3. First spring-summer (worn) plumage

In the Chats, sharp seasonal changes in the plumage colouration occur in the wintering grounds due to the gradual abrasion and fading out of the tips and fringes of feathers.

Males in the first spring-summer plumage differ from adults by the contrast between the black parts of the newly grown wing feathers and the old brownish P, PC, Al, T and one or two inner S. As a rule, adult males also have a more intensely black colour of other dark parts (i.e. parts of the head, back, throat and R), and have reddish-chestnut colour on the breast rather than rufous-orange in subadult ones (Fig. 6).

Breast colouration of males of *S. m. variegatus* is often somewhat lighter than that of *S. m. armenicus* of the same age. But the reverse can be true if one compares subadult males of *S. m. armenicus* with adult males of *S. m. variegatus* (Fig. 6).

The rufous colour of the subadult females is usually lighter than that of adults. Females of *S. m. variegatus* usually have less intense rufous colour of the underparts than *S. m. armenicus* females (Fig. 7); besides, the upperparts of *S. m. armenicus* often slightly darker.

Postbreeding moult. Subadult and adult birds of all the three forms undergo complete moult in the breeding grounds. This moult usually occur somewhat later than the moult of juveniles, from early July to late August – late September. In August–September, some already migrating individuals have not yet completed moult.

4. Adults in autumn-winter (fresh) plumage

This plumage is similar to the first autumn-winter plumage excepted the fact that all wing feathers are newly grown and thus intensely black in males and blackish-brown in females;



Fig. 1. Distribution of the three taxa of the Stonechats in the studied area.

the R are newly grown as well, and their tips are less pointed and more rounded (Fig. 3 A, D, B, E). The rufous colour of the breast in males and of the underparts in females are more intensive than that of young birds.

The main plumage differences between *S. r. rubicola* and both studied subspecies of *S. maurus* as well as between the two subspecies of *S. maurus* are the same as those between birds in the first autumn-winter plumage.



Fig. 2. Birds in nesting plumage. **A**, *Saxicola maurus armenicus*, coll. No. 28126/108, Azerbaijan, Nakhichevan Autonomous Republic, Dzul'fa Distr., NW slopes of Ilan-Dag Mt., 39°08.78' N, 45°40.47' E, 1,160 m a.s.l., 12 June 1974, female, Yu.A. Volnenko leg. (NMNH); **B**, *Saxicola maurus variegatus*, coll. No. 137879, Russia, Kabardino-Balkar Republic, Prokhladnyy (= Prokhladnaya Vill.), 43°45.11' N, 44°05.79' E, 180 m a.s.l., 2 July 1883, male, K.N. Rossikov leg. (ZIN).

5. Adults in spring-summer (worn) plumage

This plumage results from wear and fading out of feathers of the previous plumage.

Males. The rump and uppertail of *S. r. rubicola* are white with black linear streaks; by contrast, both forms of *S. maurus* have plain white rump and uppertail. In *S. r. rubicola*, the R are completely brownish-black, and the exceptions are rare: only one out of 65 males had white bases of the R, and the one-fourth of the length of the feathers was white. In *S. m. variegatus*, the tail colour is

very variable (Fig. 9). Based on the colour of the tail, three groups of males could be setting: A, B and C, according to the order in which the white colour area of the tail feathers decreases. Among 100 males analysed (of all ages), 26 belonged to the group A, 38 to group B, and 36 to group C. The tail feathers of six out of 36 birds from the group C have the size of the black area of 30–36 mm, that matched the same parameter of males of *S. m. armenicus*: 30–39 mm (mean \pm SD = 34.90 \pm 2.34, n = 20). These large “black-tailed” males of *S. m. variegatus* having also the reddish-chestnut breast appeared to be phenotypically indistinguishable from the males of *S. m. armenicus*. In the males of the latter subspecies, the size of the white patch at the basis of R was 14–21 mm (mean 18.05 \pm 2.07, n = 20) or 27–41 % (mean, 33.90 \pm 3.62 %) of the tail length. In this respect, our data disagrees with the opinion of Stegman (1935) who noted that males of *S. m. armenicus* have “no more than 25 %” of white on their tail feathers.

We found the geographic variation of the tail colour in males of *S. m. variegatus*. Among the 40 specimens collected in the Ural Delta region by G.S. Karelin and V.N. Bostanzhoglo in the 19th and early 20th centuries, 24 (60 %) belonged to the group A, 15 (37.5 %) to the group B, and only one (2.5 %) specimen belonged to the group C. By contrast, in other parts of the breeding area, males of the groups B and C are numerically predominant. In one-third of the males of the group A, the black band on the R 2–6 was intersected by the white area near the shaft of inner vanes (Fig. 9 A).

Females. Main plumage differences between *S. r. rubicola* and the two subspecies of *S. maurus* as well as between the subspecies of *S. maurus* are the same as in subadult birds in their spring-summer plumage.

Morphometrics

Individuals of *S. r. rubicola* noticeably differ from both the subspecies of *S. maurus* by their smaller size, especially comparing with *S. m. armenicus*. Differences in morphometrics between *S. m. armenicus* and *S. m. variegatus* are small although statistically significant in several measurements. We focused here on two measurements

that are the most informative and the most widely used: wing length and tail length (the pooled data for males and females in all plumages are given in Table 1).

Males. In our sample, variation ranges of the wing length of *S. r. rubicola* (max 68.1 mm) and *S. m. armenicus* (min 70.6 mm) did not overlap. Therefore, wing length alone appeared to be sufficient to distinguishing between these two taxa. With respect to *S. rubicola* and *S. m. variegatus* males, the wing length of ~37 % of specimens of *S. r. rubicola* overlapped that of *S. r. variegatus* (as 24 out of 65 specimens have wing length > 65.0 mm); and the wing length of ~30 % of *S. m. variegatus* overlapped that of *S. r. rubicola* (30 out of 100 specimens have wing length < 68.5 mm).

In *S. r. rubicola* and *S. m. armenicus*, the tail length showed the overlap of ~18 % in *S. r. rubicola* males (as 7 out of 65 specimens have tail length > 69.5 mm), and of 7 % in *S. m. armenicus* males (2 out of 30 males have tail length < 50.0 mm). The overlap of the measurements of the tail length between males of *S. r. rubicola* and *S. m. variegatus* was much wider as



Fig. 3. Males in fresh autumnal plumage, ventral (A–C) and dorsal (D–F) view. **A, D,** *Saxicola maurus armenicus*, coll. No. 136248, Iran, West Azerbaijan Prov., Vezne River valley, 36°34.51' N, 45°10.80' E, 1,400 m a.s.l., 22 July 1914, ad., P.V. Nesterov leg. (ZIN); **B–F,** *Saxicola maurus variegatus*, Georgia, Kakhetiya, vicinity of Lagodekhi, 41°48.28' N, 46°16.56' E, 380 m a.s.l., L.A. Portenko leg. (ZIN): coll. No. 163316/425-974, 19 Sept. 1953, ad. (B, E) and coll. No. 163315/425-974, 21 Sept. 1953, 1-st year (C, F).

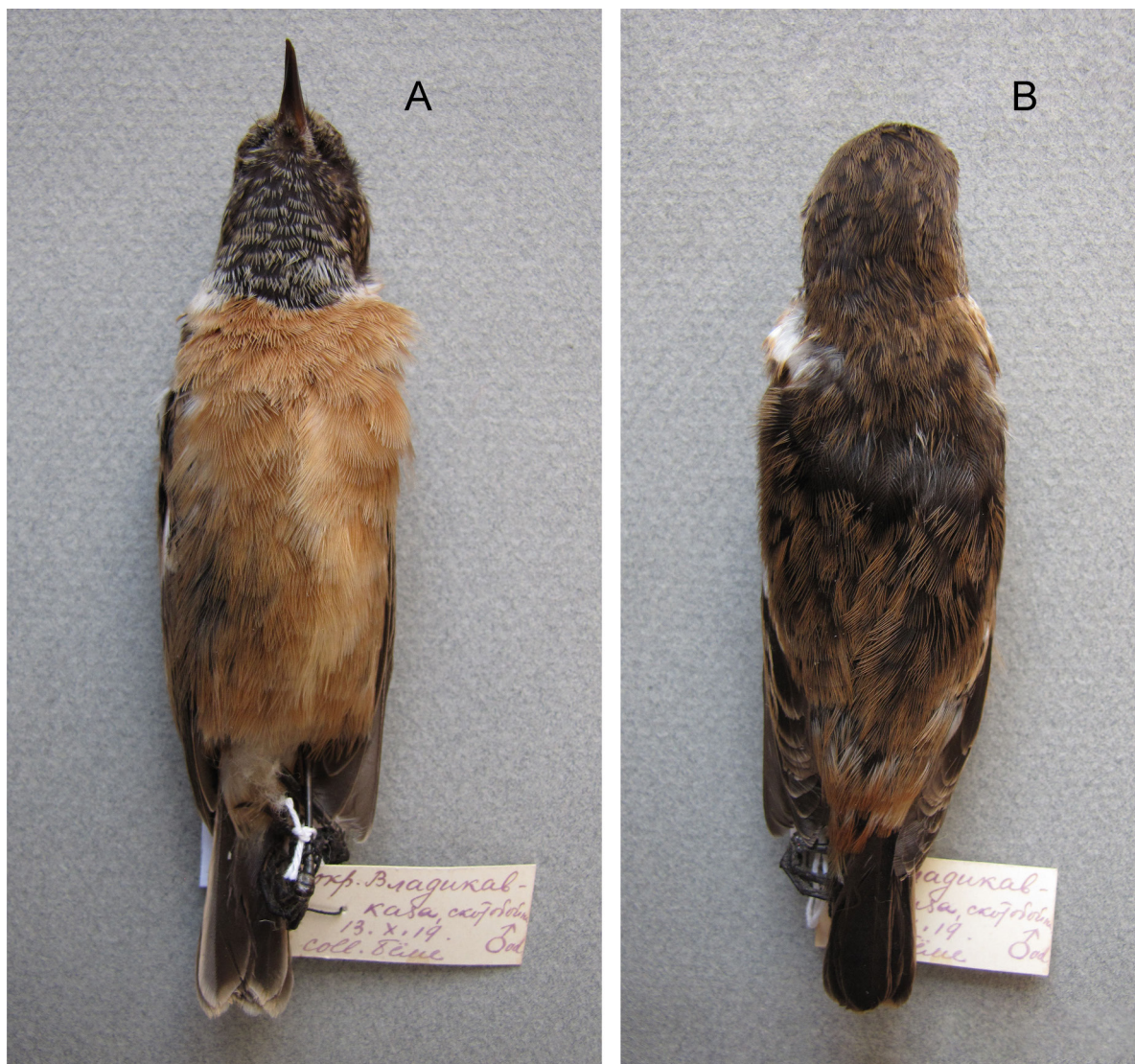


Fig. 4. First year male of *Saxicola rubicola rubicola* in fresh autumnal plumage. Holotype of *Saxicola torquata amaliae* Buturlin, 1929. ZMMU, coll. No. R-13488, Russia, Republic Severnaya Osetiya – Alaniya, vicinity of Vladikavkaz, 42°59.99' N, 44°38.53' E, 750 m a.s.l., 13 Oct. 1919, L.B. Beme leg. Ventral (A) and dorsal (B) view.

the tail length of only ~14 % of *S. r. rubicola* (9 out of 65 males have tail length < 45.5 mm) and of 37 % of *S. m. variegatus* (37 out of 100 males have tail length > 50.5 mm) did not overlap the corresponding measurement of the other taxon.

Although the wing and tail lengths differed significantly between *S. m. variegatus* and *S. m. armenicus* males (wing length, $t = 9.39$, tail length, $t = 7.92$, $df = 128$, $p < 0.001$), these measurements overlapped broadly and thus do not sufficient to distinguishing between these two taxa.

Females. Generally, the patterns of interspecific variation of the wing and tail length in females

repeated those in males. The smallest wing length is characteristic of *S. r. rubicola* (max 66.6 mm), and *S. m. armenicus* females have the longest wing (min 69.6 mm); these measurements did not overlap, so each individual bird can be easily identified as belong to one or another taxon. The wing length of *S. r. rubicola* and *S. m. variegatus* overlapped broadly: exactly, the measurements of 30 % of *S. rubicola* females (as 9 out of 30 females have wing length > 63.5 mm) and ~33 % of *S. m. variegatus* females (10 out of 30 females have wing length < 66.5 mm) overlapped that of the other taxon.

Table 1. Dimensions ($\bar{x} \pm SD$, lim, mm) of the three forms of the genus *Saxicola* from Caucasus.

<i>Saxicola rubicola</i>			<i>Saxicola maurus armenicus</i>			<i>Saxicola maurus variegatus</i>		
N	wing length	tail length	N	wing length	tail length	N	wing length	tail length
Males								
65	64.8 ± 1.70	47.1 ± 1.68	30	73.5 ± 1.58	53.3 ± 1.82	100	69.6 ± 2.09	49.9 ± 2.08
	61.8 – 68.1	43.8 – 50.6		70.6 – 76.4	49.6 – 56.7		65.1 – 76.3	45.5 – 56.7
Females								
30	63.1 ± 1.28	45.9 ± 1.50	13	71.6 ± 0.95	51.6 ± 1.66	30	67.3 ± 1.60	48.9 ± 1.82
	60.6 – 66.6	42.1 – 48.6		69.6 – 72.7	48.9 – 54.6		63.8 – 69.4	45.8 – 52.7

The measurements of the tail length of *S. r. rubicola* ($n = 30$, max 48.6 mm) and *S. m. armenicus* ($n = 15$, min 48.9 mm) did not overlap, and thus all females of these taxa can be distinguishing; however, the rare exceptions probably exist. The tail length of *S. r. rubicola* and *S. m. variegatus* overlapped broadly: only a half (47 %) of birds can be identified as belong to one or another taxon (14 out of 30 specimens of *S. r. rubicola* have tail length > 45.8 mm, and 14 out of 30 specimens of *S. r. variegatus* have tail length < 48.6 mm).

The wing and tail length of females of *S. m. variegatus* and *S. m. armenicus* overlapped broadly. However, as in males, the differences between these two taxa were highly significant in females (wing length, $t = 9.52$, tail length, $t = 4.93$, $df = 43$, $p < 0.001$).

The breeding range of *S. m. armenicus* is relatively small (Fig. 1), and specimens of this taxon are rare in collections. Svensson et al. (2012) had unreasonably included specimens from Georgia, Azerbaijan, Northern Armenia, and the Elburz Mountains to their sample of *S. m. armenicus*; besides, they had misidentified some specimens. These two facts led to an incredible increase of the number of specimens of the sample of *S. m. armenicus* in Svensson et al. (2012) (allegedly, 94 males and 43 females!). This sample is evidently heterogeneous because it includes not only the exact males of *S. m. armenicus* but also “black-tailed” (Fig. 9 C right) males of *S. m. variegatus*. As for females, specimens of these two subspecies often are indistinguishable. It should be noted, that these races are allopatric, and geographic location is thus one of the most important characteristics of a specimen.

Koelz (1954, p. 13) published data on individual wing length of 25 males and 17 females of *S. m. armenicus*. The analysis of this meas-

urements gave us the following characteristics: (1) males: lim. = 71–78 mm; mean = 74.8 mm; SD = 1.78 mm; (2) females: lim. = 70–75 mm; mean = 72.3 mm; SD = 1.13 mm. Koelz’s mean values were somewhat larger than our measurements (Table 1) possibly due to a different measurement technique.

Distribution and habitats

Saxicola rubicola rubicola (Linnaeus, 1766) – European Stonechat (south-eastern populations)

This stonechat prefers steppes and meadows with scattered shrubs and subshrubs (e.g. different *Rosa*, *Crataegus*, *Prunus* and *Ribes* species) as well as tall herbaceous plants (e.g. *Rumex confertus*, *Tanacetum* spp., *Carduus* spp., *Artemisia* spp., and numerous species of the Umbelliferae).

In the late 20th century, this subspecies considerably expanded its range from the western (the most eastern points of where it bred before) to eastern Ukraine. An interesting feature of this process in the steppe zone was that in the newly occupied areas the breeding pairs or small settlements of 2–3 pairs bred at a considerable distance one from another (usually no less than tens but sometimes even hundreds of kilometers: unpublished observations of VL in the Donetsk Province of Ukraine in 1966). Recently, the European Stonechat was found in the Rostov Province of Russia. Breeding birds were observed there for the first time near the north-eastern shores of the Sea of Azov and in the valley of the lower reaches of the Don River (Kazakov, Bakhtadze, 1999; Bakhtadze, 2002). Later, this stonechat was found in the middle course of the Don River, where it bred near the mouth of the Tikhaya River (49°34.31'N, 41°19.80' E, 60 m a.s.l.) that is yet the most north-western known breeding place

(Fig. 1; List 1: 1). Here, these chats usually inhabit branches of steppe ravines, often with steep, rocky slopes and permanent streams on their bottoms; they also breed in the valleys of small steppe rivers (Bakhtadze, 2002). As a rule, in the plain steppe zone, *S. r. rubicola* chooses more rough terrains, and also prefer more xerophyllous habitats than *S. m. variegatus* (see below) and especially than the Winchat, *Saxicola rubetra* (Linnaeus, 1758).

This subspecies is also widely distributed in the mountains of western Europe, in the Caucasus and in northern Asia Minor. In the Caucasus, breeding pairs were recorded at 400–2,550 m a.s.l. although usually they breed at 800–1,800 m a.s.l. (List 1). In mountain forests of the Caucasus, the optimal breeding habitats include forest edges, artificial clearings, roadsides or felled areas, usually with shrubs and tall grasses (*Rumex confertus*, *Heracleum* spp., *Inula* spp., *Urtica* spp.). Especially typical habitats located within the subalpine zone: here, individuals of *S. r. rubicola* inhabit tall herbage with sparse small trees (*Betula*, *Acer*, *Quercus*, *Carpinus*, *Fagus*, and *Sorbus*) with curved trunks and bushy thickets (often *Rosa*, *Juniperus*, *Rhododendron*, *Ribes*, and *Vaccinium*) near the treeline. The usually neighbors of the European Stonechat in those places are the Caucasian forest birds: the Chaffinch, *Fringilla coelebs caucasica* Serebrovski, 1925; Great Tit, *Parus major major* Linnaeus, 1758; Coal Tit, *Parus ater gaddi* (Zarudny, 1911); also Dunnock, *Prunella modularis obscura* (Hablizl, 1783); Blackbird, *Turdus merula aterrimus* (Madarász, 1903); Lorenz's Chiffchaff, *Phylloscopus lorenzii* (Lorenz, 1887), or Common Chiffchaff, *Ph. collybita caucasica* Loskot, 1991; Common Rosefinch, *Carpodacus erythrinus kubanensis* Laubmann, 1915; Marsh Warbler, *Acrocephalus palustris* (Bechstein, 1798); Green Leaf Warbler, *Phylloscopus nitidus* Blyth, 1843; Eurasian Wren, *Troglodytes troglodytes hyrcanus* Zarudny et Loudon, 1905; and Tree Pipit, *Anthus trivialis trivialis* (Linnaeus, 1758).

The Talysh Mountains appeared to be the most south-eastern breeding location of this subspecies. Here, breeding pairs were observed near the treeline in the vicinity of Dzhoni Village at 1,500 m a.s.l. (38°34.36' N, 48°30.01' E; Fig. 1; List 1: 32). We have no reliable information concerning the possible breeding of *S. r. rubicola* in the Elburz Mountains. It should be noted, how-

ever, that the European Stonechat is absent from the numerous bird specimens collected by I.D. Glazunov (ZIN) in May–August 1894 in the Mount Demavend region.

In the Caucasus, migrating birds were observed in spring, usually from mid-March until late April, and in autumn from mid-August until early November. A few birds from the Caucasian population regularly winter near Lenkoran (Azerbaijan), especially in Qızılağac Natural Reserve (Tugarinov & Kozlova, 1935; male collected on 23.XII.1960, ZMMU; 4 males and 6 females collected on 24 January – 4 February 1961–1963, ZMKU; unpublished observations by VL in Qızılağac Natural Reserve in 1961).

Saxicola maurus variegatus (S.G. Gmelin, 1774) – Variable Eastern Stonechat

This taxon generally prefers the more thermophilic and mesophilic habitats than the European Stonechat. The altitudinal distribution of *S. m. variegatus* is narrower than that of *S. r. rubicola*: the Variable Eastern Stonechat can be found in the breeding season from the depressions (to –29 m a.s.l.) of the Volga and Ural deltas to the middle mountain belt in the eastern part of the Caucasus (e.g. up to 1,000 m a.s.l. in the vicinity of Kislovodsk, Russia). Most birds, however, breed in steppes and semidesert plains, and in the foothills up to 600 m a.s.l. (Fig. 1; List 2).

Though the vast of the breeding range of this subspecies is located in the dry semidesert zone of the northern Caspian region and in the Eastern Ciscaucasia, these birds usually occur wherever water is nearby: i.e. on seashores, in river valleys and deltas, on the banks of channels, irrigation canals and ravine springs, as well as on the dry hills surrounded by wetlands dominated by common reed (*Phragmites australis*), sedges (*Carex* spp.), rushes (*Juncus* spp.), and other hydrophilic vegetations. For example, in April and in the first decade of May, 1907, these chats were very common in the eastern vicinity of Gur'ev [now Atyrau, Kazakhstan], where they were found near reedbeds, especially in the narrow coastal zone; these birds obviously avoided the dry wormwood steppes in the lower reaches of the Ural River (Bostanzhoglo, 1911). In the Volga Delta, breeding territories of *S. m. variegatus* were located in the wet depressions between the Baer knolls. In the latter point, thick-

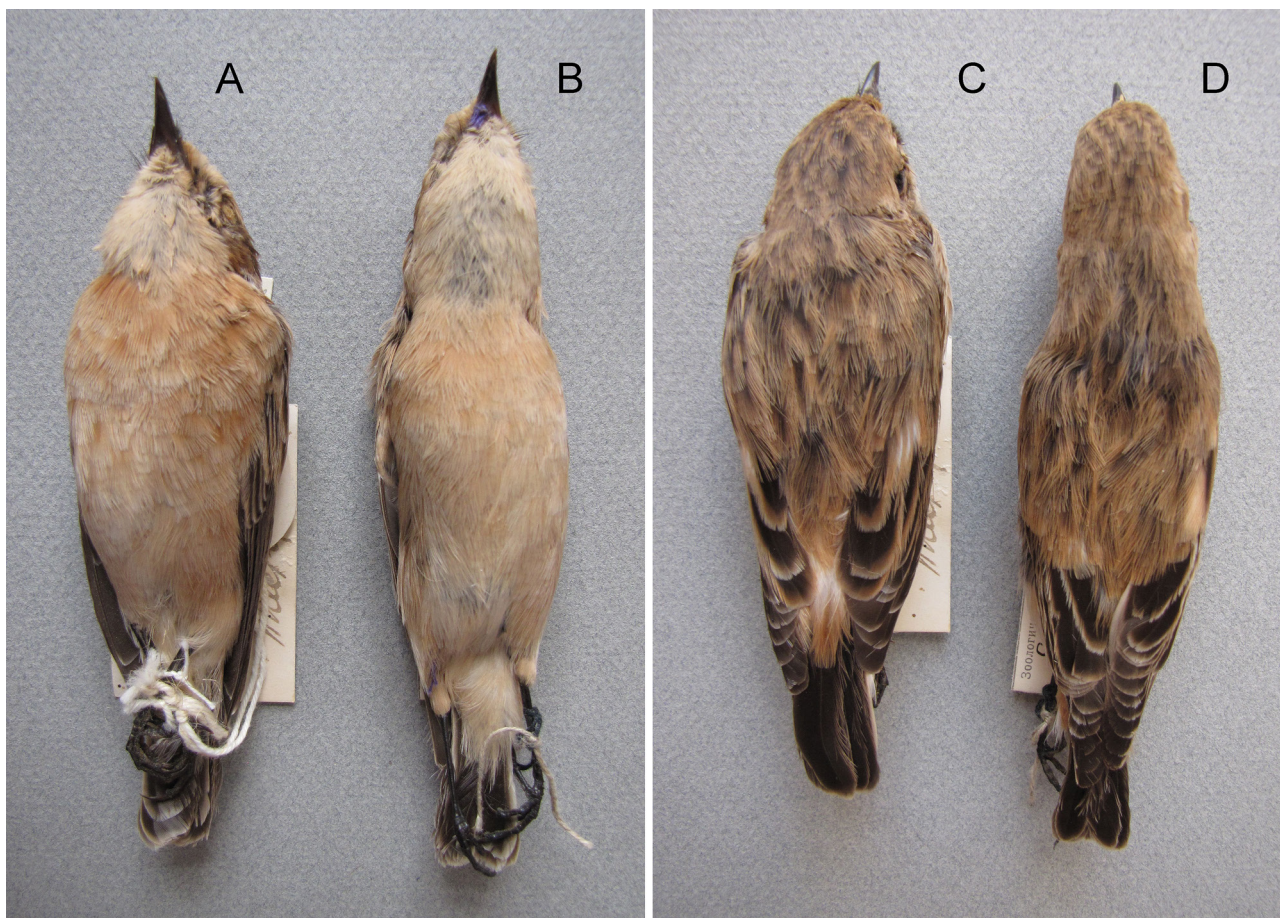


Fig. 5. Females in fresh autumnal plumage, ventral (A, B) and dorsal (C, D) view. **A, C,** *Saxicola maurus armenicus*, coll. No. 136219, Iran, West Azerbaijan Prov., Vezne River valley, 36°34.51' N, 45°10.80' E, 1,400 m a.s.l., 18 July 1914, ad., P.V. Nesterov leg. (ZIN); **B, D,** *Saxicola maurus variegatus*, coll. No. R-97651, Russia, Krasnodar Terr., vicinity of Krasnodar, 45°16.60' N, 38°05.39' E, 3 m a.s.l., 10 Aug. 1973, 1-st year, A.M. Peklo leg. (ZMMU).

ets of rushes were interspersed with scattered low bushes of *Tamarix* spp. (unpublished observation by GB in 1992–1993; Kazakov, Bakhtadze, 1999).

Also, birds very often breed in irrigated agricultural areas, especially among tall ruderal vegetation on roadsides with escarps or trenches, at fringes of crop fields, in the fields of forage herbs, on fallow land, watermelon and melon plantations, and in vineyards.

The most common neighbors of *S. m. variegatus* are typical meadow and steppe birds, such as the Yellow Wagtail, *Motacilla flava flava* Linnaeus, 1758; Black-headed Wagtail, *Motacilla feldegg feldegg* Michahelles, 1830; Bluethroat, *Cyanecula svecica volgae* (O. Kleinschmidt, 1907); Eurasian Sky Lark, *Alauda arvensis arvensis* Linnaeus, 1758 and *A. a. cantarella* Bonaparte, 1850; Common Whitethroat, *Sylvia communis communis*

Latham, 1787 and *S. c. icterops* Ménétriés, 1832; and Corn Bunting, *Emberiza calandra* Linnaeus, 1758. Other birds that often breed in wetlands close to the breeding territories of the chats are: the River Warbler, *Locustella fluviatilis* (Wolf, 1810); Common Reed Warbler, *Acrocephalus scirpaceus scirpaceus* (Hermann, 1804); Greater Reed Warbler, *Acrocephalus arundinaceus* (Linnaeus, 1758); Moustached Warbler, *Acrocephalus melanopogon* (Temminck, 1823); and Eurasian Reed Bunting, *Schoeniclus schoeniclus tschusii* (Reiser et Almásy, 1898) and *Sch. sch. caspia* Ménétriés, 1832; as well as some of the most common species of Anatidae, Rallidae and Waders: e.g. *Charadrius hiaticula* Linnaeus, 1758, *Vanellus vanellus* (Linnaeus, 1758), *Gallinago gallinago* (Linnaeus, 1758), and *Himantopus himantopus* (Linnaeus, 1758).

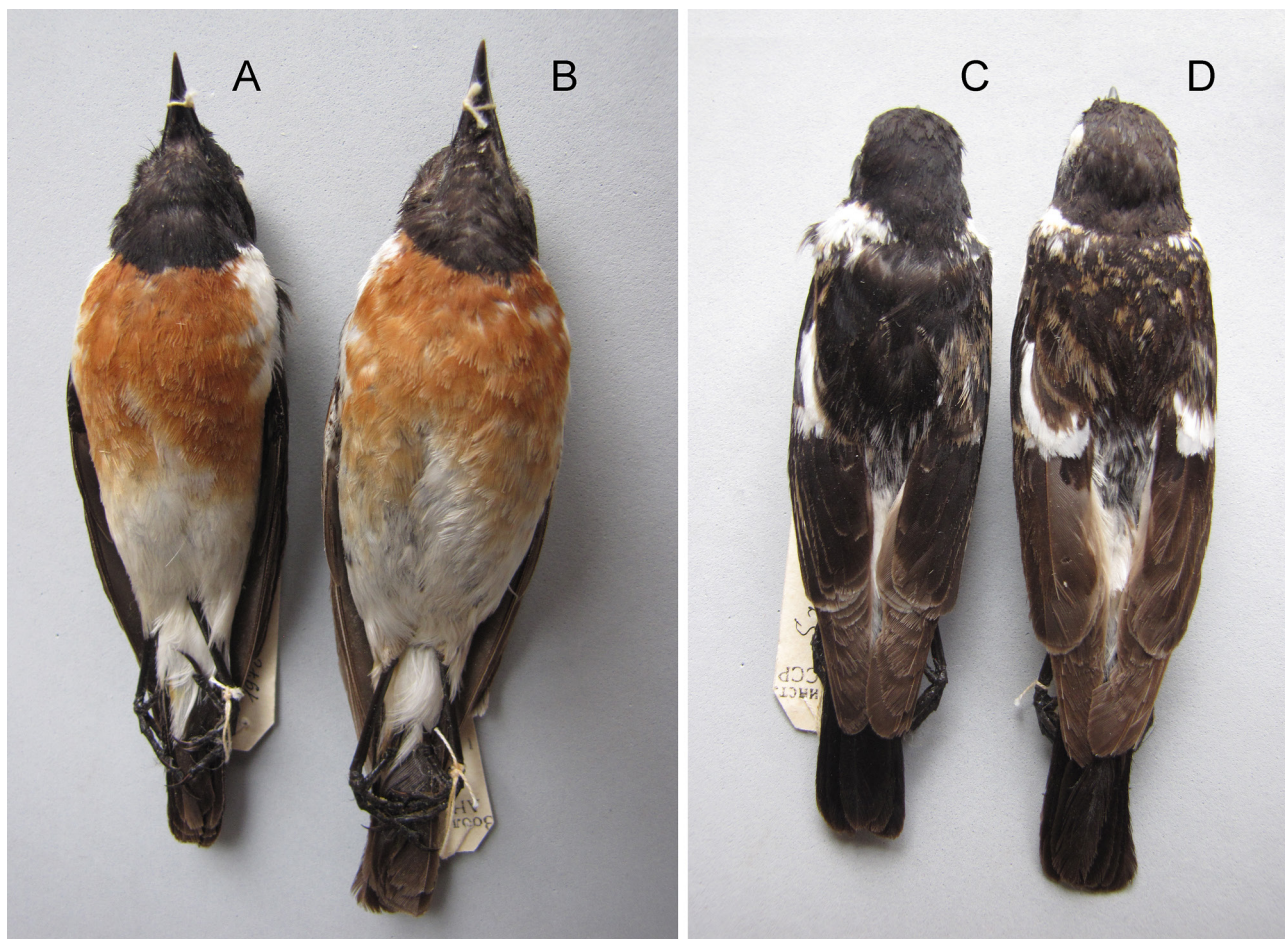


Fig. 6. Males in worn summer plumage, ventral (A, B) and dorsal (C, D) view. **A, C**, *Saxicola maurus variegatus*, coll. No. 28005/106, Azerbaijan, Ismailli Distr., vicinity of Ismailly, 40°46.99' N, 48°06.73' E, 540 m a.s.l., 2 July 1973, ad., V.M. Loskot leg. (NMNH); **B, D**, *Saxicola maurus armenicus*, coll. No. 25070/86, Armenia, Syunik Prov., vicinity of Goris, 39°31.16' N, 46°21.42' E, 1,650 m a.s.l., 13 June 1960, sad., M.I. Golovushkin leg. (NMNH).

Over the last fifty years, *S. m. variegatus* seemed to expand its range northwards, from the lower reaches of the Kuban River to the Rostov Province. Firstly, these chats reached the eastern Sea of Azov region, and then they moved into the lower reaches of the Don River (Kazakov, Bakhtadze, 1999). Now the northernmost known breeding place of this subspecies in the lower Don valley is the vicinity of Nizhnokundryuchenskaya Village (47°43.20' N, 41°00.07' E, 12 m a.s.l.; Fig. 1; List 2: 3).

Due to the range expansion of both *S. r. rubicola* and *S. m. variegatus*, the sympatry zone of the two was appeared. This zone located on the north-eastern shores of the Sea of Azov, in the steppe areas with river valleys and ravines. No signs of hybridisation between *S. r. rubicola* and *S. m. variegatus* were found in the sympatry zone.

It is therefore a significant additional evidence of the species status of both *S. rubicola* and *S. maura* which are thus “good species”.

The most south-eastern breeding point of *S. m. variegatus* was the Great Caucasus foothills near Shemakhi (40°37.86' N, 48°37.07' E, 650 m a.s.l.) that is the terra typica of this subspecies (Fig. 1; List 2: 49): the breeding birds were collected there.

In the Caucasus, migrating birds were collected in spring mainly from mid-March until late April; and in autumn, from mid-August until late October, but most often in September. Sometimes, solitary birds could winter on the western coast of the Caspian Sea, e.g. in the Kura River Delta (1 sad. female, 30 Jan. 1961, ZMKU) and in the Qızılağac Natural Reserve near Lenkoran (1 sad. male, 28 Feb. 1977, ZIN).



Fig. 7. Subadult females in spring plumage, ventral (A, B) and dorsal (C, D) view. **A, C**, *Saxicola maurus armenicus*, coll. No. 136211, Iraq, Wasit Governorate, Bagsaya ruins, 32°53.73' N, 46°27.60' E, 95 m a.s.l., 17 March 1914, P.V. Nesterov leg. (ZIN); **B, D**, *Saxicola maurus variegatus*, coll. No. 136212, the same locality, collector and collection, 16 March 1914.

Interestingly, on 16 March 1914 P.V. Nesterov collected at the Bagsay ruins, SW Iran [now Iraq, Wasit Governorate] a migrating sad. female of *S. m. variegatus*, and on the next day he collected a migrating female of *S. m. armenicus* of the same age (Fig.7). Therefore, sometimes places and time of spring migration of these two subspecies may coincide.

Saxicola maurus armenicus (Stegman, 1935) – Armenian Eastern Stonechat

It is an obligatory mountain bird. Breeding pairs were found at elevations of 820–2,300 m a.s.l., usually at 1,200–1,800 m a.s.l. (List 3). The altitudinal distribution of this subspecies is thus virtually outside that of *S. m. variegatus*

but overlap that of *S. r. rubicola*. Nevertheless, the sympatry of *S. m. armenicus* with the two other taxa has never been described (Fig. 1). It should be noted, that the data on the breeding of *S. m. armenicus* in the Eastern Transcaucasia and Azerbaijan (Stegman, 1935; Svensson et al., 2012; Shirihai & Svensson, 2018) are incorrect (see details in the *Gmelin's expedition* section below). The north-easternmost boundary of the breeding range of this subspecies is formed by the breeding birds collected near Goris, Syunik Province, Armenia, (39°31.16' N, 46°21.42' E, 1,650 m a.s.l.; Fig. 1; List 3: 3). The most south-eastern breeding point was the vicinity of Dorud, Luristan Province, Iran, (33°30.00' N, 48°04.04' E, 1,450 m a.s.l.; Fig. 1; List 3: 14).



These chats breed mainly in alpine semideserts, steppes and meadows, usually situated on wide plateaus or river terraces. The temperature and humidity of *S. m. armenicus* habitats can be rather diverse. For example, in Armenia and in Nakhchivan Autonomous Republic of Azerbaijan (Kaladybi locality, Agdere Vill., and foothills of Ilan Dag [İlandağ] Mountain) we observed birds far away from water in a dry steppe or on semidesert slopes with sparse thistles (*Cirsium vulgare*) and shrubs (*Rosa* spp., *Crataegus* spp., *Cerasus* spp.). The highest population density (60–100 m between neighboring breeding pairs) in a similarly dry landscape was encountered by VL near the irrigated vineyards close to Abrakunus Village, Dzul'fa [Julfa] District, Nakhichevan Autonomous Republic. Here, Chats bred in cavities between clods of soil on elevated ridges with vines, that are not flooded. The birds of this habitat include representatives of desert rocky mountain avian community: the Rusty-tailed Wheatear, *Oenanthe chrysopygia chrysopygia* (De Filippi, 1863); Finsch's Wheatear, *Oe. finschii finschii* (Heuglin,

Fig. 8. Adult males in breeding plumage, ventral (A–C) and dorsal (D–E) view. A, D, *Saxicola maurus armenicus*, coll. No. 28292/109, Azerbaijan, Nakhichevan Autonomous Republic, Dzul'fa Distr., NW slopes of Ilan-Dag Mt., 39°08.78' N, 45°40.47' E, 1,160 m a.s.l., 12 June 1974, Yu.A. Volnenko leg. (NMNH); B, E, *Saxicola maurus variegatus*, coll. No. 28005/106, Azerbaijan, Ismailli Distr., vicinity of Ismailly, 40°46.99' N, 48°06.73' E, 540 m a.s.l., 2 July 1973, V.M. Loskot leg. (NMNH); C, F, *S. m. variegatus*, coll. No. 173387/208-2002, Russia, Rostov Prov., Don River Delta, floodplain at mouth of Aksay River, Starodon'e Lake, 47°17.00' N, 40°15.10' E, 1 m a.s.l., 2 May 1997, G.B. Bakhtadze leg. (ZIN).

1869); and Black-eared Wheatear, *Oe. melano-leuca* (Güldenstädt, 1775); as well as Grey-necked Bunting, *Emberiza buchanani cerrutii* De Filippi, 1863, that usually bred close to the Chats on the nearby slopes.

On the northern slopes of the Great and Little Ararat Mountains, birds were collected in the Karasu River valley near Aralyk Town (820 m a.s.l.), near Yenidogan [Akhuri] Settlm. (1,780 m a.s.l.), and in the Sardar Bulak Saddleback (2,300 m a.s.l.) (Satunin, 1912; Sushkin, 1914; Bobrinskiy, 1915). In the latter place, *S. m. armenicus* bred in the alpine meadows; in this habitat, one can find a small grove of stunted birches, sporadic barberry (*Berberis* spp.) shrubs along the lower edge of the grove, and numerous clumps and cushion-like bushes of the creeping juniper (*Juniperus gemisphaerica*), often growing between large boulders. The local avian community included mainly widely distributed birds: the Eurasian Sky Lark, *Alauda arvensis cantarella*; Shore Lark, *Eremophila alpestris penicillata* (Gould, 1838); Common Wheatear, *Oenanthe oenanthe* (Linnaeus, 1758); Tawny pipit, *Anthus campestris boehmii* Portenko, 1960; Common Whitethroat, *Sylvia communis icterops*; Linnet, *Linaria cannabina bella* (C.L. Brehm, 1845); as well as specialise inhabitants of the creeping juniper belt, such as Radde's Accentor, *Prunella ocularis* Radde, 1884; and Bluethroat, *Cyanecula svecica magna* (Zarudny et Loudon, 1904).

In Western Iran (Nesterov, manuscript), the breeding Chats were found and collected mainly on wide plateaus at 1,200–2,300 m a.s.l., usually in river valleys (particularly in the Lahijan Rural District, West Azerbaijan Province), and on the shores of Lake Urmia. The Chats preferred steppe and meadow vegetation on mountain slopes and river banks, especially those with sparse stunted shrubs (e.g. willows *Salix* spp., the sea-buckthorn *Hippophae rhamnoides*, and *Rosa* spp.), and sparse reedbeds. The birds were also found in hilly terrains with depressions, small rocky canyons and ravines, often with rivers, streams and even swamps on their bottoms. Like *S. m. variegatus*, *S. m. armenicus* does not avoid plowed, especially irrigated fields, and breeds on pastures, fringes of crop fields, tobacco plantations, orchards and vineyards.

In the list of birds collected or observed together with *S. m. armenicus*, Nesterov most often mentioned the same common inhabitants of

steppes, meadows, screes, shrubs and wetlands, which have already been mentioned (Larks, Wagtails, Wheatears, Bluethroat, Common Whitethroat, Tawny pipit, Linnet, Corn and Reed Buntings, Reed and River Warblers, ducks, crakes, and waders). However, the following birds should be added to the list: the Calandra Lark, *Melanocorypha calandra calandra* (Linnaeus, 1766); Great Short-toed Lark, *Calandrella brachydactyla longipennis* (Eversmann, 1848); Common Quail, *Coturnix coturnix* (Linnaeus, 1758); Little Ringed Plover, *Charadrius dubius curonicus* J. F. Gmelin, 1789; and Great, *Otis tarda* Linnaeus, 1758, and Houbara, *Chlamydotis undulata* (Jacquin, 1784), Bustards.

The expedition of Samuel Gmelin and his description of *Parus variegatus*

Samuel Gottlieb Gmelin (1744–1774) headed one of the largest expeditions dispatched by the Russian Academy of Sciences in 1768–1774 in accordance with Mikhail Lomonosov's projects of geographic studies in 1759–1764 (Aleksandrovskaya et al., 2011). The route passed mainly through the Western Caspian region. The project faced difficult political problems and the work was associated with numerous hardships. Four members died during the expedition: Gmelin himself, the painter Ivan Borisov, taxidermist Mikhail Kotov, and researcher Yakov Klyucharev. The survivors were an anonymous huntsman, the pharmacist J.D. Luthé and the Academic students Nikolay Krashennikov (reassigned to Güldenstedt's team in late 1768), Ivan Mikhailov, Sergey Maslov, Adriyan Sokolov (reassigned from Güldenstedt's team in 1772), and Carl Ludwig Gablitz (joined the expedition in Voronezh in 1768). Gmelin's principal research interests were focused on plants (especially medical ones) and ethnography. As a rule, he did not collect and prepare animals himself; it was the duty of the taxidermist and of the students, which additionally measured freshly killed animals and gave their preliminary descriptions. This allowed Gmelin to describe new species in more details at a time convenient for him not immediately after a specimen was collected. Besides, Borisov drawn watercolours of stuffed specimen in the field. These watercolours are of good quality because the artist had been specially trained for that purpose. Many

of Borisov's drawings are now owned by the Archive of the Saint-Petersburg Scientific Center of the Russian Academy of Sciences. The total number of published (in 1700s) engravings made by Friedrich Bauer after Borisov's field drawings was 128 (Aleksandrovskaia et al., 2011).

In 1770, the expedition route passed along the western coast of the Caspian Sea towards Persia through Derbent, Baku, Shamakhi [Shemakha], Salyan, Enzeli, and Rasht. Gmelin's description of the journey from Shamakhi to Enzeli was especially noteworthy. The expedition departed from Baku on 10 (22, in the Gregorian calendar) August, 1770 and arrived in Shamakhi on 13 (25) August at night. The team members spent the next two weeks in Shamakhi and its vicinities, and took a trip south-west to New Shamakhi [Agsu or Akhsu] on 20–21 August (1–2 September). They moved to the valley in lower reaches of the Kura River on 27 August (7 September) accompanied by a guard of 12 soldiers and a commander (yuzbashi, in Turkic) who was detached by Ali Khan to Gmelin in Shamakhi. The guard was needed because the route passed across the Mugan plain, where caravans were often looted by robbers. Having reached the Kura River on 29 August (9 September), the expedition continued its moving by water, and reached Salyan on 31 August (11 September). It was there that Gmelin experienced a malaria fit rendered him housebound for two weeks. Only on 1 (12) October did the expedition sail downstream to the Kura River mouth, where Gmelin's ship was waiting for it. Two days later, on 3 (15) October, the ship moored in Enzeli, where Gmelin stayed until mid-February 1771. There he put his summer observations in order, and wrote an extensive ethnographic essay on Persia (Gmelin, 1774, p. 115). Based on the data collected in the summer, the first detailed descriptions of several animal species (mainly bird) were done, including that of the Variegated Tit: "Die gesprengte Meise (*Parus varietagus*)" [misprint of "*variegatus*"], p. 105–107 and Taf. 20, 3 R. Both a direct statement by Gmelin that in Enzeli he processed his "summer observations" (italicised by VL) and the fact that the expedition arrived in Enzeli in late autumn (15 October) disagree with Mlikovský's (2011) claim that the bird was collected directly in Enzeli. Where the specimen was collected exactly is unknown, but the most likely place was the area

around Shamakhi. This statement based directly on Gmelin's text (1774, p. 107). He wrote that "Dieser Vogel ist mir von Schamachie aus überall vorgekommen, man trifft ihn bald allein und bald in Gesellschaft an" ("I came across this bird [starting] from Shemakhi everywhere, isolated or in groups"). Therefore, many authors (Hartert, 1910; Stegman, 1935; Gladkov, 1954; Portenko, 1960; Ripley, 1964) regarded Shemakhi as the type locality. Another possibility was Salyan where the expedition was on 11–30 September that is the time of an intensive migration of *Saxicola maurus variegatus* in the Kura valley. However, as the original description mentioned Shamakhi, this place should be considered as the type locality.

Gmelin's description of *Parus varietagus* have a detailed table included 35 linear measurements that were given in "Zollen" (inches) and "Linien" (the Russian line equals one-tenth of a Zoll, that is 2.54 mm; the English line is one-twelfth of a Zoll, that is 2.11 mm). The presence of the wing span among the measurements unambiguously indicated that the bird was measured just after it was collected. The only measurement of a real diagnostic value was the tail length. The tail length of *Parus varietagus* was 2 Zoll and 1.5 Linie, that is 54.2 mm (Russian lines) or 53.6 mm (English lines). Svensson et al. (2012) used English lines and rounded the result to 54 mm. Also, they used the total length of the bird of 140 mm (that is "Body length from tip of bill to end of tail" in the table of Gmelin). Based on these two measurements, Svensson et al. (2012) concluded that Gmelin's *Parus varietagus* actually is conspecific with *S. m. armenicus* that is (according to Svensson et al., 2012) the South Caspian subspecies. However, our measurements of the maximal tail length (Table 1) suggested that males of *S. m. armenicus* and *S. m. variegatus* do not differ in this respect (56.7 mm), and our measurements surpassed Gmelin's measurement. With respect to the total body length, we doubted that an accurate comparison of Svensson's data (all measurements were taken directly by him) with those of Gmelin is possible because the measurement can vary due to the exact measuring technique used. Therefore, the tail length of *Parus variegatus* did not suggest ambiguously that Gmelin described the South Caspian subspecies (*S. m. armenicus*) not the North subspecies (*S. m. variegatus*).

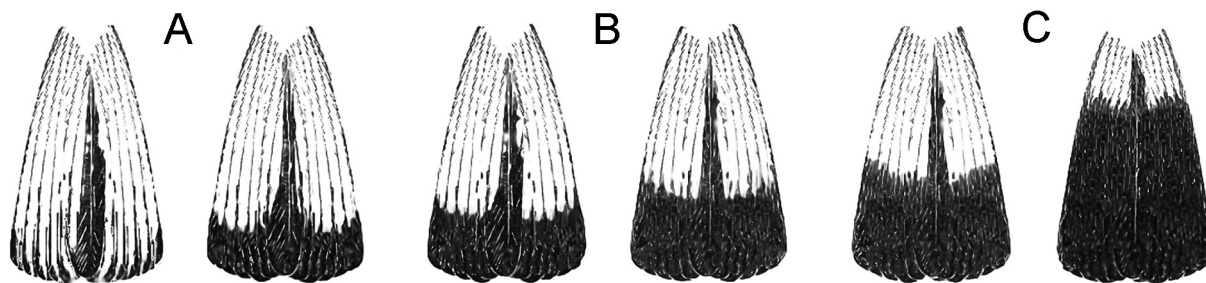


Fig. 9. Main types of variations of tail colouration of males in *Saxicola maura variegatus*. **A**, 5 to 10 mm; **B**, 11 to 20 mm; **C**, 21 mm and more.

One more reason of why Svensson et al. (2012) believed that Gmelin had described *S. m. armenicus* was that Stegman (1935: 47) identified a bird collected on 20 May 1896 near Shemakhi as *S. m. armenicus*. It was an adult male from Mensbier's collection (ZIN, coll. No. 136235, collector unknown) in the bright spring plumage with very intense reddish-chestnut breast plumage and the white tail base occupied the one-third part of the tail only (i.e. 17.0 mm of white out of 51.1 mm of the total length of the tail, that is 33.2%). Such colouration, especially that of the rectrices, is

typical to *S. m. armenicus* as well to several adult males of *S. m. variegatus* (Fig. 9 C). For example, the another adult male (ZIN, coll. No. 136178) collected by G. Radde in May 1880 near Derbent certainly belongs to *S. m. variegatus* but is very similar to Mensbier's specimen in the plumage colour including that of the rectrices (i.e. 20 mm of white out of 51.3 mm of the total length of the tail, that is 39 %). Such mainly "black-tailed" specimens with the black upper part of the rectrices extending to more than a half of their length (28–36 mm of 51–54 mm) represented up to 9 %

of males in *S. m. variegatus* (nine of 100). In six out of nine of such males, the width of the black part of the rectrices was 30, 31, 32 (two specimens), 34, and 36 mm. These specimens, therefore, did not differ from *S. m. armenicus* in the colour of the tail. We thus re-identified the specimen from Shamakhi (ZIN, coll. No. 136235) as *S. m. variegatus*. Besides the plumage and morphometrics, this conclusion was based also on our distributional (Fig. 1) and ecological data: namely, *S. m. armenicus* breeds in the southern rather than eastern Transcaucasia, and always above 800 m a.s.l.

Borisov's black-and-white drawing (Fig. 10) and Gmelin's description of the Variegated Tit provided additional data on the taxonomic position

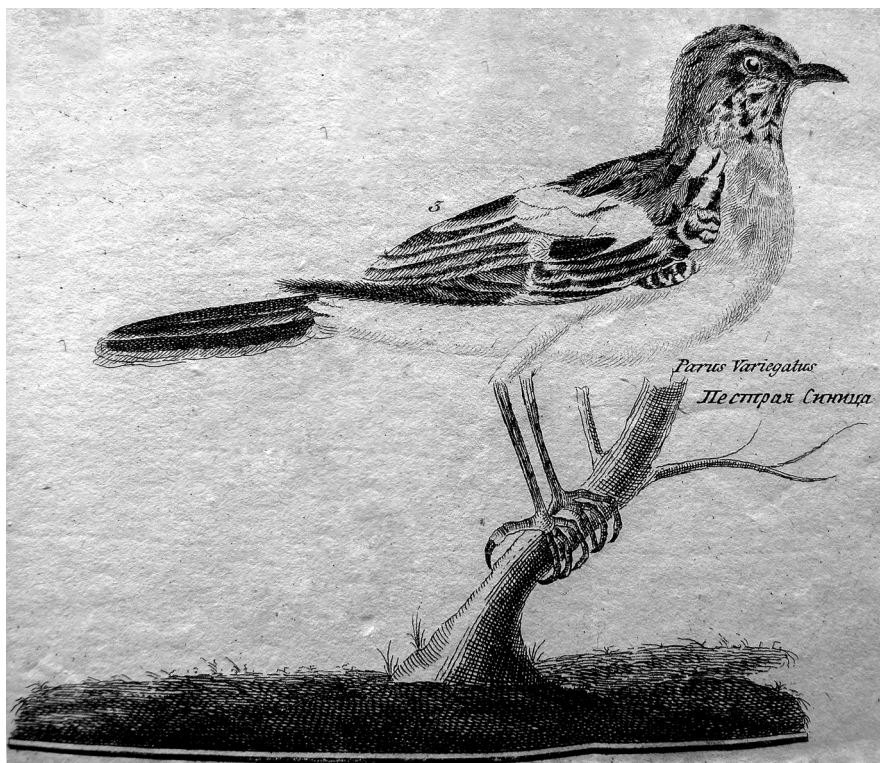


Fig. 10. Drawing of *Parus variegatus* Gmelin, 1774, after Ivan Borisov's watercolour (Taf. 20, 3 R).

of the specimen. Importantly, several details were not considered by Svensson et al. (2012): namely, the marked contrast between the new intense black MeC and GC and the old (from the juvenile plumage) dark grey P and their coverts suggested that the bird was first year male after post-juvenile partial molt, that is in the fresh first autumn plumage, and not an adult male as Svensson et al. (2012) thought. The Borisov's drawing also suggested that the bird had the pigmented breast, and white belly and sides: it is quite similar to the migrating 1-st year males of *S. m. variegatus* showing in Fig. 3 C, F.

Gmelin's description on the page 106 confirmed our conclusions made from the drawing: "... belly white," "... femoral feathers white.", "Remiges 18, they are dark-grey ...", "Adjacent outer covert feathers **black** with white and chestnut **yellow** fringes, inners covered with white" (bolded by VL). With respect to the tail, Gmelin stated only that it "consists of twelve identical rectrices, which are white at the base and black at the tips, but with ochrous margins". The tail pattern was thus the same as in males of *S. m. armenicus* but also (see above) as in the "black-tailed" males of *S. m. variegatus* (Fig. 9 C).

Nomenclature

All the aforementioned data confirmed the conclusion that Gmelin actually described the north-western subspecies of *Saxicola maurus* (that is *S. m. variegatus*), not the southern one (*S. m. armenicus*). Therefore, all nomenclatural changes proposed by Mlikovský (2011), Svensson et al. (2012) and Shirihai & Svensson (2018) are incorrect.

Our study yielded the following nomenclatural conclusions, as well as the more precise data on the distribution of different taxa.

Saxicola maurus (Pallas, 1773) – Eastern Stonechat

Saxicola maurus variegatus (S.G. Gmelin, 1774) – Variable Eastern Stonechat

Parus variegatus S.G. Gmelin, 1774: 105, Pl. 20: 3.

Type locality: Shemakha [Shamakhi], Azerbaijan, 40°37.86' N, 48°37.07' E, 650 m a.s.l.

Saxicola hemprichii Ehrenberg in Hemprich & Ehrenberg, 1833: aa. Type locality: "Egypt / Sudan".

Distribution. The species breeds from the lower reaches of the Don River and the deltas of the Volga and Ural rivers to eastern Georgia and northern Azerbaijan; to the south up to 40° N.

Saxicola maurus armenicus Stegman, 1935, **stat. resurr.** – Armenian Eastern Stonechat

Saxicola torquata armenica Stegman, 1935: 47. Type locality: "Adzharana [Adzhafan, Dzhanafan], Kurdistan", West Azerbaijan Prov., Iran, 38°11.59' N, 44°27.47' E, 2,300 m a.s.l.

Saxicola torquata excubitor Koelz, 1954: 13. Type locality: Dorud Town, Luristan Prov., Iran, 33°30.00' N, 48°04.04' E, 1,450 m a.s.l.

Distribution. It breeds in Armenia, the Nakhichevan Autonomous Republic of Azerbaijan, eastern Turkey (Mount Ararat and the environs of Lake Van, according Kirwan et al., 2008), and western Iran (mainly Zagros Mountains); to the south up to the northern part of the Fars Province of Iran (30° N).

List 1. Breeding places of *Saxicola rubicola rubicola* – European Stonechat (south-eastern populations)

Russia

1. Tikhaya River mouth, valley in middle reaches of Don River, *Rostov Prov.*, 49°34.31' N, 41°19.80' E, 60 m a.s.l., 26 May 2003, 1 sad. male, 1 sad. female, G.B. Bakhtadze leg. (ZIN).

2. Efremovo-Stepanovka Sloboda [Settln.], *Rostov Prov.*, 48°45.26' N, 40°48.47' E, 50 m a.s.l., 24 May 2008, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

3. Mityakinskaya Stanitsa [Vill.] vicinity, *Rostov Prov.*, 48°36.34' N, 39°40.43' E, 37 m a.s.l., 12 May 2005, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

4. Matveev Kurgan Settln. vicinity (8 km), *Rostov Prov.*, 47°35.16' N, 38°44.28' E, 40 m a.s.l., 8 May 2002, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

5. Nedvigovka Khutor [Settln.], *Rostov Prov.*, 47°16.21' N, 39°22.29' E, 7 m a.s.l., 11 May 2002, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

6. Nikel' Settln., *Republic of Adygea*, 44°10.72' N, 40°09.22' E, 500 m a.s.l., 5 July 1984, 1 ad. male, A.M. Peklo leg. (NMNH), 17 June 1974, 1 ad. male, 2 juv., 15 July 1977, 1 ad. male, B.A. Kazakov leg., 2 July 1988, 10 July 1989, 3 July 1991, 3 sad. males, 4 July 1991, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

– **Dakhovskaya** Stanitsa [Vill.] vicinity, 44°12.56' N, 40°11.25' E, 525 m a.s.l., 20 June 1971, 1 ad. male, G.B. Bakhtadze leg., 20 July 1977, 1 juv., S.Yu. Ryabinin leg. (ZIN).

7. Ust'-Sakhray Settlm. N vicinity, *Republic of Adygea*, 44°13.09' N, 40°17.25' E, 550 m a.s.l., 13 June 1986, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

8. Lagonaki tourist center vicinity, 44°05.06' N, 40°00.50' E, 1,740 m a.s.l., 23 July 1977, 1 sad. male, 1 ad. female, B.A. Kazakov leg. (ZIN).

– **Lagonaki** Plateau, 44°04.70' N, 40°00.04' E, 1,570 m a.s.l., 7 June 1994, 1 ad. male, V.M. Loskot leg. (ZIN).

9. Daut gorge, *Karachay-Cherkessia Republic*, 43°33.12' N, 42°03.03' E, 1840 m a.s.l., 15 Aug. 1976, 3 juv. (moulting), G.B. Bakhtadze leg. (ZIN).

10. Nal'chik vicinity, *Kabardino-Balkarian Republic*, 43°27.70' N, 43°32.23' E, 700 m a.s.l., 20 May [year unknown], 1 female with egg, 18 June [year unknown], 1 flying juv. (Radishchev, 1926).

11. Nazran' Town E vicinity, *Republic of Ingushetia*, 43°19.38' N, 44°50.15' E, 620 m a.s.l., 12 Aug. 1927, 1 ad. male, L.B. Beme leg. (ZMMU).

12. Vladikavkaz vicinity, *Republic of North Ossetia – Alania*, 42°59.99' N, 44°38.53' E, 750 m a.s.l. 6, 9 Apr., 6 June 1923, 3 July 1920, 24 July 1925, 4 ad., 1 sad. males, 5 Aug. 1926, 1 juv., L.B. Beme leg., 17 May 1947, 1 ad. male, R.L. Beme leg. (ZMMU).

– **Gizel'** Settlm., 43°01.36' N, 44°35.59' E, 670 m a.s.l., 18 Apr. 1936, 1 sad. female, L.B. Beme leg. (ZMMU).

13. Dargavs Settlm. vicinity, *Republic of North Ossetia – Alania*, 42°50.04' N, 44°27.00' E, 1,570 m a.s.l., 22 July 1925, young birds in nest, L.B. Beme leg. (R.L. Beme, 1958), 24 July 1925, 1 ad. male, L.B. Beme leg. (ZMMU).

– **Verkhniy Lars** [Staryy Lars] Settlm., 42°45.92' N, 44°37.75' E, 1,290 m a.s.l., 15 Aug. 1922, 1 juv., L.B. Beme leg. (ZIN).

14. Kharachoy Settlm. vicinity, *Chechen Republic*, 42°54.21' N, 46°08.51' E, 1,070 m a.s.l., 3 July 1994, 1 ad. male, I.I. Gizatuln leg. (ZIN).

Georgia

15. Mazeri Settlm., *Samegrelo-Zemo-Svaneti*, 43°04.35' N, 42°37.08' E, 1,1760 m a.s.l., 24 June 1979, 1 sad. male, A.A. Kuznetsov leg. (ZMMU).

– **Mestiya** Settlm. NE vicinity (12 km), valley in middle course of Tviber River, 43°04.87' N, 42°52.52' E, 2,120 m a.s.l., 4 July 1985, 1 sad. male from breeding pair, 1 juv. female, V.M. Loskot leg. (ZIN).

– **Tviber** River, valley in upper reaches, 43°06.03' N, 42°52.30' E, 2,400 m a.s.l., 28 June 1985, 1 ad. male (V.M. Loskot, unpublished data).

16. Kheledi Settlm., *Racha-Lechkhumi and Kvemo Svaneti*, 42°47.28' N, 42°39.11' E, 930 m a.s.l., 27 July 1973, 1 sad. male from pair with well flying young birds, V.M. Loskot leg. (NMNH).

17. Uravi Settlm. N vicinity, *Racha-Lechkhumi and Kvemo Svaneti*, 42°39.05' N, 43°18.23' E, 1,160 m a.s.l.,

24 July 1973, moulting pair (V.M. Loskot, unpublished data).

– **Shovi** W and E vicinity, 42°42.17' N, 43°40.47' E, 1,510 m a.s.l., 22–23 July 1973, between 1,470–2,000 m a.s.l., several pairs (V.M. Loskot, unpublished data).

18. Ertso Lake, *Shida Kartli*, 42°27.78' N, 43°45.37' E, 1,730 m a.s.l., 19 July 1973, 1 sad. male, 20 July 1973, 1 ad. male, V.M. Loskot leg. (NMNH), 3 pairs with fledglings, V.M. Loskot (unpublished).

– **Dzhava** [Dzau, Java] Town, 42°23.03' N, 43°56.07' E, 1,220 m a.s.l., 20 July 1929, 1 juv., V.G. Geptner leg. (ZMMU).

– **Kvemo-Khvtse** Settlm., 42°24.79' N, 43°57.07' E, 1,160 m a.s.l., 18 July 1973, 1 sad. male from pair with fledglings, V.M. Loskot leg. (NMNH).

19. Lagodekhi Strict Nature Reserve, *Kakheti*, 41°54.41' N, 46°20.56' E, 2,200 m a.s.l., 2, 5, 11 June 1959, 3 sad. males, M.A. Voinstvenskiy leg. (NMNH), 10 July 1973, breeding pair (V.M. Loskot, unpublished data).

20. Gori Town NE vicinity, *Shida Kartli*, 42°00.78' N, 44°09.05' E, 760 m a.s.l., 24 July 1904, 1 ad. male, A.M. Kobylin leg. (ZMMU).

– **Kvemo-Zakhori** Settlm., *Mtskheta-Mtianeti*, 42°08.83' N, 44°20.96' E, 990 m a.s.l., 16 July 1973, 2 pairs with fledglings (V.M. Loskot, unpublished data).

– **Dusheti** Town vicinity, *Mtskheta-Mtianeti*, 42°05.23' N, 44°42.36' E, 980 m a.s.l., 2 July 1909, 1 sad. male, 15 July 1909, 1 ad. male, V.B. Ban'kovskiy leg. (ZMMU).

21. Gombori Settlm. vicinity, *Kakheti*, 41°51.57' N, 45°13.44' E, 1,120 m a.s.l., 12 July 1973, 1 juv. (V.M. Loskot, unpublished data).

22. Mtskheta Town vicinity, *Mtskheta-Mtianeti*, 41°50.75' N, 44°42.28' E, 560 m a.s.l., 31 May 1907, 1 juv., 1 sad. male, 1 ad. female, 31 July 1908, 1 ad. female, V.B. Ban'kovskiy leg. (Ban'kovskiy, 1913).

23. Akhaldaba Settlm., *Samtskhe-Dzhavakheti*, 41°55.27' N, 43°29.53' E, 840 m a.s.l., 11 May 1959, 1 ad. female, M.A. Voinstvenskiy leg., 12 May 1959, 1 sad. male, A.S. Umanskaya leg. (NMNH).

24. Zekarskiy Pass, *Imeretiya*, 41°50.42' N, 42°49.49' E, 2,160–2,230 m a.s.l., 22 June 1978, 4 pairs (with 2 feeding nestlings) (V.M. Loskot, unpublished data).

– **Goderdzi** Pass W vicinity (6 km), *Adzharia*, 41°38.34' N, 42°29.27' E, 1,650 m a.s.l., 29 June 1978, 1 ad. male, 1 ad. female, V.M. Loskot leg. (ZIN), 5 pairs with well flying young birds (V.M. Loskot, unpublished data).

– **Vale** Town vicinity, *Samtskhe-Dzhavakheti*, 41°36.70' N, 42°53.94' E, 1,245 m a.s.l., 24 June 1978, 4 pairs with nestlings (V.M. Loskot, unpublished data).

– **Samiminos-mta** Mt., *Adzharia*, 41°32.85' N, 42°34.67' E, 2,530 m a.s.l., 22 June 1893, 1 ad. male, M.A. Menzbier's coll. (ZIN).

Nord-East Turkey

25. Arsian Pass W vicinity, “Ipkhreuli” [?Demirkapi Vill.], Shavshat Distr., *Artvin Prov.*, 41°25.22' N, 42°26.05' E, 1,800 m a.s.l., 6 Aug. 1909, 1 ad. male, P.V. Nesterov leg. (ZIN) (Nesterov, 1911).

26. Ardanuch Town vicinity, *Artvin Prov.*, 41°07.26' N, 42°02.53' E, 900 m a.s.l., 24 June 1910, 1 sad. male, P.V. Nesterov leg. (ZIN) (Nesterov (1911)).

– “**Klarzhet**” [? Bereket Vill.] vicinity, Ardanuch Distr., 41°04.63' N, 41°57.84' E, 1,500 m a.s.l., 20 June 1910, 1 sad. male, 1 sad. female, P.V. Nesterov leg. (ZIN) (Nesterov, 1911).

– **Gurzhanskiy** Pass, *Ardahan Prov.*, 41°05.23' N, 42°53.31' E, 1,290 m a.s.l., 15 June 1910, 1 ad. female, P.V. Nesterov leg. (ZIN) (Nesterov, 1911).

Armenia

27. Lermontovo Settlm. N vicinity, *Lori Prov.*, 40°45.98' N, 44°38.03' E, 2,000 m a.s.l., 12 June 1935, 1 sad. female, E.N. Spangenberg leg. (ZMMU).

Azerbaijan

28. Belokany [Balakan] N vicinity (18 km), upper reaches of Tselykchay River, tributary of Belokanchay River, *Balakan Distr.*, 41°52.60' N, 46°30.06' E, 2,150 m a.s.l., 16 July 1983, 1 ad. female, 24 July 1983, 1 sad. male, V.M. Loskot leg. (ZIN).

29. Fil'fili Vill., *Oghuz Distr.*, 41°10.63' N, 47°24.99' E, 1,490 m a.s.l., 3 July 1973, 1 ad. male, V.M. Loskot leg. (NMNH).

30. Zurnabad Vill. vicinity, “Kirovabad Prov.”, *Goygol Distr.*, 40°30.71' N, 46°14.68' E, 910 m a.s.l., 2 Aug. 1922, 1 juv. (moulting), N.D. Mitrofanov leg. (ZIN).

– **Dastaphour** Vill., *Dashkasan Distr.*, 40°27.00' N, 46°10.23' E, 1,380 m a.s.l., 21 July 1974, 1 sad. female, Yu.A. Volnenko leg. (NMNH).

31. Lerik vicinity, *Lerik Distr.*, 38°47.24' N, 48°25.36' E, 1,090 m a.s.l., 22 Apr. 1976, breeding pair, V.M. Loskot leg. (ZIN).

32. Dzhoni Vill. N vicinity, *Lerik Distr.*, 38°34.36' N, 48°30.01' E, 1,500 m a.s.l., 30 May 1976, breeding pair (V.M. Loskot, unpublished data).

List 2. Breeding places of *Saxicola maurus variegatus* – Variable Eastern Stonechat**Russia**

1. Matveev Kurgan Settlm. W vicinity (8 km), *Rostov Prov.*, 47°35.55' N, 38°44.66' E, 24 m a.s.l., 8 May 2002, 1 sad. male, 24 Apr. 2003, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

2. Karpo-Nikolaevka Settlm., Tuzlov River valley, *Rostov Prov.*, 47°27.97' N, 39°28.49' E, 20 m a.s.l., 22

May 1999, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

– **Nekrasovka** Khutor [Settlm.] SE vicinity (3.5 km), Manuchkina ravine, 47°20.14' N, 39°08.07' E, 68 m a.s.l., 24 May 1985, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

3. Nizhnokundryuchenskaya Stanitsa [Vill.] SE vicinity, *Rostov Prov.*, 47°43.20' N, 41°00.07' E, 12 m a.s.l., 12 May 1989, 1 ad. female, 13 May 1989, 1 sad. male; G.B. Bakhtadze leg. (ZIN).

4. Pirozhok Khutor N vicinity, “Donskoe zaymishche” [floodplain of Don River], *Rostov Prov.*, 47°32.14' N, 41°25.35' E, 8 m a.s.l., 23 May 1998, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

5. Rogozhkino Khutor [Settlm.] vicinity, Don River Delta, 47°10.19' N, 39°21.20' E, 1 m a.s.l., 15 May 2002, 1 ad., 2 sad. males, G.B. Bakhtadze leg. (ZIN).

– **Dugino** Khutor [Settlm.], Don River Delta, 47°09.47' N, 39°25.65' E, 0 m a.s.l., 4 May 1997, 1 ad., 1 sad. males, G.B. Bakhtadze, A. Zabashta leg., 30 May 1997, 4 juv., 20 May 1998, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

6. Veselyy Settlm. vicinity, *Rostov Prov.*, 47°07.11' N, 40°44.56' E, 1 m a.s.l., 13 May 1993, 1 ad. female, 18 May 1994, 1 ad. male, 1 sad. female, B.A. Kazakov leg. (ZIN).

7. “Aksaysko-Donskoe zaymishche” [floodplain at mouth of Aksay River], *Rostov Prov.*, 47°17.00' N, 40°15.23' E, 0 m a.s.l., 2 May 1997, 4 ad., 7 sad. males, G.B. Bakhtadze, A. Zabashta leg. (ZIN).

8. Srednie Khoruli Khutor [Settlm.] S vicinity, *Rostov Prov.*, 46°56.33' N, 40°28.20' E, 52 m a.s.l., 16 May 2004, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

9. Aleksandrovka Settlm. vicinity, Azov Distr., *Rostov Prov.*, 46°45.46' N, 39°00.56' E, 20 m a.s.l., 7 May 1977, 1 ad. female, G.B. Bakhtadze leg. (ZIN).

– **Khristichevo** forestry, 46°45.37' N, 39°03.33' E, 8 m a.s.l., 7 May 1977, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

10. Kugoyskiy Khutor [Settlm.] vicinity, Kugoyaya River valley, *Rostov Prov.*, 46°32.26' N, 40°09.17' E, 30 m a.s.l., 23 May 2000, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

11. Proletarsk Town. vicinity, *Rostov Prov.*, 46°42.27' N, 41°42.63' E, 14 m a.s.l., 29 Apr. 2003, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

12. Volochaevskiy Settlm. vicinity, *Rostov Prov.*, 46°33.10' N, 42°40.45' E, 27 m a.s.l., 1 May 2003, 1 ad., 1 sad. males, G.B. Bakhtadze leg. (ZIN).

– **Runnyy** Settlm., 46°28.60' N, 42°51.59' E, 30 m a.s.l., 30 Apr. 2003, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

13. Khosheutovo Settlm. vicinity, *Astrakhan' Prov.*, 47°01.51' N, 47°47.06' E, -25 m a.s.l., 20 May 1993, 1 ad. male, G.B. Bakhtadze leg. (ZIN).

- 14. Belyy Il'men'** Settlm., *Astrakhan' Prov.*, 46°26.06' N, 48°15.09' E, -27 m a.s.l., 4 July 1861, 1 sad. male, 2 juv., G.S. Karelin leg. (ZIN).
- 15. Lineynoe** Settlm. vicinity, *Astrakhan' Prov.*, 46°15.14' N, 47°25.62' E, -24 m a.s.l., 19 May 1993, 1 ad. male, 20 May 1993, 1 ad., 1 sad. males, 1 ad., 1 sad. female, 1 juv., G.B. Bakhtadze leg. (ZIN).
- 16. Damchik** Settlm. N vicinity, Volga Delta, *Astrakhan' Nature Reserve, Astrakhan' Prov.*, 45°48.78' N, 47°54.09' E, -30 m a.s.l., 30 May 1961, 1 juv. male, V.M. Gudkov leg. (ZMMU).
- 17. Primorsko-Akhtarsk** Town vicinity, *Krasnodar Terr.*, 46°01.2' N, 38°12.1' E, -2 m a.s.l., 11 Apr. 1965, 1 ad. male, Yu. Reshetnikov leg. (ZIN).
- 18. Sladkiy Liman** Khutor [Settlm.] vicinity, *Krasnodar Terr.*, 46°10.11' N, 38°49.14' E, 0 m a.s.l., 24 Apr. 1977, 1 ad. male, 1 sad. female, B.A. Kazakov leg., 8 Apr. 2000, 1 ad. male, 11 May 2000, 1 ad. female, Markitan leg. (ZIN).
- 19. Kanevskaya** Stanitsa [Vill.] vicinity, Chelbas River valley, *Krasnodar Terr.*, 46°06.42' N, 38°55.56' E, 8 m a.s.l., 23, 25 May 1973, 2 ad. male, 21, 22 Apr. 1976, 3 sad. males, B.A. Kazakov leg. (ZIN).
- 20. Slavyansk-na-Kubani** Town vicinity, *Krasnodar Terr.*, 45°16.60' N, 38°05.39' E, 3 m a.s.l., 16 June 1969, 2 ad. males, 1 sad. female, B.A. Kazakov leg. (ZIN).
- 21. Krasnodar** vicinity, *Krasnodar Terr.*, 45°03.00' N, 38°52.78' E, 21 m a.s.l., 23 July 1965, 1 juv. female, V.S. Ochapovskiy leg. (NMNH), 2 July 1973, 1 ad. male, 10 Aug. 1973, 1 1-st year female, A.M. Peklo leg. (ZMMU).
- **Novaya Adygeya** Aul [Vill.] vicinity, *Republic of Adygea*, 44°58.97' N, 39°00.29' E, 18 m a.s.l., 2 July 1973, 1 juv., 29 Apr. 1974, 1 ad. male, 25 Apr., 1 sad. male, 3, 20 May 1975, 1 ad., 1 sad. males, 20 June 1984, 1 sad. male, 22 June 1984, 2 males, 5 juv., 25 June 1984, 1 male, 1 female, A.M. Peklo leg. (NMNH).
- 22. Kamyshevakh**a Settlm. S vicinity (10 km), *Krasnodar Terr.*, 45°07.80' N, 41°16.61' E, 270 m a.s.l., 22 June 1961, 1 sad. male, V. Zharov leg. (ZIN).
- 23. Stavropol'** SE vicinity, *Stavropol' Terr.*, 44°59.47' N, 42°07.40' E, 480 m a.s.l., 12 June 2000, 1 ad. male, 1 ad. female, A.A. Likhovid, M.G. Sharova leg. (ZMMU).
- 24. Tuguluk** Settlm., *Stavropol' Terr.*, 45°19.79' N, 42°15.74' E, 300 m a.s.l., 10 Apr. 2018, 3 ad. males, 1 ad. female, "D.A." [collector unknown] (ZMMU).
- 25. Velichaevskoe** Settlm. vicinity, Kuma River floodplain, *Stavropol' Terr.*, 44°55.33' N, 45°08.46' E, 27 m a.s.l., 10, 12 May 1969, 2 ad. males, B.A. Kazakov leg., 3 May 1972, 3 ad. males, V.P. Belik, N.S. Oleynikov leg., 5 May 1972, 1 sad. male, N.S. Oleynikov leg. (ZIN).
- 26. Kumskoy** Settlm. vicinity, *Republic of Kalmykia*, 44°58.12' N, 46°04.64' E, -10 m a.s.l., 14 May 1962, 1 ad. male, B.A. Kazakov leg. (ZMMU).
- **Kuma River**, floodplain in lower reaches, *Republic of Dagestan*, 44°55.94' N, 46°12.51' E, -12 m a.s.l., 2 May 1962, 1 ad. male, 5, 8 May 1962, 2 sad. males, N.Kh. Lomadze leg., 8 July 1965, 1 juv. male, 9 July 1965, 1 juv. female, V. Kharchenko leg. (ZIN).
- 27. Kislovodsk** Town vicinity, *Stavropol' Terr.*, 43°53.14' N, 42°42.19' E, 930 m a.s.l., 7 June 1886, 1 sad. male, F.K. Lorenz leg. (ZIN), 2 Aug. 1949, 1 ad. male, 3 Aug. 1949, 1 1-st year male, I. Marisova leg. (ZMKU).
- 28. Pyatigorsk** Town vicinity, *Stavropol' Terr.*, 44°03.05' N, 43°04.45' E, 640 m a.s.l., 20 May [year unknown], 1 sad. male, F.K. Lorenz leg. (ZIN).
- 29. Prokhladnyy** Town, *Kabardino-Balkarian Republic*, 43°45.11' N, 44°05.79' E, 180 m a.s.l., 25 May 1958, 1 ad. female, S.P. Chunikhin leg. (ZMMU), 2 July 1883, 1 juv. male, K.N. Rossikov leg. (ZIN).
- **Soldatskaya** Stanitsa [Vill.], Malka River valley, 43°48.25' N, 43°49.16' E, 250 m a.s.l., 12 July 1882, 1 sad. male, K.N. Rossikov leg. (ZIN).
- 30. Arik** Settlm., *Kabardino-Balkarian Republic*, 43°35.54' N, 44°06.95' E, 220 m a.s.l., 23 Aug. 1920, 1 1-st year male, L.B. Beme leg. (ZMMU).
- 31. Tushilovka** Settlm., *Republic of Dagestan*, 44°19.68' N, 46°51.47' E, -28 m a.s.l., 11 July 1922, 1 sad. male, L.B. Beme leg. (ZMMU).
- 32. Terekli-Mekteb** Settlm., *Republic of Dagestan*, 44°09.29' N, 45°52.53' E, 20 m a.s.l., 4 June 1926, 1 ad. female, D.B. Krasovskiy leg., 21 June 1950, 1 sad. male, E.S. Ptushenko leg. (ZMMU).
- 33. Kizlyar** Town vicinity, *Republic of Dagestan*, 43°51.40' N, 46°44.23' E, -12 m a.s.l., 7 May 1921, 1 sad. male, L.B. Beme leg., 26 May, 6 June 1923, 2 sad. males, K.A. Vorob'yov leg., 28 June 1950, 1 juv. male, E.S. Ptushenko leg. (ZMMU).
- **Aleksandro-Nevscoe** [Anevskaya] Settlm., 43°54.64' N, 46°33.76' E, -11 m a.s.l., 6 May 1936, 1 ad. female, 31 May 1938, 1 sad. male, N. Seleginenko leg. (ZMKU), 14 May 1936, 1 ad. male, 24 May 1934, 1 sad. male, 28 May 1938, 1 sad. male, 22 June 1938, 1 ad. male, L.B. Beme leg. (ZMMU).
- **Kalinovka** Settlm., 43°57.96' N, 46°33.61' E, -13 m a.s.l., 6 June 1950, 1 sad. male, E.S. Ptushenko leg. (ZMMU).
- 34. Grebenskaya** Stanitsa [Vill.], *Chechen Republic*, 43°32.03' N, 46°24.01' E, 9 m a.s.l., 9 July 1951, 1 ad. male, E.S. Ptushenko leg. (ZMMU).
- **Starogladkovskaya** Stanitsa [Vill.] E vicinity, 43°38.40' N, 46°26.50' E, 4 m a.s.l., 15, 24, 30 May, 2 June 1993, 4 sad. males, I.I. Gizatulin leg. (ZIN).
- **Shelkozavodskaya** Stanitsa [Vill.], 43°29.20' N, 46°18.73' E, 17 m a.s.l., 4 June 1951, 1 ad. male, N.N. Vorontsov leg. (ZMMU).

35. Rechnoe Settlm. E vicinity (15 km), *Republic of Dagestan*, 43°45.17' N, 46°55.02' E, -13 m a.s.l., 30 May 1989, 1 sad. male, G.B. Bakhtadze leg. (ZIN).

36. Adzhidada Settlm. vicinity, *Republic of Dagestan*, 43°17.60' N, 47°04.60' E, -11 m a.s.l., 9 Apr. 1930, 1 ad. male, N. Seleginenko leg. (ZMKU).

37. Makhachkala N vicinity (20 km), near Askhazan Kutun [Settlm.], *Republic of Dagestan*, 43°12.48' N, 47°28.20' E, -27 m a.s.l., 25 June 1973, 1 male (V.M. Loskot, unpublished data).

– **Kaspiysk** S vicinity (7.5 km), *Republic of Dagestan*, 42°47.74' N, 47°40.65' E, 2 m a.s.l., 26 June 1973, 1 ad. male, 1 ad. female, 1 sad. male, V.M. Loskot leg. (NMNH), pair with fledglings (V.M. Loskot, unpublished data).

38. Derbent vicinity, *Republic of Dagestan*, 42°02.63' N, 48°18.31' E, -6 m a.s.l., May 1880, 1 ad. male, G. Radde leg. (ZIN).

Georgia

39. Telavi N vicinity, *Kakhetiya*, 41°56.96' N, 45°32.05' E, 430 m a.s.l., 11 July 1973, 1 male (V.M. Loskot, unpublished data).

40. Sagaredzho Town vicinity, *Kakhetiya*, 41°43.01' N, 45°18.97' E, 690 m a.s.l., 14 July 1973, 1 juv. male, V.M. Loskot leg. (NMNH), about 10 moulting 1-st year birds and several adults (V.M. Loskot, unpublished data).

41. Gardabani Town., *Koemo-Kartli*, 41°27.01' N, 45°05.03' E, 290 m a.s.l., 13 Apr. 1912, 1 female, K.A. Satunin leg. (ZIN).

42. Signakhi Town vicinity, *Kakhetiya*, 41°37.47' N, 45°54.67' E, 660 m a.s.l., 18 Aug. 1916, 1 1-st year female, P.V. Serebrovskij leg. (ZIN).

43. Dedoplistskaro Town, *Kakhetiya*, 41°28.38' N, 46°06.22' E, 800 m a.s.l., 28 Aug. 1916, 1 1-st year female, P.V. Serebrovskij leg. (ZMMU).

44. Zemo-Kedi Settlm. vicinity, *Kakhetiya*, 41°25.68' N, 46°23.66' E, 670 m a.s.l., 10 July 1916, 1 sad., 1 ad. males, P.V. Serebrovskij leg. (ZIN), 10 July 1916, 2 ad. males, P.V. Serebrovskij leg. (ZMMU).

Azerbaijan

45. Kakhi [Qakh, Gakh] Town, Kurmukh River valley, *Qakh Distr.*, 41°24.45' N, 46°56.58' E, 630 m a.s.l., 26 May 1978, 1 ad. male (V.M. Loskot, unpublished data).

46. Shaki Town W vicinity, *Shaki Distr.*, 41°14.33' N, 47°06.21' E, 320 m a.s.l., 4 July 1973, 1 male (V.M. Loskot, unpublished data).

47. Kusary [Qusar] Town, *Qusar Distr.*, 41°24.95' N, 48°25.73' E, 660 m a.s.l., 6 June 1925, 1 ad. male, L.B. Beme leg. (ZMMU).

48. Ismayilly Town. vicinity, *Ismaili Distr.*, 40°46.99' N, 48°06.73' E, 540 m a.s.l., 12 June 1973, 1 ad. male, Yu.A. Volnenko leg., 2 July 1973, 1 ad. male

from pair with well flying youngs, V.M. Loskot leg. (NMNH).

49. Shemakhi [Shemakha] vicinity, *Shamakhi Distr.* [terra typica of the subspecies], 40°37.86' N, 48°37.07' E, 650 m a.s.l., 20 May 1896, 1 ad. male, M.A. Menzbier's coll. (ZIN).

50. Zurnabad Vill. vicinity, "Kirovabad Prov." *Goygol Distr.*, 40°30.72' N, 46°14.89' E, 850 m a.s.l., Aug. 1922, 1 juv. (moulting), N.D. Mitrofanov leg. (ZIN).

North-West Kazakhstan

51. Aktogay [Yamanka] Settlm., valley in lower reaches of Ural River, *Atyrau Prov.*, 47°47.33' N, 51°36.89' E, -19 m a.s.l., 30 June 1950, 1 juv., N.P. Dubinin leg. (ZMMU).

52. Atyrau [Gur'ev] vicinity, lower reaches of Ural River, *Atyrau Prov.*, 47°05.19' N, 51°53.42' E, -29 m a.s.l., 19 May 1839, 1 ad. male, Romanov leg., Aug. [year unknown], 1 1-st year male, G.S. Karelin leg. (ZIN).

– **It-Balyk and Cherepinskiy channels**, Atyrau E vicinity, 47°02.35' N, 52°00.28' E, -27 m a.s.l., 12 Apr. – 12 May 1907, 6 ad., 10 sad. males, 2 sad., 2 ad. females, V.N. Bostanzhoglo leg. (ZMMU).

List 3. Breeding places of *Saxicola maurus armenicus* – Armenian Eastern Stonechat

Armenia

1. Arzakan Settlm., *Kotayk Prov.*, 40°27.10' N, 44°36.00' E, 1,560 m a.s.l., 26 July 1930, 1 sad. male, G.V. Sosnin leg. (ZMMU).

2. Kaladybi locality, Khosrov Forest State Reserve, *Ararat Prov.*, 40°04.42' N, 44°54.46' E, 1,150 m a.s.l., 21 June 1984, 1 female, 2,100 m a.s.l., 22 June 1984, 1 ad. male (V.M. Loskot, unpublished data).

3. Goris Town vicinity, *Syunik Prov.*, 39°31.16' N, 46°21.42' E, 1,650 m a.s.l., 13 June 1970, 1 ad., 1 sad. males, M.I. Golovushkin leg. (NMNH).

North-East Turkey

4. Tuzludzha [Tuzluca, Kul'p] Town vicinity, *Igdir Prov.*, 40°02.31' N, 43°39.25' E, 1,130 m a.s.l., 15 May 1912, 1 ad. male, 22 May 1912, 1 ad. male, 1 ad. female, N.A. Bobrinskiy leg. (ZIN) (Bobrinskiy, 1915).

– **Abbasgyol'** Settlm. vicinity, army post Karadzhoran, 39°49.13' N, 43°36.69' E, 2,120 m a.s.l., 3 Aug 1911, 1-st year male and female, N.A. Bobrinskiy leg. (ZIN) (Bobrinskiy, 1915).

5. Ararat Mt. vicinity:

– **Sardar-Bulak** spring, *Igdir Prov.*, 39°41.23' N, 44°23.80' E, 2,300 m a.s.l., 28 Aug. 1911, 1 1-st year male, 30 Aug. 1911, 1 ad. male, N.A. Bobrinskiy leg. (ZIN) (Bobrinskiy, 1915), 20 Aug. 1913, 1 ad. male, P.P. Sushkin leg. (ZIN).

– **Yenidogan** [Akhuri] Settlm., *Igdir Prov.*, 39°46.47' N, 44°22.63' E, 1,780 m a.s.l., 31 May 1911, 1 sad. female, K.A. Satunin leg. (ZIN).

– **Aralyk** [Aralykh] Town, *Igdir Prov.*, 39°52.23' N, 44°30.40' E, 820 m a.s.l., 30 May 1911, 1 ad. male, K.A. Satunin leg., 14, 16 Aug. 1913, 2 ad. males, P.P. Sushkin leg. (ZIN).

Azerbaijan, Nakhichevan Autonomous Republic

6 Abrakunus [Abragunus] Vill. N vicinity, *Julfa Distr.*, 39°08.68' N, 45°38.23' E, 1,100 m a.s.l., 2 July 1973, 1 ad. male, V.M. Loskot leg. (NMNH), 20 May 1976, breeding pair (V.M. Loskot, unpublished data), 7 May 1978, 1 ad. male, 11 May 1978, 1 sad. male from pair with fledglings, V.M. Loskot leg. (ZIN).

– **Ilan-Dag** Mt. NW slopes, *Julfa Distr.*, 39°08.78' N, 45°40.47' E, 1,160 m a.s.l., 12 June 1974, 1 ad. male, 1 sad., 1 juv. females, Yu.A. Volnenko leg. (NMNH).

7. Agdere Vill., *Ordubad Distr.*, 39°06.66' N, 45°54.96' E, 2,010 m a.s.l., 26 May 1982, 3 pairs (2 with fledglings) (A.M. Sokolov, personal communication).

Iran

8. Adzhafan [Dzhafan] Vill., *West Azerbaijan Prov.* [terra typica of the subspecies], 38°11.59' N, 44°27.47' E, 2,300 m a.s.l., 1 Sep. 1914, 1 ad. male [holotype of *Saxicola maurus armenicus* Stegman, 1935], P.V. Nesterov leg. (ZIN).

9. Urmia Lake, “Sharef-Khane Pass”, vicinity of Sharafkhaneh Town, *West Azerbaijan Prov.*, 38°10.33' N, 45°28.83' E, 1,280 m a.s.l., 5 Sep. 1914, 1 1-st year male, 18 Sept. 1914, 1 1-st year female, P.V. Nesterov leg. (ZIN).

10. Bardizi [Berduk] Vill., *West Azerbaijan Prov.*, 37°46.93' N, 44°36.29' E, 1,780 m a.s.l., 29 Aug. 1914, records of birds (in manuscript of P.V. Nesterov).

11. Mianeh [Miane] Town vicinity, *East Azerbaijan Prov.*, 37°28.23' N, 47°40.46' E, 1,150 m a.s.l., 1 July 1914, 1 sad. male, S.N. fon Vik leg. (ZIN).

12. “sel. [Settlm.] Mirova”, Urmia County, *West Azerbaijan Prov.*, 37°19.82' N, 44°52.01' E, 1,660 m a.s.l., 6 Aug. 1914, 1 ad., 1 1-st year males, 1 1-st year female, P.V. Nesterov leg. (ZIN).

– **“kr. [fortrees] Kalyzeva”** or “sel. [Settlm.] Kala-zeva”, “v 20 verstakh” [21 km] S of “Mirova” Settlm., Urmia County, *West Azerbaijan Prov.*, 37°11.00' N, 44°53.80' E, 1,760 m a.s.l., 4 Aug. 1914, records of birds (in manuscript of P.V. Nesterov).

13. Piranshahr [Khāneh] Town W vicinity, *West Azerbaijan Prov.*, 36°40.40' N, 45° 0.51' E, 1,400 m a.s.l., 26 July 1914, 1 ad. male, 27 July 1914, 1 ad. male, 1 ad. female, P.V. Nesterov leg. (ZIN).

– **Vezne** River valley, 36°34.51' N, 45°10.80' E, 1,400 m a.s.l., 16, 17 July 1914, 2 ad. males, 18 July 1914, 1 ad. female, 19 July 1914, 1 1-st year male, 20

July 1914, 1 ad. male, 22 July 1914, 1 ad. male, P.V. Nesterov leg. (ZIN).

14. Dorud Town vicinity, *Lorestan Prov.*, 33°30.00' N, 48°04.04' E, 1,450 m a.s.l., 10 Aug. 1941, 1 ad. male, W. Koelz leg. (Koelz, 1954).

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