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# THE EXPANSION OF THE BLACKBIRD, *TURDUS MERULA* (PASSERIFORMES, MUSCICAPIDAE), IN THE STEPPE ZONE OF UKRAINE

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**The Expansion of the Blackbird, *Turdus merula* (Passeriformes, Muscicapidae), in the Steppe Zone of Ukraine. Tsvelykh, A. N.** — The distribution of *Turdus merula* in the steppe zone of Ukraine is studied. The expansion of its range occurred in the steppe zone in artificial forestations, many of which have been established as early as the second half of the 19th century. However, the Blackbird expansion in the steppe zone of the Left-bank and Right-bank Ukraine started only in the middle of the 20th century, and in the Crimean steppe zone only to the end of the 20th century. Now, the southern border of this species' range in the Left-bank Ukraine is almost at the northern coasts of the Black and Azov seas. In the Right-bank Ukraine its range is already at the seashore. In the Crimean steppe zone, the range expanded to the North of the forests of mountainous Crimea. The Blackbird populations farthest from the mountainous forests are found in artificial forest plantings at the northern and eastern borders of the peninsula. The species is absent from the western and north-western steppes of the Crimea.
Key words: *Turdus merula*, expansion, steppe zone, Ukraine.

## Introduction

Until the artificial forest plantings had started in the steppe zone of Ukraine, the most southern Ukrainian Blackbird populations had been only in the natural forests at the edge of steppe and wood-and-steppe zones, ravine forests at the Southern Bug river basin, insular forests of Donets Ridge, and floodplain forests in the lower reaches of large rivers. The species range expanded with the artificial forestations, many of which exist since the middle of the 19th century. However, the Blackbird expansion in the steppe and the corresponding translocation of the southern (northern in the Crimea) border of the species range in the region has not started earlier than the middle of the 20th century. The aim of the work was to study the expansion process and find out the current distribution borders of the Blackbird in Ukrainian steppe zone.

**Material and methods**

The analyzed materials are the results of avifauna studies in various artificial forestations in Ukrainian steppe in 2004–2011. The nesting populations of Blackbirds were recorded by counts of singing territorial males. The Blackbird spring migration in the steppe zone can sometimes last to the middle of May (see below), thus only the data collected in the second half of May to the end of June were used to exclude the possible impact of this factor. Stable persistence of several most remote Blackbird populations was confirmed in repeated visits in subsequent seasons.

## Results and discussion

### The steppe zone of the Left-bank Ukraine

The surveys of many artificial forestations in the steppe zone of Left-bank Ukraine in 1946 and 1949 revealed the Blackbirds only in the oldest (established in 1843) and large Velyko-Anadolsky artificial forestation (Taraschuk, 1953). Despite its century-old age and the nearness of Blackbird populations in natural forests of Donets Ridge (the closest forest is in 25 km to SE, in the natural object "Dubovaya balka"), the species had started spreading in this forestation shortly before the beginning of the cited studies (Taraschuk, 1953). The Blackbirds could have populated Velyko-Anadolsky forest only in 1940–1946, because they had not been recorded in the stationary research of local avifauna in 1937–1939 (Budnichenko, 1949) but in 1946 a similar study has revealed their nesting in the forestation (Taraschuk, 1953).

The Blackbirds have populated the old and vast Staro-Berdiansky forestation (established in 1846), which is in 70 km from their nearest natural habitat (forests of the Dnieper river floodplain) and the Altagir forestation (in 40 km from the Dnieper floodplain forest, and in 20 km from the Azov Sea) which have been planted in 1880, in the middle of the 20th century. Blackbird nesting in both woods in 1950 has been proved in stationary research in 1950–1953 (Orlov, 1955). Blackbird has also been recorded in the former forest in May–June, 1950 (Volchanetsky, 1952). However the Blackbird was not observed in July, 1949 (Taraschuk, 1953). Assuming the surveys to be correct (the birds could have been not observed in a short-time study at the end of their nesting period), it should be inferred that the Blackbird has for the first time occurred in these forestations in 1950.

In 1966, the Blackbird was found in "Azovskaya dacha" forestation (Volchanetsky, Lisetsky, 1968), which is an old and expansive artificial forestation planted in 1878, and located in 50 km to the south from Velyko-Anadolsky forestation and in 20 km from the Azov Sea. In 1950, this species has still been absent from the forestation fauna (Volchanetsky, 1952). Thus, the Blackbird could only populate the "Azovskaya dacha" forestation in 1951–1966.

Hence, in 1950s-1960s the Blackbird has spread in the most far away artificial forestations in the steppe zone of the Left-bank Ukraine. But some of similar forestations in the south of the steppe zone were populated much later. For example, first records of Blackbird populations in the more than a century year old "Askania-Nova" park (founded in 1885 in almost 50 km from the natural forests of the Dnieper river floodplain), are dated the 1997 year (Gavrylenko, 2000). It should be noted that in 1952–1953, efforts were made to introduce the Blackbird in the "Askania-Nova" park (Treus, Uspensky, 1954). In those years, the birds had nested in the park but ceased to immediately after the experiment ended. Later, the Blackbird advanced to the southern part of Lower Dnieper river area, while previously it has dwelled only in its north (Petrov, 1954; Orlov, 1959). For example, the Blackbird did not nest in the Chernomorsky Nature Reserve (the south of that area) at least until the middle of the 20th century (Klimenko, 1950). The first record of the species nesting in the reserve was in 1984, in the floodplain forest on the left bank of the Dnieper-Bug Estuary (Kotenko et al., 1996), in 8 km from the Black Sea shore. In 2000s, I found a small population of Blackbirds in 70 m wide shelterbelts of about fifty years of age along the railway, 4 km to NE from Partizany village, Kherson Region (and 20 km from the sea coast).

Two singing territorial males of this species were observed here 27.05.2007. Next season, two territorial Blackbirds were observed in a control survey (18.05.2008). Examination of artificial forestations in 10 km radius in 2007–2008 revealed no other nesting Blackbird populations. Surveys of all artificial plantations that form the southern boundary of the Blackbird nesting in the steppe zone of the left bank of Ukraine in the early 2000s (data on the "Azovskaya dacha" forestation are from Pilipenko, 2003) showed that at present the Blackbird here is an ordinary though not a numerous species.

Therefore, the current southern border of the Blackbird range in the steppe zone of the Left-bank Ukraine runs from the left bank of Dnieper-Bug Estuary to the "Askania-Nova" park, railway protection shelterbelts near the Partizany village, and Staro-Berdiansky, Altagyr and "Azovskaya dacha" woods (fig. 1). Here, the border of the range is close to and parallel to the sea shore. Farther the border runs to the north and goes near the Velyko-Anadolsky forestation through the natural object "Dubovaya balka" (see above). Then it turns to the east, to the nearest artificial forestation inhabited by Blackbirds, the Donskoye forestry of the south-eastern spurs of Donets Ridge in the Rostov Region of Russian Federation (Belik, 2009).

## The steppe zone of the right-bank Ukraine

The ornithological surveys of 1949 of artificial forestations in the southern steppe zone of Right-bank Ukraine revealed the Blackbird only in the old artificial plantation of the "Ratsynskaya dacha", founded in 1870 in 20 km to the east of Voznesensk town, and in the nearby artificial forestations turned natural objects: "Labirinth" near Trikraty village and "Dubovaya balka" near Bratskoe village, Mykolaiv Region (Taraschuk, 1953).

Ornithological studies in forestations of Right-bank Ukraine steppe in 1968 revealed the Blackbird nesting in old and vast Vladimirovsky woods (founded in 1873) and the nearby system of shelterbelts, also in the old artificial pine and broad-leaf plantings in the Ingulets river valley at the Velykaya Aleksandrovka village in 30 km to SE (Volchanetsky et al., 1970). According to stationary ornithological studies in 1950 (Taraschuk, 1953) and

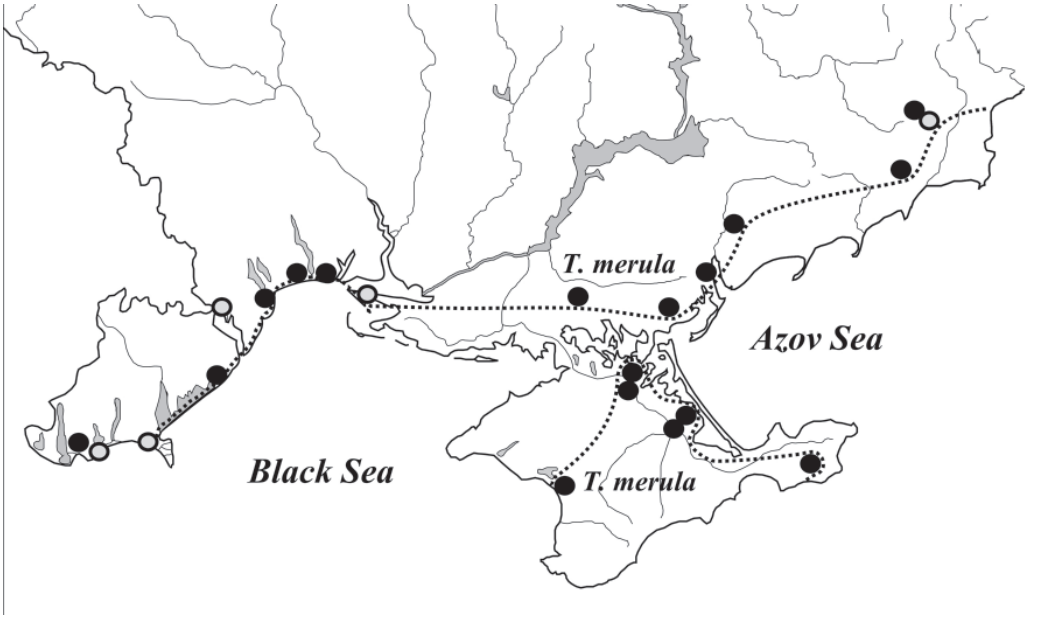


Fig. 1. The southern boundary of the Blackbird habitat in the steppe zone of the Right-bank and Left-bank Ukraine and the northern one in the steppe zone of the Crimean peninsula: black circles are artificial tree plantations and light ones are natural forests.

complete surveys of all those forestations in 1955 (Volchanetsky, 1959), the Blackbird has still been absent here. Thus, it could have occurred in those forestations only in 1956–1968.

Therefore, similarly to the Left-bank Ukraine, the Blackbird's range expanded in the steppes of the Right-bank Ukraine in 1950s–1960s. Numerous studies in 1980s–2000s showed that the species range expansion to the south continued. The survey of artificial forestations of the Southern Bug river basin in 1988–1993 showed the Blackbird to be a common not numerous species there (Kostiushin, 1997). The most southern of these artificial plantings is that near Andreyevka village, Mykolaiv Region. Later the Blackbird was also observed in 15 km to the south in a forestation near Sebino village in the Southern Bug river valley in the end of July, 2012 (O. Z. Petrovich, personal communication). Another Blackbird population in the region, located even more to the south, was found in 2009 in an artificial planting "Marjevskoe" near Mykhaylo-Larino village in the valley of the Inhul river (E. D. Yablonovska-Grishchenko, personal communication).

Apparently, the new wave of Blackbird expansion to the south began in the end of 1990s. In 1997, the Blackbird was found for the first time during the nesting season in 50 km to the south of Odesa, in the Shchorsovo village region, and in 1998 its nesting was confirmed there (Lobkov et al., 2001). Later, the Blackbird nesting abundance in the region has significantly grown, and before 2001, several nesting sites of these birds were found in the 15 km radius. In 2000, a large nesting population of Blackbirds was found in 25 km to SE, and in that year the species was observed to nest in the artificial forestation near Leski village, at the Black sea coast (Lobkov et al., 2001). Clearly, the expansion of Blackbirds on the seashore continued. In the early 2000s, Blackbird population was found father to the east, in the artificial forestation at the Black Sea coast near the town of Yuzhny, Odesa Region (P. S. Panchenko, personal communication). Interestingly, the Blackbird could not have occurred there earlier than 2002, because in 2001 it was still absent here (Lobkov et al., 2001). Yet another Blackbird population at the seashore was found farther still to the east, in the artificial forestation near Rybakovka village, Mykolaiv Region, in 2016 (P. S. Panchenko, personal communication).

In the steppe regions of western Black Sea coast between the Dniester and Danube rivers, the Blackbirds only populated the lower reaches of the rivers. At the Lower Dniester river, the Blackbird has long been populating the riverine forests and nearby artificial plantings in the steppe (Nazarenko, 1953). At the Lower Danube, the Blackbirds nested in woody thickets of large river islands (Popenko, Diadicheva, 1999; Potapov, 2001). The birds were absent in the other forestations of the region (Popenko, Diadicheva, 2000; Popenko et al., 2000), however in 2010, I found a nesting Blackbird population in a 50 year old artificial forestation in 5 km from town of Izmail. Clearly the Blackbird still has started to expand to the steppe of the western Black Sea coast. In 2010 a Blackbird population was found in an artificial forestation at the Black Sea coast near Lebedevka, Odesa Region (P. S. Panchenko, personal communication).

Thus, the southern border of Blackbird range in the steppe zone of Right-bank Ukraine runs by the sea coast (fig. 1) since the early 2000s.

### The Crimean peninsula steppe zone

Initially, the Blackbird has populated only the southern mountainous part of the Crimean peninsula, also nesting in the foothill gardens and forested valleys of rivers of the steppe (Kostin, 1983). The species did not far pervade the steppe through river valleys, its range hardly exceeded the foothill borders (Averin, 1953). But the birds were observed in the Crimean steppe during the nesting period (in the mountainous Crimea it lasts from March to July) in the natural shrub thickets, suggesting the possibility of Blackbird nesting here (Kostin, 1983). These are the shrub thickets near cliffs and stone chaoses on the Tarkhankut peninsula, in the northern part of the Donuzlav lake, and on the Kerch

peninsula (Kostin, 1983). In study targeting the nesting avifauna of arboreal and shrubbery biotopes of the Tarkhankut peninsula in 1949–1951, the Blackbird has not been observed (Averin, 1953). L. A. Smogorzhevsky (1987) studied avifauna of the Tarkhankut peninsula in May–September 1955–1958, and did not mention the species. I also did not observe the Blackbird in surveys of natural arboreal and shrubbery biotopes of the Tarkhankut peninsula in 11–12.06.1992 and 17–18.05.1995. At the same time it is known that from mid-March to the end of April, Blackbirds migrate through the western part of the Crimean peninsula, and for the Tarkhankut peninsula, large flocks of these birds which flew over the Black Sea are described (Kostin, 1983). Migratory Blackbirds can also be found on the Tarkhankut peninsula later in May. For example, in 1949, F. A. Kiselev obtained Blackbirds for the museum collection in the west of the Tarkhankut Peninsula in 10–14 May (Peklo, 2002). The presence of nesting Blackbirds on the shore of the northern part of the Donuzlav lake is not confirmed by data from the research of the nesting avifauna of this region in 1956–1958 (Krivitsky et al., 1999) or in 1972–1990 (Treschev, 1991). I did not find Blackbirds in shrub thickets of the northern part of the lake Donuzlav shore in 9–10.06.1992. Obviously, the very rare observations of Blackbirds in the tree-shrub biotopes of the Tarkhankut peninsula and the northern part of the lake Donuzlav shore in the alleged nesting time refer to the birds delayed on migration.

At Kerch peninsula, Blackbird nesting was inferred based on the findings of these birds in the shrubs of Opuk mount after the spring migration. F. Frank (1950) in regular ornithological surveys on the Opuk mount in 1943 has observed large flocks of Blackbirds after their flight over the Black sea since the third decade of March to the second decade of April. To the end of April, the bird numbers decreased significantly, but single Blackbirds still resided present in the shrubbery in May and later in the summer. F. Frank admitted the possibility of Blackbirds nesting in the bushes of the Opuk mount, but was surprised to note the complete absence of singing birds throughout the entire estimated breeding season. Apparently the birds were unable to migrate further and stayed for the summer. Ju. V. Averin (1951) surveyed the Opuk mount in 19–28.05.1950, and noted the presence of Blackbirds in the same biotopes, also assuming that the birds can nest there. Also, by the counts of Blackbirds in shrub thickets on the Opuk mount in 30.04.1997, S. Yu. Kostin and M. M. Beskaravayny (2002) inferred the presence of no less than four pairs of these birds. But, as we mentioned before, the findings of Blackbirds in seashore shrub thickets during the migration season cannot be taken as proof of their nesting there. Besides the authors do not report finding the Blackbirds during their research on the Opuk mount in other years: 17–19.05 and 25–26.06.1996, 12–13.06.1997, 16–19.06.1998, and 11–12.06.1999. The authors also analyzed some unpublished results of Yu. V. Averin's and Yu. V. Kostin's surveys of the Opuk mount during the Blackbird breeding periods of 1951, 1961, 1970, 1971, 1972, 1973, 1978, and 1979. According to those data, Blackbirds were not then recorded on the Opuk mount during the nesting period. Rarity of Blackbird records in the Opuk mount shrubbery during the assumed nesting period is confirmed by my findings, too: Blackbirds were not found in the targeted study of all shrub biotopes of the Opuk mount in 24–25.05.2005. Hence, given the extreme rarity and irregularity of the presence of Blackbirds in the shrub thickets of the Opuk mount in the estimated nesting time and the complete lack of evidence not only of nesting but of nesting behavior, their late spring and spring–summer observations should be attributed to the birds delayed on migration.

Hence, the hypotheses of the Blackbird nesting in the natural tree and shrub plantations of the Crimean steppe zone (Kostin, 1983) is not confirmed.

Studies of avifauna of many artificial forestations in the Crimean steppe zone in 1949–1951 (Averin, 1953) revealed an isolated Blackbird population in Shatilovsky woods, the oldest artificial plantation in a very dry north-eastern part of the Crimea in the first half of the XIX century. Later (Tsvelykh, 2015) it was found out that this population exists since the middle of the nineteenth century, in 1853–1860 the Blackbird has been noted here as a

nesting species (Schatiloff, 1860). Therefore, by the middle of the 20th century, Blackbirds inhabited only one forestation in the steppe zone of the Crimean peninsula, although there were several other old plantations founded in the XIX century (Averin, 1953). This species did not appear in artificial forest plantations of the steppe Crimea in the second half of the 20th century, either (Kostin, 1983). It would seem that the spreading of the Blackbird in the Crimean peninsula steppe regions did not begin until the end of the XX century, considering that all new breeding populations of this species were discovered only at the very beginning of the XXI century. In 2004–2005, Blackbirds were rather usual in the large artificial forestation "Marjevskoe", 50 years old, at the Kerch peninsula (Tsvelykh, 2006). Surveys of other artificial plantations of the Kerch peninsula in 2004–2011 confirmed that this population is single there, and the nearest nesting sites are the forests of the mountainous Crimea, almost 100 km away. Another isolated Blackbird population was found in 2008 in a lavishly planted over green areas of Nizhnegorsky town, in 20 km to the SW from Shatilovsky woods. Similar population exists in the dense greenery of the low-rise southern part of the Dzhankoy city (it was found in 2007). The most northern Blackbird population of the Crimean peninsula was found in dense, wide (70 m) railway protection shelterbelts near the Mamut railway station in 12 km to SSE from Dzhankoy (2006). The most western Blackbird population in the steppe Crimea was found in 2006 in the vast artificial forestation in 4 km to SE of Saky town (Kucherenko, 2016). Notably, all new nesting sites occurred in relatively new (nearly 50 years old) artificial forestations. The Blackbirds did not inhabit older (more than 100 years) forestations in the steppe Crimea (Tsvelykh, 2017).

Although the Blackbird populations are quite rare in the Crimean steppe, there still is a northern border of the species's range in that area. The border begins to the south of Saky town through Shatilovsky woods to Marjevsky woods at the Kerch peninsula (fig. 1).

## Conclusion

Blackbird distribution in the steppes of Left-bank and Right-bank Ukraine has started in the middle of the XX century, in the steppe zone of the Crimean peninsula in the end of the XX century. The southern border of Blackbird range in the steppe of Left-bank Ukraine almost reaches the northern shores of the Black and Azov seas. In the Right-bank Ukraine, the Blackbird range border already runs by the sea coast. In the Crimea, the Blackbird populations, most remote from the mountainous woods are found in the artificial forestations at the northern and eastern borders of the peninsula. In the western and north-western steppe of the Crimean peninsula this species is absent. At its remotest point range borders in Ukrainian steppe, the Blackbird mostly inhabits the artificial forestations. Sometimes it can be found in the railway protection shelterbelts and in densely planted over low-rise urban areas.

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