

Recent Distribution and Rare Occurrence of the Ortolan Bunting (*Emberiza hortulana*) off the Coast of Pakistan

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SUMMARY

The ortolan bunting (*Emberiza hortulana*) was last assessed as "Least Concern" (LC) by the IUCN Red List of Threatened Species in 2025. This research aims to document a new provincial record of the ortolan bunting in Sindh, Pakistan, which would bridge a significant distributional gap, update the species' national presence map, and enhance our understanding of its migratory connections and habitat use in Pakistan's coastal ecosystems. The *Emberiza hortulana* specimen was visually identified and confirmed using field guides, and photographic evidence. The ortolan bunting (*Emberiza hortulana*) was reported for the first time from Pakistan as a straggler on a fishing vessel that was operating off the coast of Sindh, near the Indus Swatch. A single adult individual was photographed and observed exhibiting resting and preening behavior while perched on the deck of the fishing vessel. The species is a Palearctic migrant typically recorded during passage through continental stopover sites in southern Asia; however, its offshore occurrences are not common. The paper reports observations, highlights possible causes for the offshore displacement, and contributes to knowledge of vagrancy and migration dynamics of *E. hortulana* in Pakistan.

Keywords: Ortolan Bunting, vagrant, offshore record, migration, Indus Swatch, Pakistan

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INTRODUCTION

Pakistan has a unique geographical setting, spanning three biogeographical realms: Palearctic, Oriental, and Ethiopian (Altaf, 2016; Babar and Ashraf, 2025). It encompasses a wide range of ecosystems, including wetlands, mountains, deserts, and fertile plains (Jehangir et al., 2024). This remarkable environmental heterogeneity, together with variations in altitude cause changes in diversity within relatively short distances, resulting in a high diversity of birds (Altaf et al., 2018), particularly as a wintering ground for numerous migratory species (Narejo et al., 2025). Pakistan documented 668 species (Roberts, 1991; Roberts, 1992). *Emberiza hortulana* (Linnaeus, 1758), commonly known as the ortolan bunting, belongs to the family Emberizidae. The ortolan bunting was most recently evaluated as Least Concern (LC) according to the IUCN Red List of Threatened Species in 2025. This species has a vast range and thus does not meet the standards for Vulnerable (VU) under the range size criteria. Although the population tendency looks to be declining, the rate of

reduction is not thought to be high enough to meet the standards for Vulnerable (BirdLife-International, 2025).

This species utilizes a variety of breeding sites, predominantly favoring regions with a continental climate characterized by abundant sunshine and minimal rainfall. In the northern parts of its habitat, it prefers low-intensity, mixed agricultural areas with light soil, sparse vegetation, and lines of trees or bushes. It can be found in clear felled areas and forest edges across Russia and Fenno-Scandinavia. In the southern regions of its breeding range, it inhabits rocky, open mountainous areas with some bushes, reaching elevations of up to 2,500 meters above sea level. Egg-laying occurs from April to June. The female constructs the nest, often on the ground in agricultural settings. Clutches typically contain four or five eggs. After an incubation period of 11 to 12 days, the chicks hatch and are cared for by both parents. They fledge approximately 12 to 13 days later. Migration in autumn starts between August and September. This species primarily consumes invertebrates (i.e., beetles, grasshoppers, and ants) during the breeding season, while they primarily feed on seeds (Hagemeijer and Blair, 1997; Erard, 2014; BirdLife-International, 2025).

Agricultural intensification has a large impact on this species, and the use of pesticides and herbicides negatively affects the invertebrate population and indirectly impacts feed diversity. Another problem is the ongoing conversion of comparatively widely used habitat into crop fields for biofuel. According to researchers, further concerns include the killing and trapping of the species during migration, as well as the isolation of surviving populations due to habitat fragmentation, which increases the chance of extinction (Hagemeijer and Blair, 1997; Jiguet et al., 2019).

Despite a growing number of bird records from Pakistan, significant spatial gaps still exist in the documentation of migratory songbirds, particularly in less studied coastal and southern areas such as Sindh. Earlier sightings of *E. hortulana* have primarily been limited to Khojak Pass, Balochistan, Gilgit-Baltistan, and Khyber Pakhtunkhwa, leaving questions about its larger distribution and habitat preferences in the area (Roberts, 1992). Furthermore, no observation along the Northern Arabian Sea coastline has resulted in a limited understanding of Palearctic migrants' stopping areas. The present research aims to produce a new provincial record of Ortolan Bunting in Sindh, Pakistan, to know distributional gap, revise the species national presence map, and improve understanding of its migratory linkages and habitat usage in Pakistan's coastal ecosystems.

MATERIALS AND METHODS

STUDY AREA

Pakistan's coastline, spanning over 1046 km, is comprised of the Sindh coast and the Balochistan coast (Figure 1). Over the past few decades, the Sindh coast, especially the Karachi area, has experienced extreme urbanization and industrialization. One of the world's largest arid mangrove forests covers a broad area of mudflats, marshes, and estuaries along the Indus River Delta region's coast, which is indented by a distinctive branching network of 17 major creeks and several lesser creeks. According to international Ramsar Convention standards, the wetlands in the Indus River Delta region are protected areas (Altaf et al., 2014; Kanwal et al., 2019). The impact of

waves and tides has risen due to the reduction in sediment load and water flow to the Arabian Sea.

SIGHTING AND OBSERVATION

On January 2, 2019, Ortolan Bunting *Emberiza hortulana* sighting (N-1) was observed at the fishing vessel (Figure 1) near the Indus swatch, Sindh (offshore water of EEZ). The GPS coordinates were noted to draw the map of the sight (GPS coordinates: 22 29 14.72'N; 66 53 d29.92E) where the depth of water was 1212 m (Figure 2 and Table 1). The photographed was shared with multiple ornithologists, and also carefully examined through several field guides i.e., Helm field Guides *Birds of the Indian Sub-continent* (Grimmet et al., 2011), *Birds of Central Asia* (Schweizer et al., 2012), *Handbook of the Birds of India and Pakistan together with those of Bangladesh, Nepal, Bhutan and Sri Lanka* (Ali and Ripley, 1987) and *A Field Guide to the Birds of India, Sri Lanka, Pakistan, Nepal, Bhutan, Bangladesh and the Maldives* (Kazmierczak, 2000). We identified the bird as a potential female Ortolan Bunting *E. hortulana*.

Table 1: Shows geographical details and field notes of the offshore Ortolan Bunting observation in Pakistan.

Observer	Details
Date	January 2, 2019
Location	offshore water of EEZ near Indus Swatch
GPS Coordinates	22 29 14.72' N; 66 53 29.92 E
Fishing Boat size/Vessel	Medium-sized fishing trawler
Water zonation	Depth 1212 m
Weather	Clear sky, moderate wind, calm sea state
No. of sighting	01
Bird behavior	Perched at boat and seems it is refueling its energy before another long flight



Figure 1: Photograph of the Ortolan Bunting resting on the deck of the fishing vessel.

DATA ANALYZED AND MAP DESIGNED

The data analysis was performed using MS Excel (2010), and the graph was designed using OriginPro (Version 2023). The map was designed using ArcGIS (version 10.4) and Google Earth Pro.

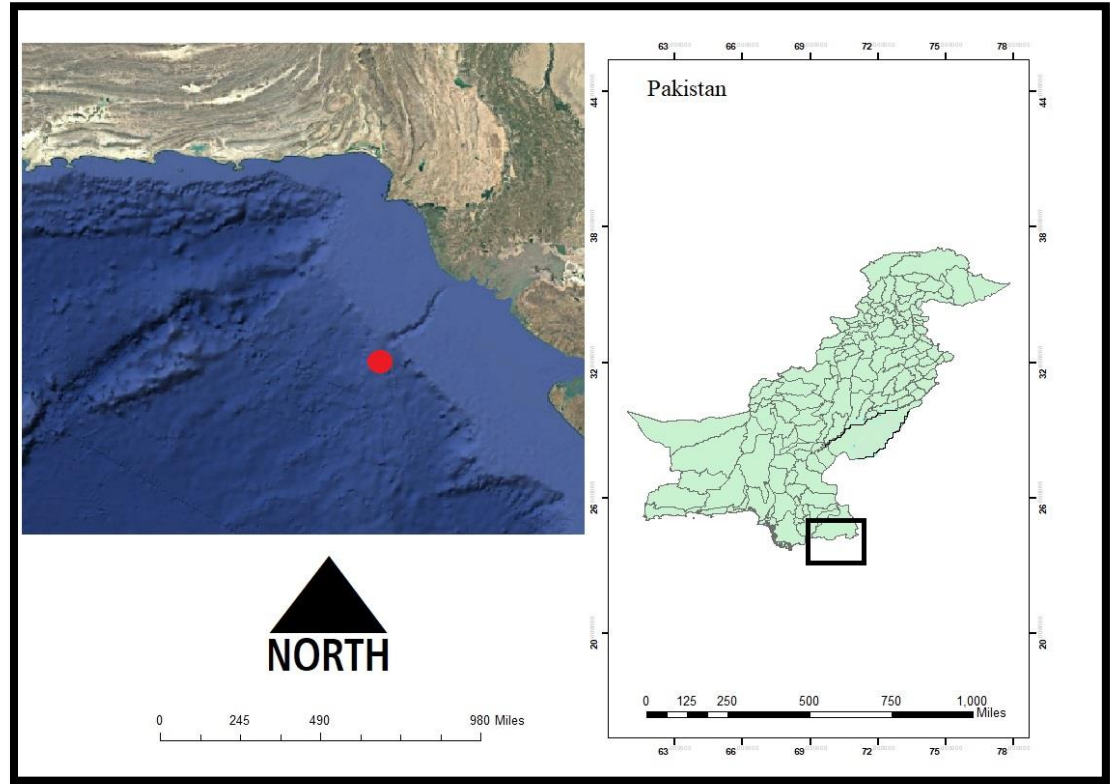


Figure 2: Map of the area where the ortolan bunting was observed on the fishing vessel.

RESULTS AND DISCUSSION

On January 2, 2019, an ortolan bunting specimen was sighted on a fishing vessel (Figure 1) near Pakistan's Indus Swatch (offshore waters of the Exclusive Economic Zone) ($22^{\circ}29'14.72''\text{N}$; $66^{\circ}53'29.92''\text{E}$), where the water depth was 1,212 m (Figure 2). It was identified as a female ortolan bunting (*E. hortulana*) in its first winter plumage (Roberts, 1992; Grimmett, 1998; Grimmett et al., 2008; Grimmett et al., 2016). The ortolan bunting, which measures 16-17 cm, is closely related to Cretzschmar's bunting (*Emberiza caesia*), sharing a common ancestor approximately 1 million years ago, yet it superficially resembles a relatively distantly related species. It also shares a common ancestry from 5 million years ago with the grey-necked bunting (*Emberiza buchanani*) under the 'Ortolan Group,' which includes ortolan, grey-necked, cinereous, and Cretzschmar's buntings (Clements et al., 2019).

This species is native (breeding) in Ukraine, Türkiye, Switzerland, Sweden, Spain, Slovenia, Slovakia, Serbia, Russian Federation, Romania, Poland, Portugal, Norway, North Macedonia, Netherlands, Montenegro, Mongolia, Moldova, Lithuania, Latvia, Kazakhstan, Hungary, Georgia, Estonia, Czechia, Croatia,

Bulgaria, Bosnia and Herzegovina, Belgium, Belarus, Azerbaijan, Austria, Armenia, Andorra, Algeria, and Albania, while native (non-breeding) in Ethiopia, Guinea, Djibouti, Eritrea, Nigeria, Senegal, Mali, Mauritania, Somalia, Sudan, and Sierra Leone; extant (passage) in United Kingdom, United Arab Emirates, Turkmenistan, Saudi Arabia, Qatar, Palestine, Oman, Kuwait, Jordan, Iraq, Denmark, Cyprus, and Bahrain; and extant (resident) in Yemen, Syria, Lebanon, Italy, Iran, Greece, Germany, and France, Finland (Figure 3) and India (Shingade, 2024). In addition, another undated specimen was collected from Khojak Pass (presumably from Chaman), Balochistan (Roberts, 1992). Additionally, this bird was photographed in Hunza, Gilgit-Baltistan on 17 September 2020 (Shah, 2020), and from Khyber Village, Upper Hunza, Gilgit-Baltistan on 21 September 2021 (Babar, 2023).

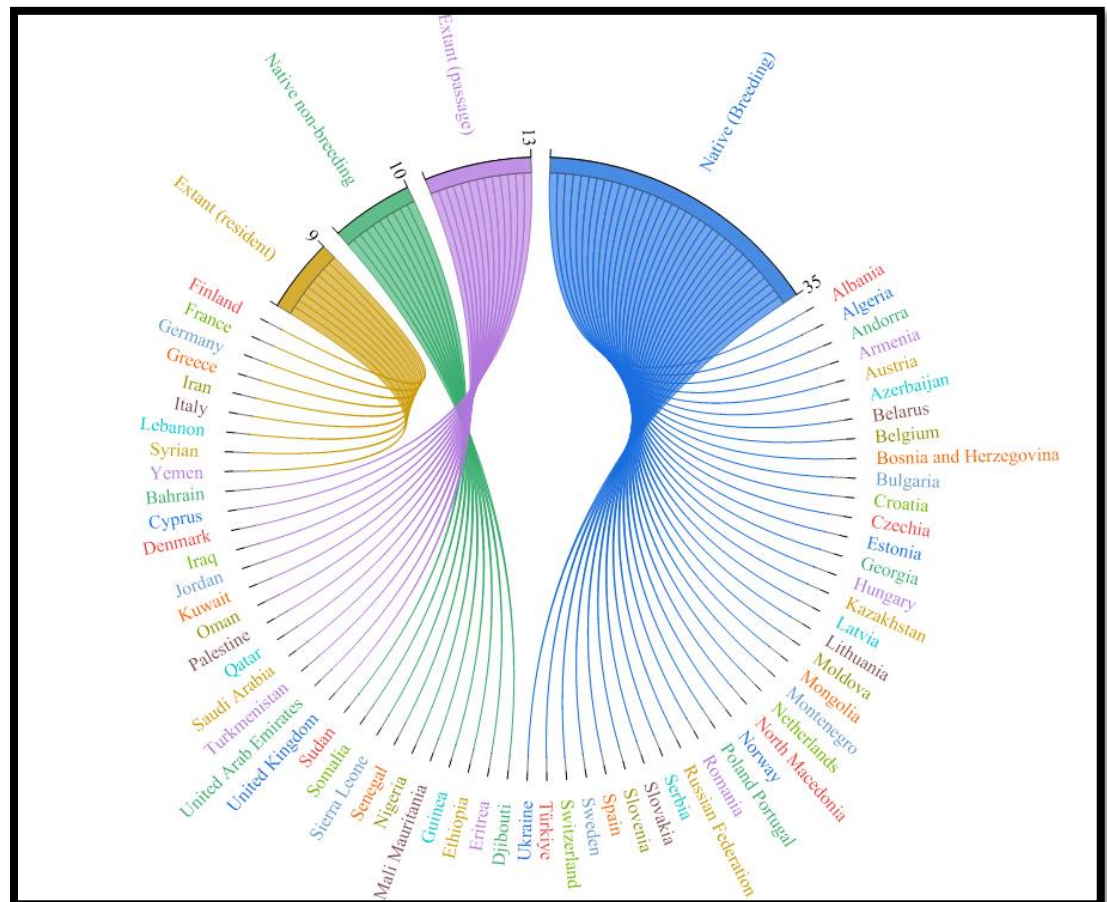


Figure 3: Distribution of ortolan bunting according to IUCN (BirdLife-International, 2025).

It is similar in appearance to the grey-necked bunting in winter plumage but can be distinguished as the latter has a shorter, pinkish-orange bill, a streaked crown, and a prominent yellowish-white eye-ring. The most prominent feature of the ortolan bunting is the presence of notches or hook-shaped patterns in the tertials, which are typically not present in the grey-necked bunting. The ortolan bunting is an uncommon passage migrant mainly in Pakistan, particularly through the central parts of Gilgit-

Baltistan. It usually occurs in lightly wooded, dry, open country, both in plains and on mountain slopes with scattered trees and bushes, reaching elevations of up to 3,000 m. The Chokpak Pass in southeast Kazakhstan is crossed of this migratory bunting before adults, with peak passage occurring in early September. The passage continues southwest over Arabia, Iraq, and Iran on a comparatively broad front. Most likely, vagrants from that area end up in Pakistan. It was considered a 'vagrant' to the Indian Subcontinent (Roberts, 1992). However, based on the recent series of records (Figure 4), it could be considered a potentially regular migrant but poorly observed or overlooked due to its striking superficial resemblance to the commonly occurring grey-necked bunting in winter plumage (Roberts, 1992; Menz and Arlettaz, 2012; BirdLife-International, 2025).

Ortolan bunting (*Emberiza hortulana*) is a medium-sized, slim bird, slightly larger than the grey-necked bunting, with a shorter tail but resembling it in shape. It has a prominently streaked tawny-brown to grey-brown mantle, whereas its rump is earth-brown with faint streaks. Its culmen has a slightly darker shade and is slightly convex. There are broad red-brown outer edges to the tertials and a yellowish white to buffish eye-ring. Its head and nape can show olive-yellowish tones in both breeding and non-breeding seasons, with exceptions; breeding adults have a head, a narrow lateral throat-stripe, and a broad breast-band that are plain olive-grey to greenish grey. Adults in autumn have a finely spotted lateral throat-stripe, crown, and breast, with flanks and belly that are saturated orange-brown, whereas the undertail coverts are ochrous-buff. Juveniles lack yellow tones in the lateral throat-stripe up to July/August and also lack orange-brown tones in the flanks and belly, which suggests that this specimen is an adult (Roberts, 1992; BirdLife-International, 2025).

Its close relative, the grey-necked bunting (*Emberiza buchanani*), usually has a size of 15-17 cm. It is medium-sized, slightly smaller than the ortolan bunting, with a longer tail. It has a faintly streaked dull-brown mantle and a grey-brown rump with absent or indistinct streaks. Its bill is straight, entirely pink, lacks a dark culmen, and is slightly longer. There are evenly broad, pale outer edges to the tertials. The eye-ring is whitish, whereas the plumage overall lacks yellow tones in all seasons. It lacks a breast band, thus there is no clear division between the belly and breast, as also observed in the ortolan bunting. The first winter bird can exhibit a visibly spotted lateral throat stripe, and the undertail coverts are whitish (Roberts, 1992; Elts et al., 2016; BirdLife-International, 2025).

The ortolan bunting (*Emberiza hortulana*) is a small passerine migrant, breeding across temperate Eurasia and migrating to sub-Saharan Africa in the non-breeding season. In most parts of Europe, the species inhabits open farmlands, where sparse trees and a high diversity of arable crops are present present (Conrads, 1968; Von Lang et al., 1990). It is typically recorded inland at stopover sites during migration (winter and spring passage), and records from coastal offshore waters are rare. *E. hortulana* is occasionally recorded on passage in South Asia during autumn and spring. It is one of the 18 species of old-world buntings that have been reported in Pakistan, including from Gilgit-Baltistan (Grimmett, 1998; Grimmett et al., 2008; Grimmett et al., 2016; BirdLife-International, 2025).

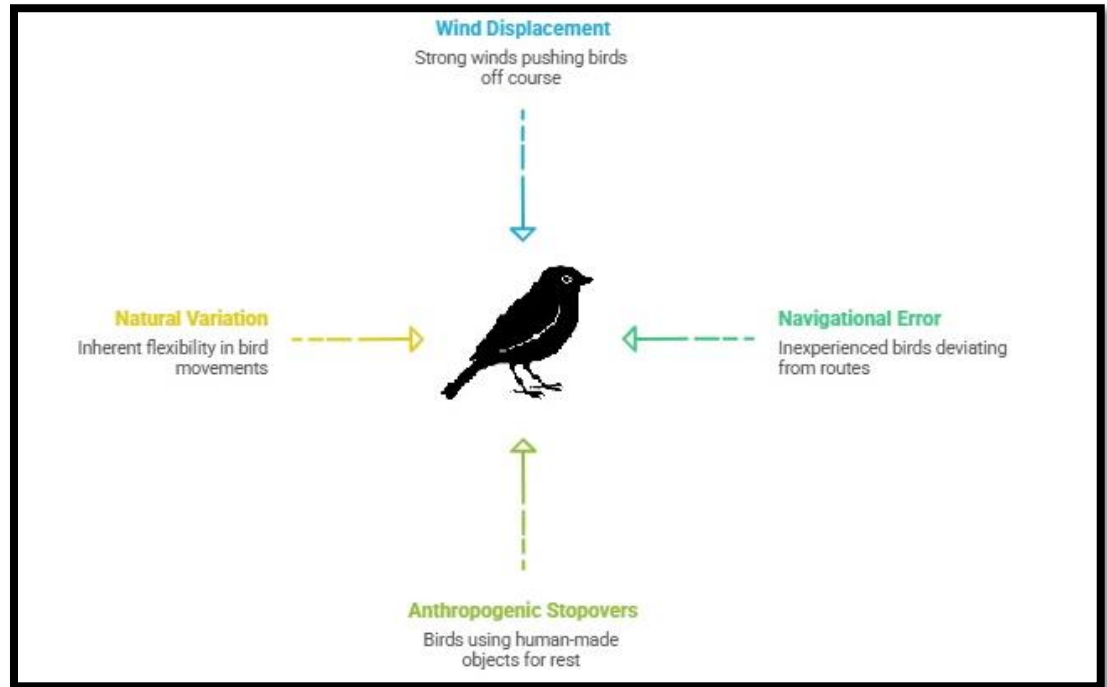


Figure 4: Illustrating the possible hypothetical reason why birds moved towards the wrong direction.

CONCLUSION

A confirmed record of the ortolan bunting (*Emberiza hortulana*) has been made off the coast of Indus Swatch, within the Exclusive Economic Zone of Pakistan. This record enhances local avifaunal knowledge and highlights the importance of documenting rare and vagrant occurrences.

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REFERENCES

- Ali, S. and S.D. Ripley. 1987. Compact Handbook of the Birds of India and Pakistan together with those of Bangladesh, Nepal, Bhutan and Sri Lanka. 2nd Edition. Oxford University Press, Delhi. 1–737pp.
- Altaf, M. 2016. Assessment of avian and mammalian diversity at selected sites along river Chenab, PhD thesis submitted to University of Veterinary and Animal Sciences, Lahore, Pakistan.
- Altaf, M., A. Javid, A. M. Khan, M. Khan, M. Umair, and Z. Ali. 2018. Anthropogenic impact on the distribution of the birds in the tropical thorn forest, Punjab, Pakistan. *Journal of Asia-Pacific Biodiversity*. 11: 229-236.
- Altaf, M., A. Javid, and M. Umair. 2014. Biodiversity of Ramsar sites in Pakistan. LAP. Germany.
- Babar, M. 2023. Ortolan Bunting *Emberiza hortulana*. Cornell-Lab. <https://macaulaylibrary.org/asset/614266444>.
- Babar, M. E., and M. Ashraf. 2025. Animal Diversity of Pakistan: Distribution and Conservation. CRC Press.
- BirdLife-International. 2025. *Emberiza hortulana*. The IUCN Red List of Threatened Species 2025. BirdLife-International and IUCN. e.T22720916A281469459.
- Clements, J., T. Schulenberg, M. Iliff, D. Roberson, T. Fredericks, B. Sullivan, and C. Wood. 2019. The eBird/Clements checklist of birds of the world: v2019.
- Conrads, K. 1968. Zur Ökologie des Ortolans (*Emberiza hortulana*) am Rande der Westfälischen Bucht. *Vogel-welt*. 2(suppl.): 7–21.

- Eltis, J., A. Sokolov, J.-P. Sibley, M. Skierczynski, G. Selstam, M. Piha, S. Minkevicius, G. M. Kirwan, R. Hargues, and Y. Ferrand. 2016. An update of the European breeding population sizes and trends of the Ortolan Bunting (*Emberiza hortulana*). *Ornis Fennica*. 93: 186-196.
- Erard, C. 2014. Del Hoyo, J., Elliott, A., Sargatal, J., Christie, DA & de Juana, E.(eds).—Handbook of the Birds of the World Alive. Lynx Edicions, Barcelona. *Revue d'Écologie (La Terre et La Vie)*. 69: 361-361.
- Grimmett, R., C. Inskipp, and T. Inskipp. 2016. Birds of the Indian Subcontinent: India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and the Maldives. Bloomsbury Publishing.
- Grimmett, R., Inskipp, C. & Inskip, T. 1998. Birds of the Indian subcontinent. Christopher Helm an imprint of A and C Black (Publisher) Ltd, 35 Bedford Row, London WC1R 4JH.
- Grimmett, R., C. Inskipp and T. Inskipp. 2011. Birds of the Indian Subcontinent. 2nd Edition. Oxford University Press and Christopher Helm, London. 528pp.
- Grimmett, R., T. J. Roberts, T. Inskipp, and C. Byers. 2008. Birds of Pakistan. A&C Black.
- Hagemeijer, W. J., and M. J. Blair. 1997. The EBCC atlas of European breeding birds. Poyser, London. 479.
- Jehangir, S., S. M. Khan, U. Ejaz, N. Zahid, N. Rashid, Q. Noshad, Z. U. Din, and A. Shoukat. 2024. Alien flora of Pakistan: taxonomic composition, invasion status, geographic origin, introduction pathways, and ecological patterns. *Biological Invasions*. 26: 2435-2451.
- Jiguet, F., A. Robert, R. Lorrillière, K. A. Hobson, K. J. Kardynal, R. Arlettaz, F. Bairlein, V. Belik, P. Bernardy, and J. L. Copete. 2019. Unravelling migration connectivity reveals unsustainable hunting of the declining ortolan bunting. *Science Advances*. 5: eaau2642.
- Kanwal, S., X. Ding, M. Sajjad, and S. Abbas. 2019. Three decades of coastal changes in Sindh, Pakistan (1989–2018): A geospatial assessment. *Remote Sensing*. 12: 8.
- Menz, M. H., and R. Arlettaz. 2012. The precipitous decline of the ortolan bunting *Emberiza hortulana*: time to build on scientific evidence to inform conservation management. *Oryx*. 46: 122-129.
- Kazmierczak, K. 2000. A field guide to the birds of India, Sri Lanka, Pakistan, Nepal, Bhutan, Bangladesh and the Maldives. 1st ed. New Delhi: Om Book Service. 1–352.
- Narejo, A. H., A. R. Talpur, M. M. Talpur, Z. Talpur, Z. Talpur, Z., G. A. Talpur and Y. Pechuho. 2025. Blue-and White Flycatcher (*Cyanoptila cyanomelana*): A New Avifaunal Chapter in Pakistan's Biodiversity Based on Morphological and Acoustic Evidence from Mehrano Wildlife Sanctuary. *Journal of Zoology and Systematics*. 3(1): 110–121.
- Roberts, T. 1992. The Birds of Pakistan. II. Passeriformes. Oxford, UK: Oxford University Press.
- Roberts, T. J. 1991. The birds of Pakistan (Vol. 1: Regional studies and non-Passeriformes). Oxford University Press.
- Schweizer, M., T. Roth and R. Aye. 2012. Birds of Central Asia. Christopher Helm Publishing.
- Shah, I. 2020. Ortolan Bunting (*Emberiza hortulana*). Birds of Gilgit-Baltistan. <https://www.birdsofgilgit.com/birds/Ortolan%20Bunting.html>.
- Shingade, V. 2024. An Ortolan Bunting *Emberiza hortulana* along with a Grey-necked Bunting *E. buchanani* from Kachore, Maharashtra, India. *Indian Birds*. 20: 1.
- Von Lang, M., H. Bandorf, W. Dornberger, H. Klein and U. Mattern. 1990. Breeding distribution, population, development and ecology of the ortolan bunting (*Emberiza hortulana*) in Frankonia. *Ökologie der Vögel* 12:97–126.

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