
SHORT COMMUNICATIONS

Population Dynamics and Phenotypic Hybrids of the Black-Faced Spoonbill *Platalea minor* Temminck et Schlegel, 1849 (Ciconiiformes: Threskiornithidae) on Furugelm Island (Peter the Great Bay, Sea of Japan)

Yu. N. Glushchenko^a (ORCID: 0000-0001-9776-3167), D. V. Korobov^a (ORCID: 0000-0002-2989-9510),
I. M. Tiunov^{b, *} (ORCID: 0000-0001-8394-6245), D. A. Belyaev^{c, d} (ORCID: 0000-0001-7356-434X),
and I. O. Katin^e (<http://orcid.org/0000-0002-9601-7100>)

^a Pacific Geographical Institute, Far Eastern Branch, Russian Academy of Sciences, Vladivostok, 690041 Russia

^b Federal Scientific Center of the East Asia Terrestrial Biodiversity,
Far Eastern Branch, Russian Academy of Sciences, Vladivostok, 690022 Russia

^c Primorsky State Agrarian-Technological University, Ussuriysk, 692510 Russia

^d Joint Directorate of the Kedrovaya Pad State Nature Biosphere Reserve and the Vorontsov Land
of the Leopard National Park, Vladivostok, 690068 Russia

^e Zhirmunsky National Scientific Center of Marine Biology, Far Eastern Branch,
Russian Academy of Sciences, Vladivostok, 690041 Russia

*e-mail: ovsianka11@yandex.ru

Received October 2, 2025; revised January 26, 2026; accepted February 4, 2026

Abstract—Counts of the black-faced spoonbill were conducted on Furugelm Island in 2021 and 2025. Since the discovery of a single breeding pair in 2003, their number steadily increased, reaching 41 pairs in 2025. Two adult birds recorded from the colony in 2025 were identified as hybrids with the Eurasian spoonbill (*Platalea leucorodia*), which represented 2.4% of the total breeding population.

Keywords: abundance, hybrids, Peter the Great Bay, black-faced spoonbill, spoonbill

DOI: 10.1134/S1063074026700100

INTRODUCTION

One of the rarest bird species in the world, the black-faced spoonbill (*Platalea minor* Temminck et Schlegel, 1849), is included on the IUCN Red List and on the Red Data Books of all countries within its range. It inhabits islands off the coast of the Yellow Sea in eastern and northeastern China and off the western coast of the Korean Peninsula [4]. In Russia, it breeds on Furugelm Island in Peter the Great Bay, Sea of Japan [2].

Over the past 30 years, the global abundance of the black-faced spoonbill has grown significantly, from 535 individuals in 1997 to 6162 in 2022 [14], representing more than a tenfold rise. In Russia, the number of breeding individuals increased from one pair in 2003 [2] to 16 pairs by 2019 [6]. Despite this, many experts predict future declines due to the potential loss of large areas of critical habitats, especially at wintering grounds, caused by coastal infrastructure development [7]. Furthermore, by 1988, the global abundance was estimated at fewer than 300 individuals and had undergone a bottleneck, which resulted in reduced

genetic diversity [9] and increased susceptibility to various diseases.

The backcrossing events that produce fertile offspring within the black-faced spoonbill population [8, 12] may provide gene flow from another species, thereby diversifying the gene pool and potentially enhancing adaptability to changing environmental conditions.

Hybrid individuals exhibit a morphology intermediate between the black-faced spoonbill and the Eurasian spoonbill (*Platalea leucorodia* Linnaeus, 1758). Hybrid birds have larger bodies, longer bills, and longer legs than in black-faced spoonbills, a narrow band of black bare skin on the lores extending to the eyes, a small yellow bare chin, and no bare throat [8].

In Russia, on Furugelm Island, hybrids between *P. leucorodia* and *P. minor* have been recorded since 2006, when one of three feeding pairs of black-faced spoonbills was found to be mixed, consisting of an adult black-faced spoonbill and a Eurasian spoonbill that had not yet acquired its final breeding plumage. The birds cooperatively fed the chick that resembled a



Fig. 1. General view of the main part of the black-faced spoonbill (*Platalea minor*) colony on Furugelm Island (May 24, 2021): (a) view from the sea; (b) view from a cliff on the island. Photo by I.M. Tiunov.

typical juvenile black-faced spoonbill. In 2009, a sexually mature female Eurasian spoonbill was present at the colony, and a black-faced spoonbill was observed attempting to mate with her, although no breeding occurred [3]. In July and August 2023, dozens of spoonbills were regularly observed in coastal lagoons along the western coast of Peter the Great Bay, from Cape Ostrovok Falshiviy to Lake Pervaya Protoka. The maximum number of birds, 112 individuals, was recorded on September 8, of which only 17 exhibited evident characteristics of the Eurasian spoonbill, *P. leucorodia*; the vast majority of the others were identified as black-faced spoonbills or hybrids between the two species [1].

Due to the growing number of hybrid records, the main goal of this study, in addition to monitoring the only black-faced spoonbill colony in Russia, was to identify hybrids and estimate their number among breeding birds.

MATERIALS AND METHODS

Counts were conducted on May 24, 2021, and within the periods from April 27 to May 3 and from May 20 to 22, 2025. Observations were made from the sea and from the observation points on the adjacent cliffs of the island. For this, handheld BPC5 binoculars (8 × 30) and Nikon D500 and D810 cameras with lenses equivalent to 24–1200 mm were used. A total of 766 photographs taken in 2025 were analyzed to identify hybrids.

RESULTS AND DISCUSSION

In 2021 and 2025, the Furugelm Island colony of black-faced spoonbills was located on an unnamed cape between Cape Klavdia and Cape Kesarya (42°27'46.18" N, 130°55'31.74" E) (Fig. 1).

In 2021, 19 inhabited nests containing clutches or chicks of varying ages were recorded. In 2025, the first census documented 31 nests, some of which were empty, while others contained clutches. The observa-

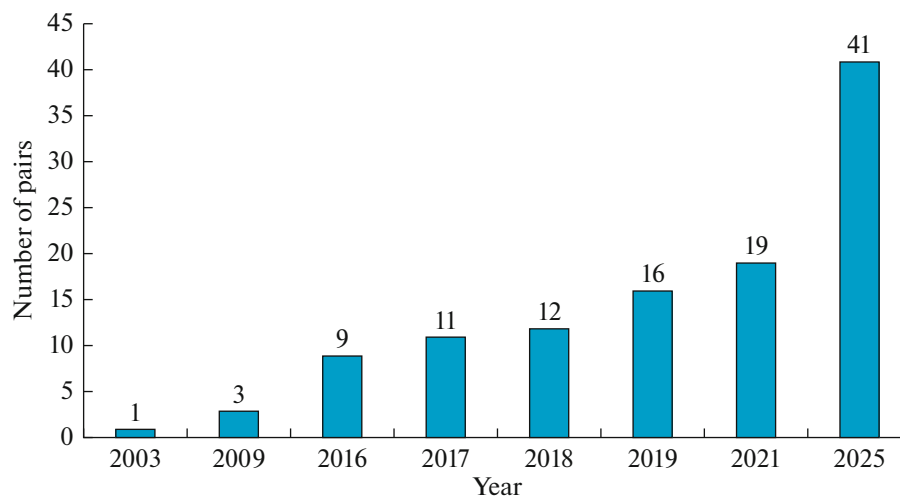


Fig. 2. Dynamics of the black-faced spoonbill (*Platalea minor*) abundance during nesting on Furugelm Island in 2003–2025 [1–3, 5, 6, 10].

tions from May 20 to 22 revealed 39 nests, three of which were still empty, but single birds or pairs stayed nearby that continued construction. The remaining nests contained clutches of one to four eggs or various-aged chicks.

A detailed examination of the footage revealed three additional nests. Thus, the total number of nesting pairs in the third 10-day period of May reached 41, representing the highest count of black-faced spoonbills for over 20 years of their breeding on Furugelm Island. The trend of progressive population growth is clearly evident (Fig. 2).

In addition to nesting birds, the colony was visited by immature individuals that often formed small flocks, arrived for short periods, and rested on the rocks. Based on rough estimates, their total number was approximately 30. Overall, excluding nestlings, 110–120 black-faced spoonbills visited Furugelm Island in 2025.

It should be noted that traits such as the larger body size, the longer bill and legs, and the size, shape, and color of the bare throat area are of limited use for identifying hybrids in the field. The yellow pattern on the distal upper beak, which is consistently present in adult *P. leucorodia* but typically absent in black-faced spoonbills, cannot reliably indicate hybrid origin as well. The high-quality photographs showed that this pattern was present, to varying degrees, in 42.3% of adult birds visiting the colony. In our view, the most reliable indicator of hybrid origin was the band of bare skin on the lores, which is wider in hybrids than in Eurasian spoonbills, but much narrower than in black-faced spoonbills. Based on this criterion, only two adult birds observed in the colony in 2025 could be classified as hybrids (Fig. 3), representing 2.4% of the total breeding population.

The observed hybrid individuals closely resembled black-faced spoonbills [8, 12]. Therefore, careful monitoring of their numbers at breeding sites, including Furugelm Island, is needed to assess the extent of hybridization and to track this process over time. Hybridization between the two species may result in a certain proportion of hybrids occurring in *P. leucorodia* colonies in inland waters. In addition, black-faced spoonbills have been recorded overwintering in inland waters of China together with Eurasian Spoonbills in recent decades [7, 11, 13].

Historically, the black-faced spoonbill was regarded as an exclusively coastal marine species, with its breeding and wintering grounds confined to marine coastal areas, unlike the Eurasian spoonbill that inhabits reed beds of inland waters. This made *P. minor* highly vulnerable to any environmental changes. The records of the black-faced spoonbill from inland wetlands may be associated with hybridization with *P. leucorodia* and subsequent backcrossing. This may lead to the loss of its status as an exclusively coastal marine species and provides significant potential for population growth through range expansion further into the mainland. Furthermore, overwintering in inland wetland complexes, which are less vulnerable to environmental change, may enhance survival and conservation of this rare species.

ACKNOWLEDGMENTS

We sincerely thank M.V. Syritse, A.V. Ratnikov, and S.G. Minov from the Vorontsov Land of the Leopard National Park for their assistance with this work.



Fig. 3. Hybrids of the black-faced spoonbill (*Platalea minor*) and the Eurasian spoonbill (*P. leucorodia*) on Furugelm Island: (a) May 2, 2025; (b) May 22, 2025. Photo by D.V. Korobov.

AUTHOR CONTRIBUTION

Yu.N.G. and I.M.T. conceptualized the study. I.M.T. and Yu.N.G. conducted data analysis. Yu.N.G. and I.M.T. wrote the manuscript. I.M.T., Yu.N.G., and D.V.K. edited the manuscript. All authors collected field data.

FUNDING

The study was conducted under State assignments from the Ministry of Science and Higher Education of the Russian Federation (nos. 125021302113-3, 124012400285-7, 124021900009-6, and 124021900009-6).

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This work does not contain any studies involving human and animal subjects.

CONFLICT OF INTEREST

The authors of this work declare that they have no conflicts of interest.

REFERENCES

1. Glushchenko, Yu.N. and Korobov, D.V., Interesting ornithological observations and records in southwestern Primorsky Krai in 2023, *Russ. Ornitol. Zh.*, 2023, vol. 32, no. 2362, pp. 5038–5057.
2. Litvinenko, N.M. and Shibaev, Yu.V., black-faced spoonbill *Platalea minor* Temminck et Schlegel, 1849, in *Krasnaya kniga Primorskogo kraya: Zhivotnye* (Red Data Book of Primorsky Krai: Animals), Vladivostok: Apelsin, 2005, p. 209.
3. Litvinenko, N.M. and Shibaev, Yu.V., black-faced spoonbill *Platalea minor* Temminck et Schlegel, 1849), in *Ptitsy Rossii i sopredel'nykh regionov: Pelikanoobraznye, Aistoobraznye, Flamingoobraznye* (Birds of Russia and Adjacent Regions: Pelecaniformes, Ciconiiformes, Phoenicopteriformes), Moscow: KMK, 2011, pp. 497–507.
4. Nechaev, V.A. and Gamova, T.V., *Ptitsy Dal'nego Vostoka Rossii (annotirovannyi katalog)* (Birds of the Russian Far East (Annotated Catalogue)), Vladivostok: Dal'nauka, 2009.
5. Tiunov, I.M. and Katin, I.O., Colonial nesting birds of Peter the Great Bay, Sea of Japan (Pelecaniformes, Ciconiiformes), *Russ. J. Mar. Biol.*, 2020, vol. 46, no. 6, pp. 405–411.
6. Shibaev, Yu.V., black-faced spoonbill *Platalea minor* (Temminck et Schlegel, 1849)), in *Krasnaya kniga Rossiiskoi Federatsii: Zhivotnye* (Red Data Book of the Russian Federation: Animals), Moscow: Vseross. Nauchno-Issled. Inst. Ekol., 2021, pp. 540–541.
7. Chen, Y., Yu, Y.-T., Meng, F., et al., Migration routes, population status and important sites used by the globally threatened black-faced spoonbill (*Platalea minor*): a synthesis of surveys and tracking studies, *Avian Res.*, 2021, vol. 12, p. 74.
<https://doi.org/10.1186/s40657-021-00307-z>
8. Kwon, I.K., Lee, K.S., Lee, J.Y., et al., Hybridization between the black-faced spoonbill (*Platalea minor*) and Eurasian spoonbill (*Platalea leucorodia*) in South Korea, *Waterbirds*, 2017, vol. 40, no. 1, pp. 77–81.
<https://doi.org/10.1675/063.040.0112>
9. Li, S.H., Liu, Y., Yeh, C.F., et al., Not out of the woods yet: signatures of the prolonged negative genetic consequences of a population bottleneck in a rapidly re-expanding wader, the black-faced spoonbill *Platalea minor*, *Mol. Ecol.*, 2022, vol. 31, no. 2, pp. 529–545.
<https://doi.org/10.1111/mec.16260>

10. Shibaev, Y.V., Breeding of the black-faced spoonbill (*Platalea minor*) in the Peter the Great Bay (Primorye, Russia). Situation and prospects, *Annu. Rep. Pro Natura Funds*, 2010, no. 19, pp. 151–163.
11. Sullender, B.K., Barzen, J., and Silbernagel, J., Foraging success and habitat selection of the Eurasian spoonbill (*Platalea leucorodia*) at Poyang Lake, China, *Waterbirds*, 2016, vol. 39, no. 4, pp. 356–364. <https://doi.org/10.1675/063.039.0405>
12. Tiunov, I.M., Nesting of the black-faced spoonbill (*Platalea minor*) (Pelecaniformes: Threskiornithidae) and the hybrid partner on the coasts of Khanka Lake (the Russian Federation), *J. Asia-Pac. Biodiversity*, 2021, vol. 14, no. 1, pp. 111–115. <https://doi.org/10.1016/j.japb.2020.09.013>
13. Wood, C., Tomida, H., Kim, J.H., et al., New perspectives on habitat selection by the black-faced spoonbill *Platalea minor* based upon satellite telemetry, *Bird Conserv. Int.*, 2013, vol. 23, no. 4, pp. 495–501. <https://doi.org/10.1017/S0959270913000105>
14. Yu, Y.T., Yip, K.Y., Li, C.H., et al., *International black-faced spoonbill Census 2022. Black-Faced Spoonbill Research Group*, Hong Kong: Hong Kong Bird Watching Soc., 2022.

Translated by D. Melnikova

Publisher's Note. Pleiades Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations. AI tools may have been used in the translation or editing of this article.