

Fifth update....

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First confirmed cross-border migration of the Laggar Falcon *Falco jugger* from Pakistan to India

Manish Parmanand Sitlani: 93-94, Vikasnagar, Old Padra Road, Vadodara 390020, Gujarat, India. manisitlani@yahoo.com

Ishaan Lalbhai: Near Koteswar, Ahmedabad 380005, Gujarat, India. poorva.lalbhai@gmail.com

Devvratsinh Mori: Ecology, Evolution, and Climate Change Research Cluster, Ahmedabad University, Ahmedabad 380009, Gujarat, India. devvratsinh.mori@ahduni.edu.in [Corresponding Author]



Fig. 1

Abstract

We report the first verified instance of international migration in Laggar Falcon (*Falco jugger*), a raptor species endemic to the Indian subcontinent. A ringed individual, rehabilitated initially and released in Karachi, Pakistan, was subsequently observed and identified at the outskirts of the Nal Sarovar Bird Sanctuary in Gujarat, India. This record, supported by photographic documentation and ring identification, reveals the species' capacity for long-distance, cross-border

movement. The observation has significant implications for understanding the spatial ecology and conservation of *F. jugger*, a species in decline across much of its range. This is the first confirmed evidence of Laggar Falcon migration.

Introduction

Laggar Falcon is a medium-sized falcon endemic to the Indian subcontinent, with a distribution range spanning India, Pakistan, Nepal, and parts of Bangladesh and Myanmar. It is typically associated with dry open habitats such as arid grasslands, semi-desert scrublands, and cultivated agricultural landscapes (Naorji, 2006; Grimmett et al., 2011). Although often described as sedentary or resident with localised movements, the species' movement ecology remains poorly studied. [Fig 1].

Once considered widespread and relatively common, the Laggar Falcon has experienced significant population declines across much of its range. Further study is needed to confirm trends. Notably, breeding behaviour of the species has been documented in India (Mori et al., 2023; Rao & Adaki, 2018), which provides essential insights into its nesting ecology and regional breeding success. This decline is primarily attributed to a combination of factors, including habitat degradation due

to expanding agriculture, urbanisation, and illegal trapping for falconry markets, particularly in regions where falcons are captured for use as live decoys or 'baraks' to trap larger falcon species such as *Falco cherrug* and *Falco peregrinus*. Additionally, increasing competition from adaptable and often more aggressive falcon species, including the Peregrine Falcon (*Falco peregrinus*), may contribute to local declines in Laggar populations (BirdLife International, 2024). In Gujarat, the Laggar Falcon is an uncommon to rare resident and local migrant. While a population decline is suspected, further study is needed to confirm trends. We recommend systematic surveys to better understand its distribution, population status, and plumage variation, as highlighted by Bhatt et al. (2018) and Ganpule et al. (2022).

Currently, the species is classified as Near Threatened on the IUCN Red List due to its ongoing decline and continuing threats across its range. Despite its conservation concern, critical aspects of its ecology especially its dispersal behaviour, juvenile movements, and survival rates remain poorly understood due to a lack of targeted research and tracking data.

In this context, we present the first confirmed record of cross-border migration of a Laggar Falcon from Pakistan to India, based on identification of a ringed individual initially rehabilitated and released in Karachi, Pakistan, and later documented in Gujarat, India. This sighting offers a rare and valuable insight into the long-distance movements of the species, highlighting the need for stronger cooperation and information sharing between countries to conserve South Asian endemic raptors like the Laggar Falcon.

Methods

Observation

On 10th February 2025, around 08:45 hours, a juvenile Laggar Falcon (*Falco jugger*) was observed in an open agricultural habitat on barren land at the outskirts of the Nal Sarovar Bird Sanctuary in Gujarat, India. The bird was perched on an electric pole, seemingly awaiting an opportunity to hunt. The area was teeming with Greater Short-toed Larks (*Calandrella brachydactyla*), with thousands of these larks present, making them an easy target for predation. The exact location also hosted a variety of other raptors, likely attracted by the abundance of prey, including the Red-naped Shaheen (*Falco peregrinus babylonicus*), Red-necked Falcon (*Falco chicquera*), Black-winged Kite (*Elanus caeruleus*), Pallid Harrier (*Circus*

macrourus), Montagu's Harrier (*Circus pygargus*), Western Marsh Harrier (*Circus aeruginosus*), Long-legged Buzzard (*Buteo rufinus*), Greater Spotted Eagle (*Clanga clanga*), Steppe Eagle (*Aquila nipalensis*), and Shikra (*Tachypiza badia*). Over two hours, we observed this Laggar Falcon as it flew frequently and successfully captured larks. Later, two individual falcons were observed, one with a metal leg ring on its right tarsus. These birds were shy and maintained a considerable distance, making it complicated to read the ring number. However, high-resolution photographs confirmed the presence of the metal ring on the leg. After posting the images on social media, we received feedback from Sajjad Gujjar, a falconer from Karachi, Pakistan, who provided additional details regarding the ringed bird [Fig. 2].



Fig. 2

Photo: Mamish Sidani

The alphanumeric code [Chip Number - 827, Ring Number - PLP V 04] [Fig 3] was observed on the juvenile male bird across multiple photo frames taken by us, and its identification was later confirmed with the help of individuals involved in raptor conservation efforts in the region where the bird was initially released. The metal ring bearing this code was confirmed

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to have been placed as part of a rehabilitation and release program managed by 'Project Lagger' in Karachi, Pakistan (24.86°N, 67.01°E). (The Project Lagger is a UK-based trust focused on conserving the Lagger Falcon in South Asia.)



Fig. 3

Photo: Sajjad Gujjar

[A note on spelling: (*Falco jugger*) is widely known as the Laggar Falcon in most modern ornithological texts. However, an alternative spelling—Lagger—is also in use, especially in older literature and the names of certain conservation efforts, such as *The Project Lagger*. In this article, both spellings are used where appropriate: “Laggar” when referring to the bird itself, and “Lagger” when referencing initiatives that use that spelling. Both refer to the same species].

The bird was released on 25th December 2023 in the Malir area of Karachi, Sindh, Pakistan. Communication with project personnel provided further insight into the Laggar's background, including age, sex, ring number, date of release, and location.

Background on Rehabilitation Program

Shared by Sajjad Gujjar "We had 75 individuals as part of the release program, each equipped with a metal ring and a microchip containing a unique identification code. These birds represented a mix of sexes and various age groups: 41 females and 32 males, including juvenile, sub-adult, and adult stages. Being a juvenile at the time of release, this bird was one of the 75 individuals carefully rehabilitated and released into the wild as part of an ongoing conservation effort. In Pakistan, the Laggar Falcon is often trapped and used as a Barak to attract and capture more expensive birds like the Saker Falcon (*Falco cherrug*) and Peregrine Falcon (*Falco peregrinus*) for Arab falconers. I initially began rescuing and releasing birds of prey on my own. About a year ago, Bob Dalton from the UK invited me to collaborate on Project Lagger, which he leads. As a result, I started releasing Laggar Falcons after ringing them". [Fig 2].

Although he did not mention where these Laggar Falcons were captured or rescued from or their origins. We received all this information on 13th February 2025 through social media. Table 1 gives the ringing details and the sighting details of the bird seen here.

Table 1: Ringing and sighting details of Laggar Falcon

Sr. No.	Chip No	Ring No	Age	Ringing Date	Ringing Location	Sighting Date	Sighting Location
1	827	PLP 04 V	Juvenile	25 - Dec - 2023	Malir, Karachi. Sindh, Pakistan	10 - Feb - 2025	Outskirts of Nal Sarovar Bird Sanctuary

As part of an ongoing conservation initiative in Pakistan, 75 Laggar Falcons, including 32 females and 41 males, have been ringed and released across key locations in Sindh and Punjab provinces between November 2023 and January 2025. Most of these birds, predominantly juveniles, were released in Malir,

Memon Goth, the M9 Motorway in Karachi, and Bahauddin Zakaria University in Multan and Dera Ghazi Khan. Each falcon was tagged with a unique ring number to facilitate long-term monitoring and research. This effort represents one of South Asia's most significant documented releases of the species.

It highlights collaborative efforts to conserve the declining populations of Laggar Falcons, a raptor species facing pressures from habitat loss, illegal trade, and declining prey availability. This information is shared here so that, in the future, if any birdwatcher spots a Laggar Falcon with a metal ring, the ringing details can be easily obtained from social media.



[Map 1]. Straight-line movement of a rehabilitated Laggar Falcon from Karachi, Pakistan, to Nal Sarovar, Gujarat, India (~550 km).

Results and discussion

The observation of a ringed Laggar Falcon at the outskirts of Nal Sarovar Bird Sanctuary on 10 February 2025 represents this species's first confirmed international movement record. The individual bore a uniquely coded metal leg ring, which was verified as part of a release program under *Project Lagger* in Karachi, Pakistan. This bird had been rehabilitated and released in the Malir region of Karachi on 25 December 2023, approximately 550 km from the location in Gujarat, India and where it was photographed subsequently [Map 1].

This record provides conclusive evidence of long-distance migration and cross-border movement in a species historically considered largely sedentary or a local migrant. Although anecdotal reports have suggested occasional wide-ranging movements in juvenile Laggar Falcons, such claims have not previously been substantiated with tagging or ringing data. This individual's journey not only highlights the species' ability to cover vast distances but also its capacity to traverse international boundaries; a behaviour not commonly attributed to *F. jugger*. Naoraji (2006) has stated that to some extent, it is a partial local migrant in some areas. Ferguson-Lees & Christie (2010) mention two old specimens from southern Turkmenistan (c 37°N) and northeast Uzbekistan (c 41°N), which indicate wider wandering or more northerly breeding. These records could be due to long-distance movements rather than northern breeding. Hence, the propensity of *F.*

jugger for long-distance movements could be more common than believed earlier.

Such long-range dispersal may affect gene flow between populations, recolonisation of suitable habitats, and resilience to local extirpations. The presence of two individuals at the site, one ringed and one not ringed, also raises the possibility of social or cohort-based migration, though more data are needed to explore this. The movement of this juvenile bird may be linked to post-fledging dispersal behaviour, a phase known to be ecologically significant in many raptor species (Newton, 1979). Juvenile dispersal is often influenced by prey availability, habitat openness, and reduced intraspecific competition, all of which are characteristics of the Nal Sarovar landscape during the winter months. The congregation of thousands of larks and the co-occurrence of numerous other raptor species draw attention to the area's high prey density and habitat suitability.

The fact that this bird survived post-release and dispersed successfully also suggests that rehabilitation and soft-release protocols employed by *Project Lagger* are yielding ecologically functional individuals. However, without telemetry data, it's impossible to know the exact route taken, stopover sites used, or survival challenges encountered during transit. It also raises important questions about territory establishment, migratory cues, and species' response to ecological pressures across its range. Sharing ringing data, as happened in this case, can help us better understand how these birds move and support more effective, collaborative conservation work.

Lastly, this finding reaffirms the value of citizen science platforms, digital photography, and open communication channels like social media for the timely identification and verification of significant ecological observations. The Laggar Falcon remains a poorly studied species in terms of its movement ecology, and this instance should catalyse future studies using satellite telemetry, genetic analysis, and population monitoring, particularly in western India and southern Pakistan.

Conclusion

The first confirmed case of a Laggar Falcon crossing the border from Pakistan to India is a big step in understanding this species' behaviour. It shows that *Falco jugger* can travel long distances across countries. The work done by Project Lagger in rehabilitating and releasing these birds is an excellent example of how to tackle the problem of illegal trapping, and it also gives us important insights into how these falcons move and survive. It's essential to keep tracking these released birds and

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the wild ones to help shape effective conservation plans. Going forward, research should expand to include more tracking, habitat studies, and efforts to reduce threats throughout their range.

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