

Article

First record of *Muscicapa striata* Pallas 1764 (Passeriformes: Muscicapidae) from Nanda Devi Biosphere Reserve, India with evidence of a photographic plate

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Abstract

An individual of *Muscicapa striata* Pallas 1764 has been recorded from the Mana Valley in the Garhwal Himalaya, in the State of Uttarakhand, India. The area lies under the dry cold desert region and consisted of dry alpine vegetation type and consists of the catchment of river Saraswati, a tributary to river Alaknanda and Ganges. Considering the reliable records in the literature, preliminary observations and species is a passage migrant in Indian Subcontinent, and northwest India, it appears that the species has a rare distribution across the Trans-Himalayan region of Uttarakhand State and is uncommon. This is the first documented record, which confirms the presence of the species in high altitude area of the State with photographic plates. As the species is not studied in the Indian geographic range and basic data on its migration and ecology is lacking, scientific studies are needed to be conducted to formulate a long-term conservation plan for this passage migrant of the old world flycatchers.

Keywords Garhwal Himalaya; *Muscicapa striata*; Nanda Devi Biosphere Reserve; natural history; new distribution record; North India.

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1 Introduction

Muscicapa striata (spotted flycatcher) is a small passerine bird in the Old World flycatcher family. It has a wide distribution across Europe, parts of Asia and Africa, and all of its population winter in sub-Saharan Africa (Taylor, 2020). The species is a summer visitor to the Baluchistan and Himalayas in Pakistan, and passage migrant in Pakistan and north-west India (Grimmett et al., 2011). Species mainly inhabit open woodland and forest glades and gardens and breed in juniper and open pine forests across most of the Europe east to the Ural Mountains and in north-western Africa (Grimmett et al., 2011; Taylor, 2020; Vigano and

Corso, 2015). In the Indian Subcontinent, the species breeds in northern Balochistan, Chitral, Gilgit and Baltistan at an elevation of 1,800-3,300 m asl (Rasmussen and Anderton, 2012). Gill and Donsker (2024) listed five sub-species of *Muscicapa striata*, namely, *M. s. striata* (Pallas 1764), *M. s. inexpectata* (Dementiev 1932), *M. s. neumanni* (Poche, 1904), *M. s. sarudnyi* (Snigirewski 1928) and *M. s. mongola* (Portenko 1955), of which the breeding range of *M. s. sarudnyi* was identified from eastern Iran and Turkmenistan east to Tien Shan, Pamirs and northern and western Pakistan.

The spotted flycatcher was first described by Pallas in 1764. It is a small bird of about 14 cm length. The upperparts are grey-brown with darker upper wings, underparts are dull white with pale grey-buff tinge on breast & flanks, breast and upper flanks are streaked grey-brown, head is streaked blackish-brown, dark brown eyes, lores are whitish, bill is blackish-brown, legs are blackish-brown (Grimmett et al., 2011; Vigano et al., 2019; Taylor, 2020). The juvenile resembles adults, but they have scaled effect on the upperparts and spotted underparts, mainly on the breast. Both sexes are alike. The spotted flycatcher is an Old World migratory species, which winters in sub-Saharan Africa and southwestern Asia. Species is usually known to breed across Europe and western Asia. Spotted flycatchers hunt from prominent perches, making sorties after flying insects, and frequently returning to the same perch.

The species is listed under the 'Appendix II' of the Convention on Migratory Species and as 'Least Concern' in IUCN's Red List of Threatened Species (BirdLife International, 2019). So far, there has been no record of spotted flycatchers in the north Indian state of Uttarakhand. In this work, we report a case of sighting of spotted flycatcher in Nanda Devi Biosphere Reserve – a World Heritage Site in Garhwal Himalaya, northern India. The present report of sighting of spotted flycatcher occurred during the study that had the objective of documenting the avifauna of the Uttarakhand State. Uttarakhand, a north Indian hilly State, has been endowed with beautiful mountain ranges, foothills of Himalayas and distinctive biodiversity rich areas. The State has international boundaries with China (Tibet) and Nepal and interstate boundaries with the States of Himachal Pradesh and Uttar Pradesh. State's snow-clad mountain peaks and sub-mountain tracts has blessed it with a wide array of forests at altitudinal gradients, ranging from broad-leaf deciduous to pine, mixed-oak, coniferous and alpine meadows. Green lush forests and an array of catchments of rivers and wetlands in the State attract a wide range of migratory birds to arrive in the State during summer and winter.

2 Study Area and Methodology

The Nanda Devi Biosphere Reserve (30°05'–31°02'N; 79°12'–80°19'E; 1,800–7,817 m asl) is located across the north Indian Himalaya and is one the UNESCO's World Heritage Site. Observation was made near Ghastoli area, which is located between Mana village (India's last border village) and Mana Pass (international border of India and Tibet). It is an Army Camp site and restricted area for civilian. The site lies across the landscape of Nanda Devi Biosphere Reserve and is close to the world famous Hindu pilgrimage of God Vishnu, the Badrinath and is about 40 kms from the international border. Marcha Bhotia are the inhabitants (tribal community) of Mana village, who perform transhumance, spending winter in lowlands and summer in highlands. The area lies in the dry cold desert region in the Mana valley and consisted of dry alpine vegetation type. The region contributes a little bit to the Trans-Himalayan region of India (Bargali et al., 2022). Entire area is covered with snow for about six months in a year. River Saraswati flow across the area, which is a tributary of river Alaknanda. After spotting and identification of the species, its morphological features were cross-checked based on the description as given by various workers (Grimmett et al., 2011; Taylor, 2020; eBird, 2023a; Gill and Donsker, 2024). Considering the morphological features and coloration of the body, the bird was identified as spotted flycatcher. During the sighting, the bird was observed with the help of field

binoculars (Nikon Action Series, 10×50 CF) and photographs of the species were taken with Sony A7 R5 (200-600 mm) camera.

While birding in the State of Uttarakhand, an individual of spotted flycatcher was observed on 7 October 2023 at 15:00h, near Ghasoli area, located across Mana village and Mana Pass in Chamoli district of Garhwal Himalaya ($30^{\circ}47'35''\text{N}$; $79^{\circ}29'31''\text{E}$; 3,481 masl; Fig. 1). The bird was identified as an adult individual, of unknown sex. Some of the morphological features of the bird observed includes: pale grey-brown upperparts, dull greyish-white underparts, distinct grey brown streaking on the crown, throat & breast, dark brown/blackish eyes with indistinct eye-ring, dark brown/blackish beak and black legs (Fig. 2a, b). The bird was spotted perching on a rocky substrate near Saraswati river and was observed randomly flying in the air to catch the insects. After a while bird flew away and sat on a big rock having lichen, wherein the bird was observed extracting something from the green lichen to feed upon; however, it was not clear what the bird was eating. The bird was observed for about 20 minutes, till the bird flew away from the spot. It is noteworthy to mention that area is still unexplored in context of avifaunal diversity, mainly due to border area, no infrastructure and inaccessible terrain.

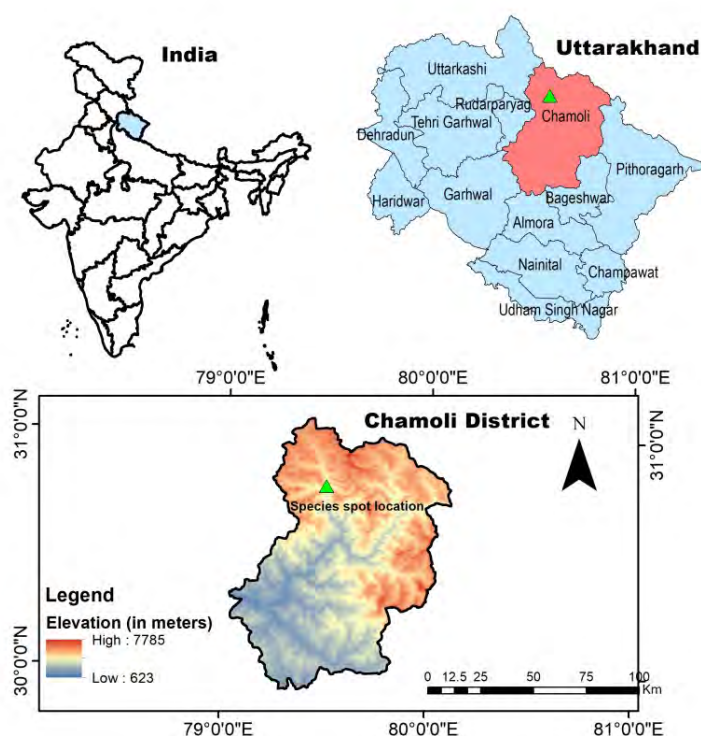


Fig. 1 Location map of the study area, with the site from where the individual of spotted flycatcher was recorded in the State of Uttarakhand (green triangle).

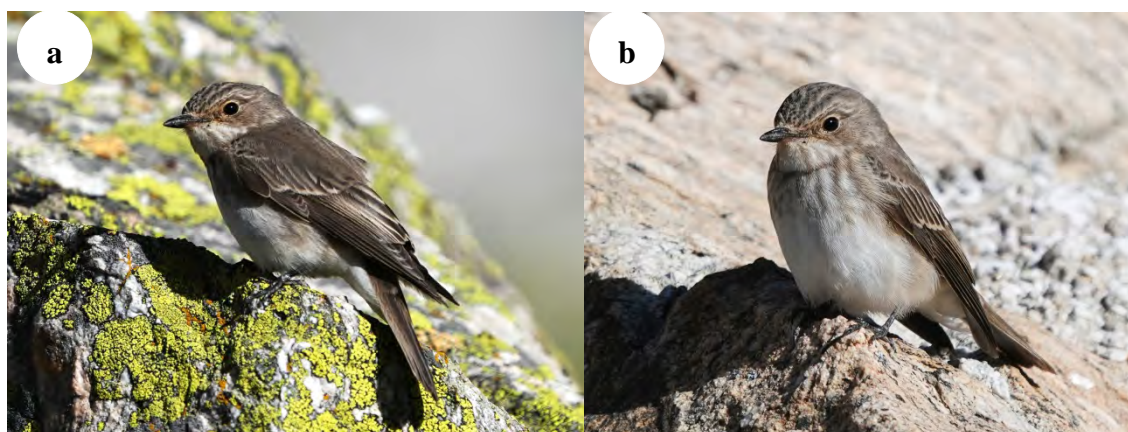


Fig. 2(a) An individual of spotted flycatcher across the landscape of Nanda Devi Biosphere Reserve, Uttarakhand, India. **(a)** showing greyish-brown upperparts; **(b)** showing underparts with streaked greyish-brown breast and blackish-brown head (photo: Raju Pushola).

3 Results and Discussion

This Spotted flycatcher has not been reported so far in the State of Uttarakhand from the higher Himalayas. The species has been listed in the checklist of birds of Tehri district in the State, considering the single observation made on 13 September 1990 in Dhanolti area (eBird, 2023b). However, any exact location and photographic record is not available. The bird is also not listed in the checklist of birds published by the Uttarakhand Forest Department, wherein a total of 693 bird species were recorded from the State (Mohan and Sondhi, 2015). Besides, the species was also not documented during quite a few ornithological surveys conducted in the area (Sankaran, 1994; Bhattacharya and Sathyakumar, 2007). Hence, according to the best of our knowledge, this species has never been observed in Uttarakhand State and this sighting is a new record for the State, which will also be an addition to the avifauna of the State and Nanda Devi Biosphere Reserve in India.

In India, the spotted flycatcher has been documented from Jammu & Kashmir, southwards to Tamil Nadu through Goa, Maharashtra, Karnataka and Kerala. Species has so far been recorded from the northern Union Territory of Ladakh, Jammu & Kashmir, Chandigarh and Delhi (Pfister, 2001; Suhail et al., 2020; Dhillon, 2020; Gaston, 1978) and States of Himachal Pradesh, Haryana, Rajasthan, Gujarat, Goa, Maharashtra, Karnataka, Kerala and Tamil Nadu (Abhinav et al., 2022; Nanda, 2017; eBird, 2023c; Patel et al., 2022; Dharwadkar et al., 2017; Iyer, 2016; Lath et al., 2017; Elm, 2021; Anand et al., 2017). Recently, the species has also been recorded from the State of West Bengal in eastern India (from Sundarbans) (Pramanick, 2019) and Eastern Ghats in India, from the State of Odisha (Panda and Sahoo, 2022), which reflects on its abrupt use of way beyond its distribution range and noticeably during the month of January and April. Moreover, its recent sightings across different landscapes in India (Trans-Himalayan region, Himalayan and Sub-Himalayan tracts, Aravalli Hills, arid zones of western India, Western Ghats and Eastern Ghats) indicating that the species is using different environs across hilly and coastal States.

Natural history and behavioural data is lacking for the spotted flycatcher in India, and only quite a few random sighting records are available. Considering the historical record, it is apparent that the species was not recorded in India during the 19th century (Oates, 1889); however, was observed in northwestern India during the last 4-5 decades. Considering the recent observations of species occurrence, slight shift in species' natural ranges is apparent, which might be due to abrupt climatic conditions. Besides, unusual sighting of species from the State of West Bengal and Odisha, beyond its natural range and across quite a few new landscapes indicate

that the species has capabilities to respond to the changing environment. The Western Ghats has been recognized as one of the world's 'biodiversity hotspots' based on its exceptionally high level of biological diversity and endemism and notably, species has recently been spotted from all six Indian States, lying in Western Ghats (Gujarat, Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu). However, it has been earlier only reported from the State of Gujarat.

The species migrate across parts of Central Asia, which has been serving as the species' nesting grounds, and Africa, transversing the Indus valley and bordering India States (Vyas, 2019). Though, the species has been recognized as an autumn passage migrant in north-western India (Grimmett et al., 2011), the bird has been most commonly observed during the months of September-October, with a few from March to May, which pronounced spring months. However, in the southern India, the species has been recorded maximum during the winter, when moderate or mild cold occur across the region. Spotted flycatcher has been recorded as an autumn migrant in the northwest India but its recent sightings records in spring months indicate that it is also a spring migrant. The population of the spotted flycatcher has been reported declining across most of its breeding range in Europe. The population of the spotted flycatcher has been recorded declining in the last three decades across United Kingdom, which may be associated with reduced survival rates, perhaps due to reduced survival on migration routes or wintering grounds (Freeman and Crick, 2003; Stevens et al., 2007). Though, Sahel region is used by the species on passage to and from the wintering grounds, a major drop in their breeding numbers was observed after the period of failed rains in 1983-84 (Gibbons et al., 1993).

4 Conclusions

Birds have always been considered as the biological indicators of a healthy ecosystem and notably, Uttarakhand State is one of the most diverse landscapes in northern India, which forms an important repository of bird's fauna. Though, natural history and behavioural data are lacking for the spotted flycatcher in India, its presence in the high altitude area (in the higher Himalayas) indicates that the natural landscapes in the State are serving as a refuge for species. Long-term studies are needed to verify how developmental and anthropogenic activities alter environmental niches. Moreover, in order to understand and address the questions related to the sightings of species in new landscapes, revisiting and restructuring the conservation priorities and strategies would be paramount importance. This would enable the species to move across long distances through the landscapes and ensure their long-term survival. Moreover, understanding ecological consequences behind such use of new habitats by the species, especially the availability of food resources, and bird breeding success are important points to consider before reaching a firm conclusion. As to why species has been using Indian grounds not only during the autumn month but also during the spring months?, is there any adverse environs in their migratory tracks?, is the wide array of natural habitats across India are serving as a favourable perching grounds for species?, etc. are few questions which need thorough investigation of the roosting site of the bird in India across different seasons.

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