Flight identification of juvenile Accipiters in India with the addition of the Levant Sparrowhawk *Accipiter brevipes* to South Asian avifauna

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Abstract: The Levant Sparrowhawk Accipiter brevipes, a migratory accipiter that breeds from south-eastern Europe to west-central Asia and migrates in large flocks along the Eurasian-East African flyway, was unexpectedly sighted in Thrissur, Kerala, India. This marks the first well-documented record for South Asia and has led to the analysis of key flight identification features of juvenile Accipiters found in India. We developed a cheat-sheet and annotated diagnostic images to assist in juvenile Accipiter identification.

A misidentified Shikra *Accipiter badius* observation that got reidentified as a juvenile Levant Sparrowhawk *A. brevipes*, a new species for South Asia, led us to study the plumages of juveniles of various other Accipiters. In this article, we discuss that observation and its identification and analyze the key flight identification features of Accipiters found in India. We hope the cheat-sheet we developed and the annotated images will help raptor enthusiasts pick some of the rarer Accipiters that may visit India.

The Levant Sparrowhawk is a highly migratory, medium-sized, slim-looking accipiter that breeds in south-eastern Europe, including Greece, Bulgaria, Ukraine, and Russia, extending to west-central Asia, encompassing Iran, Iraq, western Kazakhstan, and Uzbekistan (Ferguson-Lees & Christie 2005, Orta & Marks 2020a; Yang et al. 2021). During migration, they travel in large flocks along the Eurasian-East African flyway, reaching its wintering grounds primarily within the eastern Sahelian zone of Africa—areas such as Sudan, South Sudan, and northern Kenya (Yang et al. 2021). While there have been claims regarding the presence of the Levant Sparrowhawk in Afghanistan (Praveen 2018), it has not been well documented or widely accepted (Praveen et al. 2024), and our photographs establish its occurrence in the South Asian region.

Observation

On 13 November 2023, during a birding trip, we visited Puthankadappuram (10.350°N, 75.592°E), a beach in Thrissur, Kerala, southwestern India to capture photographs of a *Riparia* martin that was sighted a day before. After obtaining photographs of the same, we observed a small flock of gulls and terns basking on the seashore. While observing the flock, at 1524 h, STK saw an *Accipiter* in the sky, not too high, and called out others. Suddenly, it descended to the ground, where there were creeping vines *Ipomoea pes-caprae*, *Canavalia rosea*, grasses, and a short *Acacia auriculiformis*. However, it was quickly disturbed and chased off by a Black Drongo *Dicrurus macrocercus*. Subsequently, it picked the thermals, gaining altitude, but still within the reach of our cameras, and both YPN and NE captured good photographs [1-5]. Finally, the individual flew towards the east and vanished into the sky. The entire observation was for about a minute. The initial impression was that it was a juvenile Shikra, and we recorded as such in the eBird checklist. However, on 28 December 2023, NE started doubting this identification while cross-checking gull photographs taken during the trip. The pictures were uploaded to the Merlin app, and surprisingly, the Levant Sparrowhawk was suggested as the first identification, and the Chinese Sparrowhawk *A. soloensis* as the second suggestion!

NE then shared the photographs and discussed his suspicions with STK, YPN, Praveen J., Sashikumar C., and Abhinand Chandran. They also expressed doubts regarding its identification and later the images were sent to Nirav Bhatt, Oscar Campbell, and Dick Forsman. All of them were unanimous in their identification as a juvenile Levant Sparrowhawk. They additionally noted the streaks on the underbody, dark iris (Shikra juveniles always have pale or yellow iris), complete lack of moult (delayed post-juvenile moult in migrants), chevrons extended to undertail coverts, a darker, bolder, more marked trailing edge on the underwing, and four-fingered primaries as confirmatory features for a juvenile Levant Sparrowhawk (Table 1).



[1] Levant Sparrowhawk; Showing dark bill with prominent yellow cere, dark iris, dark median mesial stripe, boldly streaked breast changing to chevrons and crossbars towards the flanks and axillaries, chevrons extended to undertail coverts, underwing coverts densely spotted and primaries and secondaries distinctly barred, darker and more marked trailing edge on the underwing, four-fingered primaries, four bands on tail. Photo: Nishad Eshaal



[2] Levant Sparrowhawk; Showing streaky head, dark bill with prominent yellow cere, dark iris, dark median mesial stripe, boldly streaked breast changing to chevrons and crossbars towards the flanks and axillaries, chevrons extended to undertail coverts, darker and more marked trailing edge on the underwing, four-fingered primaries, and four bands on tail. Photo: Nishad Eshaal



[3] Levant Sparrowhawk; Showing thin white supercilium, dark bill with prominent yellow cere, dark iris, four-fingered primaries, and four bands on tail. Photo: Yadu Praead



[4] Levant Sparrowhawk; Showing boldly streaked breast changing to chevrons and crossbars towards the flanks and axillaries, chevrons extended to undertail coverts, underwing coverts densely spotted and primaries and secondaries distinctly barred, darker and more marked trailing edge on the underwing, and four bands on tail. Photo: Yadu Prasad



[5] Levant Sparrowhawk; Showing dark brown upperparts with four tail bands. Photo: Nishad Eshaal

Notes on flight identification of juvenile Accipiters

In India, distinguishing the juvenile Levant Sparrowhawk can be challenging due to its potential resemblance to resident juvenile species such as Shikra, Besra *A. virgatus*, and Crested Goshawk *A. trivirgatus* as well as juveniles of migratory raptors such as Eurasian Sparrowhawk *A. nisus*, Chinese Sparrowhawk, and Japanese Sparrowhawk *A. gularis*. Identification should be based on a combination of plumage and structure characters, including wing formula, plumage details of the breast and upperparts, head pattern, and iris colour. For example, in the case of the closely resembling Shikra, relying solely on iris colour is insufficient, as mis-coloured irises can occur (Forsman 2016). Furthermore, reports of hybrids between Shikra and Levant Sparrowhawk also exist, though further evidence is desirable (Yosef et al. 2001; Forsman 2016).

The key identification features and detailed notes on the flight identification of juvenile accipiters found in India are discussed below. We have excluded the central Nicobar endemic Nicobar Sparrowhawk from this analysis due to a lack of information on juvenile plumages. Field features were collected from standard references (Ferguson-Lees & Christie 2005; Naoroji 2006; DeCandido et al. 2014; Forsman 2016, Clark & Marks 2020a, b; Kemp & Kirwan 2020; Meyburg et al. 2020; Orta & Kirwan 2020, Orta & Marks 2020a, b; Mlodinow 2023) and illustrated with annotated photographs. The cheat-sheet (Table 1) also addresses the identification of juveniles between other Accipiters, and not just against Levant Sparrowhawk.

Shikra

The juvenile Shikra [6, 7] displays a pale, evenly streaked head with pale nape, thin whitish supercilium, and greyish irises that turn yellow during the first autumn. The mesial stripe is noticeably thick. Its underbody is buffish with rufous-brown streaking on the breast, transitioning to broader and sparser spots and bars towards the flanks, and plain undertail coverts (sometimes lightly spotted). The underwing coverts are spotted, reddish streaks on the leading edge of the underwing, accompanied by five-fingered primaries (features shared with Besra, Chinese Sparrowhawk and Japanese Sparrowhawk). The tail is rounded, featuring four to five bands of different widths, sometimes irregular.



[6] Shikra; Showing yellow iris, a thick mesial stripe, rufous-brown streaking on the breast, reddish streaks on the leading edge, five-fingered primaries, and five bands on the tail. October 2020 Maharashtra India. Photo: Samish Dhongle



[7] Shikra; Showing pale head with a yellow iris, a thick mesial stripe, rufous-brown streaking on the breast, broader and sparser spots and bars on the flanks, plain undertail coverts, spotted underwing coverts, five-fingered primaries, and five bands on tail. November 2023, Jharkhand, India. Photo: Ahmad Najam Saquib

Besra

The juvenile Besra [8, 9] shows a brown head with whitish supercilium, mostly yellow irises surrounded by yellow orbital rings, and a subtle green tinge in the cere. It has a whitish nape and a prominent mesial stripe. The underbody displays distinct dark brown streaks on the breast, thick bars on the flanks and thighs, spots on the abdomen and undertail coverts either plain or marked rufous. The upperparts exhibit a lighter tan-brown shade. The silhouette is characterized by rounded wings and a relatively long tail. The underwing shows heavily marked underwing coverts (same as in Japanese Sparrowhawk and Eurasian Sparrowhawk), with regular dark barring from wing-tip to body (usually three most prominent bars, with a duller terminal trailing-edge bar and proximal narrow bars most of the time hidden by greater-coverts) and distinct five-fingered primaries. The tail is predominantly pale, crossed by four to five narrow dark bands that are always much narrower than the pale areas; these bands are slightly broader in juvenile females compared to males.



[8] Besra; Showing prominent mesial stripe, dark brown streaks on the breast, thick bars on flanks, spots on the abdomen, rounded wing with heavily marked underwing coverts, five-fingered primaries, and four bands on tail. June 2024, Jammu and Kashmir, India. Photo: Kavi Nanda



[9] Besra; Showing brown head with yellow iris, prominent mesial stripe, distinct dark brown streaks on the breast, thick bars on the flanks and thighs, spots on the abdomen, five-fingered primaries, and four bands on tail. February 2018, West Bengal, India. Photo: Avijit Dutta

Crested Goshawk

The juvenile Crested Goshawk [10, 11] displays a brown streaked head with a blackish brown crown and a small crest (not present in any other species, but hard to see in flight) with buff edge. It has a greenish-grey to greenish cere, and its iris is either brown or leaning towards a paler yellow and a yellow orbital ring. A pronounced, variably thick black mesial stripe is present. The underparts may exhibit sparse or heavy markings, with streaks on the upper breast, teardrop-shaped marks on the belly (can be variable) and barred or spotted undertail coverts. In flight, it appears stockier, heavier and chunkier than the aforementioned species, with rounded wings and a short tail. It has six outer primaries (similar to Eurasian Sparrowhawk and Eurasian Goshawk), lacking extensive black markings on the primary tips. Underwing coverts are often the cleanest and palest of all the Accipiters found in India. The whole "thigh-feathers" are heavily barred or show dark crescents. The short tail is characterized by three or four bands.



[10] Crested Goshawk; Showing brown head, pale yellow iris, streaks on upper breast, teardrop-shaped marks on the belly, clean and pale underwing coverts, six-fingered primaries, barred thigh feathers, and short tail with four bands. February 2020, Kerala, India. Photo: Vivek Sudhakaran



[11] Crested Goshawk; Showing brown streaky head, pale yellow iris, thick mesial stripe, clean and pale underwing coverts, six-fingered primaries, teardrop-shaped marks on the belly, and barred thigh feathers. April 2024, Maharashtra, India. Photo: Prateik Kulkarni

Eurasian Sparrowhawk

The juvenile Eurasian Sparrowhawk [12, 13] has a strongly streaked head with dark ear-coverts patch and a prominent whitish supercilium. It has pale yellow to yellow iris surrounded by a yellow orbital ring. It has a yellow cere with a green tinge and exhibits fine streaking or a very faint mesial stripe. The colour below varies from white to brown, and breast markings range from fine barring to broader spots or even streaks, with the upper breast typically displaying irregular patterns like spots or arrowheads. The lower breast, belly, and flanks exhibit finely and regularly barred patterns (broken in Japanese Sparrowhawk). In flight, it shows a silhouette with long wings, longer outer primaries, a long tail, and a small head. The underwing is characterized by heavily marked underwing coverts and six-fingered primaries that lack any black fingertips. Its long, slender tail is squared towards the tip, sometimes notched (shorter tail in Japanese Sparrowhawk), and generally displays four and very rarely five, medium to thick dark bands.



[12] Eurasian Sparrowhawk; Showing streaked head with whitish supercilium, dark ear coverts patch, yellow iris, fine streaking on throat, irregular upper breast patterns, finely barred lower breast, belly, and flanks, heavily marked underwing coverts, six-fingered primaries lacking prominent black tips, and four bands on tail. January 2020, Uttarakhand, India. Photo: Rounak Patra



[13] Eurasian Sparrowhawk; Showing yellow iris, fine streaking on throat, irregular upper breast patterns, finely barred lower breast and belly, heavily marked underwing coverts, six-fingered primaries lacking prominent black tips, and four bands on tail. December 2016, Kerala, India. Photo: Raphy Kalletumkara

Chinese Sparrowhawk

The juvenile Chinese Sparrowhawk [14, 15] exhibits a slate-coloured crown with whitish supercilium, yellow to lemon-yellow iris surrounded by a dark grey orbital ring (darker than Shikra). It has a prominent orange-yellow cere, and the mesial stripe may vary in prominence. Its underparts display prominent rusty-brown streaks on the breast transitioning into arrowhead shapes, accompanied by bars on the abdomen, flanks, and thighs, along with white undertail coverts. The upper part is brownish-grey, and the underwing exhibits very few to moderate markings on the underwing-coverts. During the flight, it shows black on the primaries (not present in any other species), with a distinctive five-fingered formula (P8 being the longest), and the tail is greyer-brown with narrow dusky four to six incomplete bands (usually four visible).



[14] Chinese Sparrowhawk; Showing yellow iris, prominent rusty-brown streaks on the breast, bars on abdomen and flanks, five-fingered primaries with black on tips, and four narrow bands on the tail. September 2018, Chumphon, Thailand. Photo: Wich'yanan Limparungpatthanakij



[15] Chinese Sparrowhawk; Showing yellow iris, prominent rusty-brown streaks on the breast, bars on flanks and thighs, five-fingered primaries with black on tips, and four bands on the tail. October 2022, Pingtung County, Taiwan. Photo: Tom Liao

Japanese Sparrowhawk

The juvenile Japanese Sparrowhawk [16, 17] exhibits a darker brown head with brown cheeks, a white supercilium, pale yellow to yellow iris surrounded by a yellow orbital ring, and yellow to greenish cere. The mesial stripe is usually thin, occasionally slightly thicker, and has a whitish nape. The underparts are heavily marked with broad brown or rusty brown streaks on the breast, bars on flanks, and narrower dark brown bars on the wing linings. The belly, marked with spots or thin broken bars, and the thinly barred thighs create a noticeable contrast in a whiter appearance. The undertail coverts are either plain creamy-white or adorned with flecks of rufous. The wings are broader and more rounded, displaying distinct five-fingered primaries (P7/P8 are the longest) and lacking black on the primary tips (unlike Chinese Sparrowhawk). The tail is short, sometimes appearing square or notched in flight, with four to five medium-width dark bands.



[16] Japanese Sparrowhawk; Showing yellow iris, a thin mesial stripe, brown streaks on the breast, bars on the flanks, narrow dark brown bars on wing-lining, heavily marked underwing, distinct five-fingered primaries which lack black tip, and a short, notched tail. October 2023, Chumphon, Thailand. Photo: Yeray Seminario



[17] Japanese Sparrowhawk; Showing darker brown head and cheeks, white supercilium, yellow iris, brown streaks on the breast, bars on the flanks, narrow dark brown bars on wing-lining, heavily marked underwing, distinct five-fingered primaries which lack black tip, and a short, notched tail. September 2019, Liaoning, China. Photo: Wei Yan

Eurasian Goshawk

The juvenile Eurasian Goshawk *Accipiter gentilis* [18, 19] shows a brown head with whitish to buff streaking on the crown and cheeks. It often displays a subtle yet occasionally prominent pale supercilium. The underpart exhibits variation from white to deep buff, it has dark brown streaks on the breast and sides that gradually become finer and sparser towards the abdomen and undertail coverts. The underwing coverts showcase a palette of buff to white with dark brown spots and streaks. The underside of the remiges is with pale grey and crisp dark barring, featuring six-fingered primaries. A markedly S-curved trailing edge to the wing is evident (unique feature). The tail is brown on top with a prominent pale brown tip and three to five dark bands often bordered conspicuously with pale edges at the front and back.



[18] Eurasian Goshawk; Showing dark brown streaking on the chest and sides that gradually becomes sparser and finer towards the belly, dark brown spots and streaks on underwing coverts, six-fingered primaries, and three dark bands on tail. December 2023, West Bengal, India. Photo: Ritwick Bhattacharyya



[19] Eurasian Goshawk; Showing brown head, dark brown streaking on the chest and sides that gradually becomes sparser and finer towards the belly, dark brown spots on underwing coverts, six-fingered primaries, and five dark bands on tail. January 2022, Ladakh, India. Photo: Avadhesh Malik

Species	Fingers	Tail (from below)	Tail Bands	Mesial Stripe	Iris	Cere	Head	Orbital Ring	Breast	Flanks	Abdomen	Underwing	Undertail coverts
LESP	4	Greyish with dark brown bands	4	Prominent	Dark yellow -grey	Yellow	Dark brown, streaked	Yellow	Bold streaks	Chevrons and crossbarr ed	Arrowhea ds	Densely spotted coverts, darker and more marked trailing edge	Mostly chevrons or broken bars
SHIK	5	Rounded, bands of different widths, or sometimes irregular	4-5	Prominent	Greyis h to yellow	Yellow with a green tinge	Pale brown, streaked	Grey	Buff with rufous- brown streaks	Broader, sparse spotted and barred	Streaks	Spotted coverts, reddish streaks on the leading edge	Plain, sometimes lightly spotted.
BESR	5	Greyish with narrow dark bands	4-5	Prominent	Yello w	Yellow with a green tinge	Brown	Yellow	Dark brown streaks	Thickly barred	Spots	Round wing, heavily marked coverts, regular dark barring from wing-tip to body	Plain or marked rufous

CHSP	5	Greyer-brown with narrow dusky bands	4-6	Usually indistinct	Yello w to lemon yellow	Orange- yellow	Slaty crown	Dark grey	Rusty- brown streaks	Barred	Bars	Few to moderate markings on the coverts with prominent black primary tip	Plain whitish
JASP	5	Short, with squared or notched tip	4-5	Usually indistinct	Yello w	Yellow to greenish	Dark brown	Yellow	Brown or rusty brown streaks	Barred	Thin broken bars or spots	Heavily marked coverts with dark brown spots	Plain creamy- white or flecked rufous
CRGO	6	Short, evenly banded	3-4	Prominent	Brown to pale yellow	Greenish to greenish- grey	Brown, blackish- brown crown, streaked	Yellow	Streaks (variable)	Teardrop or barred (variable)	Teardrops (variable)	Round wing, clean and pale coverts	Barred or spotted
EUSP	6	Long and slender with squared or notched tip	4-5	Indistinct	Yello w	Yellow with a green tinge	Dark brown, strongly streaked, dark ear- covert patch	Yellow	Spotted arrowhea ds on upper breast & finely & regularly barred lower breast	Finely and regularly barred	Finely and regularly barred	Heavily marked coverts	Largely plain
EUGO	6	Brown with pale brown tip	3-5	Indistinct	Pale yellow to yellow	Pale yellow to yellow	Brown, whitish to buff streaking on the crown and cheeks	Grey	White to deep buff, dark brown streaks	Streaked dark brown	Finer and sparser streaks	Buff to white coverts with dark brown spots/streaks , S-curved trailing edge	Fine sparse streaks

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