

# Steppe Buzzard *Buteo buteo vulpinus* in the Little Rann of Kachchh, and its distribution in the Saurashtra region of Gujarat, India

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## Introduction

Steppe Buzzard *Buteo buteo vulpinus* is a migratory buzzard breeding from northern Europe to Siberia (c. 96°E) and wintering mainly in eastern and central Africa, including the southern-most part of that continent (Shirihai & Forsman 1991). It is also a winter migrant to the southern Western Ghats in India. Rasmussen & Anderton (2012) give its status as 'scarce', but do not show it occurring in Gujarat.

In various published literature, Steppe Buzzard was considered to be a passage migrant over Gujarat (Dharmakumarsinhji 1955; Grimmett *et al.* 1998; Kazmierczak 2000). Naoroji (2006) puts a question mark on whether it winters in Gujarat and considers it to be mainly a passage migrant. Roberts (1991) opined that it was a winter visitor to Pakistan, occurring in Sind and the eastern border regions of Pakistan.

Tiwari *et al.* (2008) suggested that some Steppe Buzzards might over winter in the Kachchh region of Gujarat, with sightings from November 2006 to February 2007 in the Greater Rann of Kachchh and surrounding areas.

## Taxonomy & identification

Taxonomic treatment differs in current reference books (Grimmett *et al.* 2011; Rasmussen & Anderton 2012). Grimmett *et al.* (2011) give two subspecies of *Buteo buteo*, Common Buzzard *Buteo buteo*, and Himalayan Buzzard *Buteo (buteo) burmanicus*.

For Himalayan Buzzard, it is stated that Himalayan breeding birds are larger than migrant *burmanicus* and very rufous, and are probably an undescribed race (or species) more closely related to *B. b. vulpinus*. A question mark is shown regarding occurrence of Common Buzzard in Gujarat while Himalayan Buzzard is shown as a winter visitor for Himalayas and the southern Western Ghats with an isolated record given for Gujarat.

This is an error, as the isolated record for Gujarat should have been plotted for Common Buzzard and not Himalayan Buzzard (Tim Inskipp, email dated 20 June 2013). Rasmussen & Anderton (2012) also recognise two subspecies; Himalayan Buzzard *Buteo burmanicus*, and 'Steppe' Buzzard *Buteo b. vulpinus*, and give distribution of Steppe Buzzard mainly for southern Western Ghats and show no record for Gujarat. Naoroji (2006) also gives two subspecies, *B. b. vulpinus* and *B. b. japonicus*, and states that both are migratory to India and winter throughout the subcontinent.

We follow the taxonomy of Rasmussen & Anderton (2012) who treat the wintering birds in Peninsular India as mostly *vulpinus* and the breeding birds of Himalayas as *burmanicus* (= *refectus*). Himalayan breeders (*burmanicus*=*refectus*) are considered to be indistinguishable on plumage and size from the widespread Chinese *burmanicus*, which is said to breed in China. This is also congruent with other recent treatment of the *Buteo* buzzards (Dickinsen & Remsen 2013; Gill & Donsker 2013; Lindhom & Forsten 2013). Identification of our birds as *vulpinus* types follows the same reference in addition to Forsman (2006). We have included only those birds in our study which showed typical *vulpinus* characteristics and wherein there was no doubt regarding their identification. We refrain from discussing certain individuals recorded during our study which are not fitting the *vulpinus* types as the full variation of birds recorded from the Himalayas remains unstudied (Grimmett *et al.* 2011; Lindhom & Forsten 2013). Some of these Himalayan breeding (*burmanicus*=*refectus*) birds could potentially winter in Gujarat and would explain these odd individuals. There is also the possibility that these are birds breeding in Northern China and Siberia (= *burmanicus*) and wintering in Peninsular India.

## Study area and observations

We have been observing Steppe Buzzard wintering regularly in the western part of the Little Rann of Kachchh (23°20'N, 71°15'E) over the last four years (Table 1). The area is locally known as 'handi-bet' (*bet*=elevated area in the *rann*) and is situated at edge of the *rann* towards its western end. It is an

Table 1: Steppe Buzzard sightings in the Little Rann of Kachchh

Date	No of Individuals	Colour morph of adults
20 December 2009	2	One fox-red
26 January 2010	1	–
05 December 2010	6	One black
29 December 2010	4	One fox-red
02 January 2011	1	Grey-brown
09 January 2011	6	One fox-red
06 February 2011	3	One dark rufous
17 February 2011	3	–
27 November 2011	4	One fox-red
11 December 2011	6	One fox-red
8 January 2012	4	One fox-red
14 January 2012	1	–
5 February 2012	3	–
4 March 2012	3	–
18 March 2012	3	–
21 October 2012	1	–
1 December 2012	1	–
16 December 2012	1	–
24 February 2013	1	–

**Table 2:** Steppe Buzzard year-wise data of juveniles and adults

Year	Total Individuals	Juveniles	Adults
2009–2010	3	1	2
2010–2011	23	17	6
2011–2012	24	21	3
2012–2013	4	3	1
Total	54	42	12
Percentage		78	22

**Table 3:** Steppe Buzzard sightings outside Little Rann of Kachchh

Date	Place	No. of Individuals
15 January 2008	Gir National Park	01
02 November 2008	Velavadar National Park	02
03 November 2008	Velavadar National Park	02
30 November 2008	Bhavnagar City Outskirts	01
06 January 2011	Velavadar National Park	01
14 January 2011	Eastern Part of Jamnagar Dist.	02
07 November 2011	Charakhla Salt Pans, Jamnagar	01
08 November 2011	Nageshwar, Dwarka, Jamnagar	01

elevated area surrounded by extensive salt/mud flats.

Steppe Buzzards are usually seen from the last week of October till the last week of March.

Considering that some of the birds may have been repeated during observation, it would be prudent to say that in four years c. 30 different birds were observed.

### Ageing & morphs

Steppe Buzzard is known to occur in four main colour morphs: grey-brown, fox-red, dark-rufous, and black (Forsman 2006). All four morphs have been recorded in the Little Rann of Kachchh.

Since assigning juveniles to a certain colour morph is difficult (Forsman 2006), colour morphs have been assigned only to adult birds. There is a lot of variation within each morph and some birds are intermediate and cannot be assigned to a certain morph.

Perched adult Steppe Buzzards have a very dark brown iris and the pupil is not discernible in the field. Also, adult birds have a finely barred (or uniformly dark) underbody, trailing edge of underwing is distinct and black, and tail shows a broad sub-terminal band (Forsman 2006); hence perched birds, seen in good lighting conditions, could be aged properly. Adult plumage is attained in Steppe Buzzard after third calendar year spring/autumn. (A bird is in its first calendar year from its birth until 31 December of that same year, when it overnight enters its second

calendar year, and so on. The 'birthday' is thus on 1 of January every year). These birds are first-year adults and resemble full adults but frequently show retained juvenile outer primaries and a paler iris. Immature birds (from second calendar year autumn to third calendar year spring) have underparts that are intermediate between those of a juvenile and an adult, or sometimes, even juvenile-like (van Duivendijk 2011a). Juveniles have pale eyes, streaks on underparts in a majority of birds, and uniform plumage without moult.

The majority of birds observed were juveniles (Table 2). Fox-red morph birds were most common while grey-brown morph birds were uncommon. Six different individuals of dark morph (black, and dark-rufous morph) were recorded. This is in variance with data of migrating Steppe Buzzards from Eilat, Israel, where only 2–5% birds were dark morph birds (Forsman 2006), while here, around 11–12% of birds were dark morph even considering the total number of birds observed as 54. Juveniles and adults of dark morph were easy to identify, with uniform deep rufous, tar-brown, or blackish body plumage. Adults can be separated from juveniles by their dark eye, sub-terminal tail band, and distinct broad black trailing edge to wing.

### Distribution

We have also observed Steppe Buzzard outside the Little Rann of Kachchh area. Our sightings are given in Table 3.

Other recent reports from the Saurashtra region, in areas other than those mentioned above, are from Jamnagar (Varu 2011), Porbander district (Parmar; <http://www.indianaturewatch.net/>), Dwarka in Jamnagar district (Ashvin Trivedi, *pers. comm.*), and Amreli Dist. (V. Joshi, *in litt.* 19 December 2011). Hence Steppe Buzzard is widely distributed in Saurashtra. All sightings (including Kachchh) are given in Map 1.

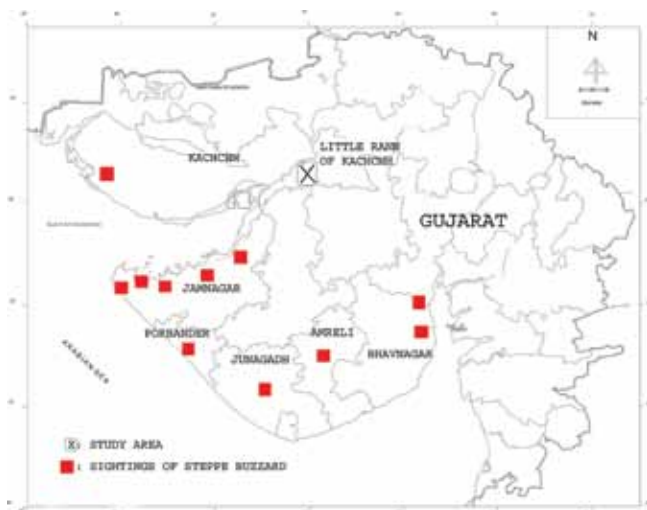
### Hunting & prey

Based on our observations of the Steppe Buzzard, its primary prey seems to be locusts/large insects (*Orthoptera* genus) occurring in the area, which is surprising, since its main prey during breeding is small mammals. But it is known to switch partly to reptiles, amphibians, and birds when prey is scarce, and it is also known to eat large insects (Forsman 2006). A total of ten observations were made where the birds were observed feeding on large insects. NB also observed them feeding twice on a large insect in Velavadar National Park [57]. No other prey was recorded by us.

### Discussion

*B. b. vulpinus* is a winter migrant to Gujarat as it has been regularly recorded in the Little Rann of Kachchh. Himalayan Buzzard may be a vagrant/passage migrant/winter migrant in Gujarat and further study is needed to ascertain its status. Nominat *B. b. buteo* is not known to occur in India. Many times it is not safely possible to separate *B. b. buteo* from *B. b. vulpinus* and intergrades between the two are also known to occur. Grey-brown morph birds are most similar to nominate *buteo* and separation of the two is especially difficult (van Duivendijk 2011b).

The sighting of six individuals thrice, in a small area, is unusual, as these birds are not known to form groups. They are said to occur singly or in pairs (Grimmett *et al.* 1998). They are also known to gather together during migration (Naoroji 2006). Since six individuals were seen thrice in winter, it may be possible that



Map 1: Square with 'X': study area; red squares: sightings.



48. 06 February 2011. Sub-adult (third to fourth calendar years). Dark rufous morph. Note iris is not very dark and wing coverts show obvious different generations of feathers.



51. December 2010. Probably a black morph adult. Note uniform dark plumage and dark eye.



49. 05 December 2010. Juveniles. Note individual variation. Upper bird with pale iris and streaked breast, while lower bird has pale iris, uniform plumage and pale tipped greater coverts and primaries. Both birds best regarded as 'rufous' or 'fox-red' morphs.



52. 27 November 2011. Probably a fox-red morph juvenile. Note very pale iris and streaked breast.



50. 02 December 2012. Immature (second calendar year). Fox-red morph. Note adult like barring on underbody but outer two primaries and many secondaries still juvenile, best seen in secondaries which are shorter with smaller and less black tip.



53. 06 February 2011. Juvenile (second calendar year). Grey-brown morph. Note streaked breast and pale iris.



54. 06 February 2011. Same Individual as Fig 6. Grey-brown morph. Note worn greater coverts, grey-brown tail without rufous.



Photos: P. Ganpule

55. 27 November 2011. Adult. Fox-red morph. Note dark eye, clean barring on thighs, uniform plumage.



Photo: N. Bhatt

57. 06 January 2011. Juvenile (second calendar year) with prey. Note pale iris, barred tail.



Photo: N. Bhatt

56. 16 December 2010. Probably fox-red morph sub-adult. Note iris not very dark, irregularly worn upper wing coverts, dark sub-terminal tail band.

these birds may be forming loose groups in winter. This aspect of its behaviour is unrecorded and needs further study.

Steppe Buzzard is less of a desert bird than Long-legged Buzzard *Buteo rufinus* (Rasmussen & Anderton 2012) but here it shows a marked preference to fringe areas of the Little Rann of Kachchh, which is primarily a desert area, and the Kachchh region (Tiwari *et al.* 2008) which is also primarily a semi-arid and desert area. It is possible that it may prefer desert areas in winter, due to availability of prey.

The occurrence of all four morphs here is significant. Grey-brown morph birds are found in the western-most part of the subspecies' range; further east, the birds gradually become rustier toned (differing degrees of the fox-red morph) and in the eastern-most part of the subspecies' distribution, the uniform rusty fox-red and the blackish morphs occur (Shirihai & Forsman 1991). The fact that birds from the entire breeding range occur in Gujarat shows that Steppe Buzzards from northern Europe to eastern Siberia occur here, though birds from eastern range (fox-red and dark morph) are more common. This is contrary to Naoraji (2006) who states that birds from western range winter in Africa and Arabia, though it is stated that this can only be authenticated by large scale ringing. Grey-brown morph birds have been recorded in the Little Rann of Kachchh and Velavadar.

There is considerable variation in birds observed here and this is shown and explained in Pics [48–56]. This is to be expected, since adults and juveniles of all four morphs, and from the entire breeding range occur here.

## Conclusion

These sightings over a long period of time suggest that Steppe Buzzard is a regular winter migrant to the Little Rann of Kachchh with at least some individuals overwintering in this area. It may be wintering in other areas of Saurashtra also. Its status could be 'uncommon', but it is not rare, and it is widely distributed in Saurashtra with sightings from almost the entire region.

A detailed survey of the entire state will be helpful in understanding its present status and distribution in other areas of Gujarat. Further research is also needed to understand its wintering ecology in the Little Rann of Kachchh.

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# Diet of the Spotted Owlet *Athene brama* in an urban landscape

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**Abstract:** We aimed to study the food habits of the Spotted Owlet *Athene brama* by combining the pellet analysis as well as direct/visual observation methods. Both methods were used simultaneously for seven months. Direct observations were carried out by visually monitoring the owlets for 214 days, over 642 hrs. All events of feeding were recorded, and prey identified using relevant field guides. 70 pellets were collected from the roosting site of the same owl pair, treated, and further analysed for remains of prey items. A total of 11 prey orders were recorded by both the methods. Out of these, 3 orders were detected only by pellet analysis, 5 orders were detected only by direct observations, and 3 orders were detected by both the methods. Common Indian toads, cicadas, and wasps were some new prey taxa/items detected by us during this study. As each of the followed method has its own advantages as well as limitations, we combined both the methods to obtain a more reliable dietary of this species.

## Introduction

The Spotted Owlet *Athene brama* is a common nocturnal raptor, widely distributed throughout the Indian Subcontinent and abundant, especially, around human habitation (Ali & Ripley 1983; Ali 2002). Owls are known to play an important role in the bio-control of pests (Santhanakrishnan *et al.* 2011). Considerable work has been done regarding the dietary analysis of the Spotted Owlet from various geographical areas including India (Jain & Advani 1983; Kumar 1985; Jadhav & Parasharya 2003; Pande *et al.* 2004; Santhanakrishnan *et al.* 2011; Zade

*et al.* 2011), and neighbouring countries like Pakistan (Beg *et al.* 1990; Shah *et al.* 2004). All the aforementioned studies have used only one method in the analysis of the owl's dietary: study of regurgitated pellets. Our aim was to determine its dietary using both methods, pellet analysis and direct observation, simultaneously.

## Study area & methods

The present study was carried out in the campus of Fergusson College, Pune (18°31'N, 73°50'E; 570 m asl). A combination of