



Roost and foraging behaviour of Fulvous Fruit Bat

The Fulvous Fruit Bat *Rousettus leschenaulti* (Desmarest, 1820) is a medium sized fruit bat species found commonly in India and belongs to the family Pteropodidae (Old world fruit bats), suborder Yinpterochiroptera (or Pteropodiformes), order Chiroptera in class Mammalia, sub-phylum Vertebrata, phylum Chordata in kingdom Animalia. Its global distribution is known to range from southern and southeastern Asia -- Iran to Indonesia.



An individual of Fulvous Fruit Bat, *Rousettus leschenaulti* roosting at upper side of the staircase wall of Government Senior Secondary School Premises of Deshalpar-Vandhay village in tahseel Bhuj, district Kachchh, Gujarat, India. © Arpan Joshi.

We have reported collective population of about 175 individuals of *Rousettus leschenaulti* at one nocturnal / foraging and five diurnal roosting sites explored through our recent three periodic but systematic bat diversity surveys of 8–10 days each in Nakhatrana, Bhuj, Mandvi, Anjar, Abdasa, and Lakhpat tahseels of the Kachchh district in Gujarat, India conducted through December 2020 to August

2021. Of these six roosting sites though we observed 1–5 individuals of this fruit bat at each of the five roosting sites notably huge congregation of 150–175 individuals were found roosted at sixth roosting site, i.e., an unattended semi-dark portion of the dilapidated village fort premises (22.980847° N, 69.101718° E and 28.47 m elevation from the sea level) of Pokalia village in Mandvi tahseel of Kachchh district in

Gujarat on 20 March 2021. We have never seen such a huge population ever of this species of bat earlier. They were found roosting in close proximity of each other at the ceiling and upper portion of circular peripheral wall of this roost; and seen flying inside the roost periodically with utterance of loud peculiar noise as witnessed in [video footage](#). The floor underneath their colonial roost was full of their guano.



A colony of Fulvous Fruit Bat *Rousettus leschenaulti* roosting in the ceiling and upper portion of circular peripheral wall of village fort premises of Pokalia village in Mandvi tahseel of district Kachchh, Gujarat, India. © Arpan Joshi.

Rousettus leschenaulti is a frugivorous bat species that feeds upon fruit, foliage, inflorescence, and nectar of different plant species. Their roosting preference may differ as per the seasonal and regional availability of food sources. In the surveyed study area of Kachchh district we have seen the cultivation of fruit trees like Pomegranate *Punica granatum*, Banana *Musa* spp., Mango *Mangifera indica*, and Sapodilla *Manilkara zapota* along with some native and natural fruit trees like Banyan *Ficus benghalensis*, Peepal *Ficus religiosa*, Jamun *Syzygium cumini*, Neem *Azadirachta indica*, Neelgiri *Eucalyptus globulus*, Tamarind *Tamarindus indica*, Jungle Jalebi *Pithecellobium dulce*,

Jungle Berries *Polyalthia cerasoides*. We have seen *R. leschenaulti* feeding upon fruits / foliage / inflorescence of Sapodilla, Mango, Jungle Berries, and Banyan trees. We have noticed many partially eaten pomegranate and jungle berries fruits at nocturnal / foraging roosts in Deshalpar - Vandhay village of Bhuj Tahseel in Kachchh District. Individuals of this bat species usually emerges out of their diurnal roosts in evening by soon after the sunset, find and forage to the available nearby food sources and return to their diurnal roost after midnight but strictly before the sunrise next day. Usually they prefer to cling / hang on branches of the food source trees and feed directly upon



Table 1. Detailed account of roosting sites of Fulvous Fruit Bat, *Rousettus leschenaulti* reported during periodic Bat Diversity Assessment Surveys executed through December 2020 to August 2021 in Kachchh district of Gujarat, India.

Date of Observation	Name of the Bat Roost	Name of the Village/ Settlements	Name of the Tahseel	Geographical Coordinates of Bat Roost in Degree	Type of Roost	Population (No. of Individuals)
Diurnal Roosting Sites						
1	20.iii.21 Old unattended dilapidated building of Dharmshala near bus stand of the village	Kotada - Roha	Nakhatrana	23.149033°N 69.242443°E	An individual of <i>Rousettus leschenaulti</i> was found roosting on the semi-dark upper wall portion of this roost. However, on 05 August 2021 revisit, we couldn't find any individual.	1
2	20.iii.21 An old unattended structure at Kalyaneshwar Madeve temple located near the village river.	Kotada - Roha	Nakhatrana	23.148500°N 69.246058°E	An individual of <i>Rousettus leschenaulti</i> was found roosting on the semi-dark upper wall portion of this roost. However, on 05 August 2021 revisit, we couldn't find any individual.	1
3	20.iii.21 Guru Mandir Art Gallery	Dedhiya	Mandvi	22.984315°N 69.121397°E	Individuals of <i>Rousettus leschenaulti</i> was found roosting on the semi-dark ceiling portion of this roost. This roost premises was under renovation and its caretakers told us that there used to roost 40–50 individuals of this bat species since last more than 20 years.	4
4	20.iii.21 An old unattended semi-dark portion of the dilapidated village fort premises	Pokalia	Mandvi	22.980847°N 69.101718°E	Individuals of <i>Rousettus leschenaulti</i> was found roosting on the semi-dark ceiling and upper wall portion of this roost. Villagers told us they have been seeing individuals of this bat species roosting here since last more than 30 years.	150–175
5	06.viii.21 Inside the kotha located in premises of Darbar Gadh	Nagrecha	Mandvi	23.002193°N 69.214782°E	An individual of <i>Rousettus leschenaulti</i> was found roosting on the semi-dark upper wall portion of this roost. However, on 05 August 2021 revisit, we couldn't find any individual.	1
Nocturnal / Foraging Roosting Sites						
1	24.xii.20 First floor portion of both the staircases of Government Senior Secondary School	Deshalpar - Vandhay	Bhuj	69.437400°E 23.206144°N	Individuals of <i>Rousettus leschenaulti</i> was found roosting here during night time only. They bring plucked fruits to this site, roost there and eat them. Afterwards they fly back to their unknown nearest day roost. We observed their presence 2045–2200 h.	5



Table 2. Detailed account of morphological measurements noted of a male individual of Fulvous Fruit Bat *Rousettus leschenaulti* found roosting at Dharmshala roosting site located near bus stand of village Kotada - Roha in Nakhatrana tahseel of Kachchh district of Gujarat, India.

	Character	Measurements in millimetres (mm)
1	Head and Body length (HB)	121.86
2	Tail length (T)	10.25
3	Forearm length (FA)	84.30
4	Foot length (HF)	13.2
5	Thumb length (Thumb)	20.35
6	Ear length (E)	18.5
7	Femur (F)	29.07
8	Tibia length (TIB)	44.66
9	Wing Span length (WSP)	466
10	3rd Metacarpal (3 Mt)	55.52
11	1st Phalanx of the 3rd Metacarpal (1 Ph 3 Mt)	35.75
12	2nd Phalanx of the 3rd Metacarpal (2 Ph 3 Mt)	42.24
13	4th Metacarpal (4 Mt)	53.25
14	1st Phalanx of the 4th Metacarpal (1 Ph 4 Mt)	28.28
15	2nd Phalanx of the 4th Metacarpal (2 Ph 4 Mt)	30.21
16	5th Metacarpal (5 Mt)	52.23
17	1st Phalanx of the 5th Metacarpal (1 Ph 5 Mt)	26.24
18	2nd Phalanx of the 5th Metacarpal (2 Ph 3 Mt)	27.68

the preferred available food thereon but sometimes they also choose to pluck up the fruits of their choice, bring them to nocturnal / foraging roosts and eat thereon. We caught an individual of this species from Dharmshala roost of Kotada-Roha village located in Nakhatrana tahseel of Kachchh district in Gujarat with a hand net for taking morphological measurements and released

it back safely at the said roost (Table 2).

Morphologically, it is fulvous brown on the crown of head, back, flanks and throat but belly is more greyish in the median area. It prefers to roost inside semi-dark portions of manmade structures alike houses, pyramids, tunnels, forts, havellies, and at openings of the natural caves.

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