

Preliminary survey on avianfauna at Osam Hill, Gujarat, India



Habitat view of Osam Hill.

In any type of ecosystem, avian fauna constitutes one of the major biotic components. Ali (1956) has described 423 species and 444 species of birds were described by Dharmakumarsinghji (1954).

The Gujarat State avian diversity updated checklist reported 609 species (Ganpule 2020). Joshi (2009) reported 79 species of birds in some reservoirs of Rajkot City and Vadhel (2010) reported 30 species of water birds from Nyari Dam-1 of Rajkot.

Currently, 82 bird species are recorded at Rajkot from Saurashtra University Campus (Trivedi & Vaghela 2020).

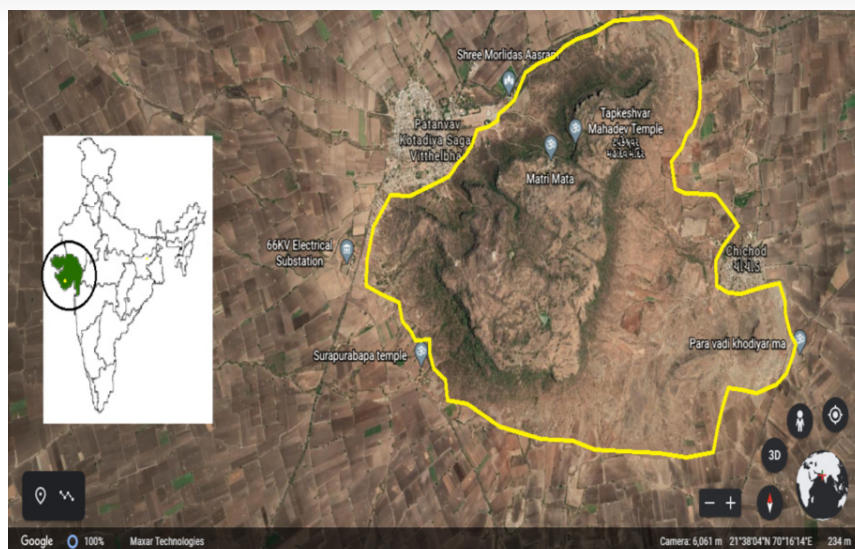
The study was conducted to investigate the bird diversity at the Osam Hill, as no work on bird diversity has been carried out at Osam Hill, Patanvav, Rajkot. The study area is 110km south west side from Rajkot City and 32km from Junagadh City.

Osam Hill is located in Patanvav Village (21.6358 N; 70.2739 E),

Rajkot, Gujarat. Patanvav is at an elevation of 68m while Osam Hill is located at an elevation of 148 m. Entire area is hilly covered with shrubs and woody at slopes. Five water points are present in the study area including two check dams and three small ponds.

It bears more vegetation at base compared to apex of the hill.

Complete avian survey was conducted in the study area for two years from October 2017

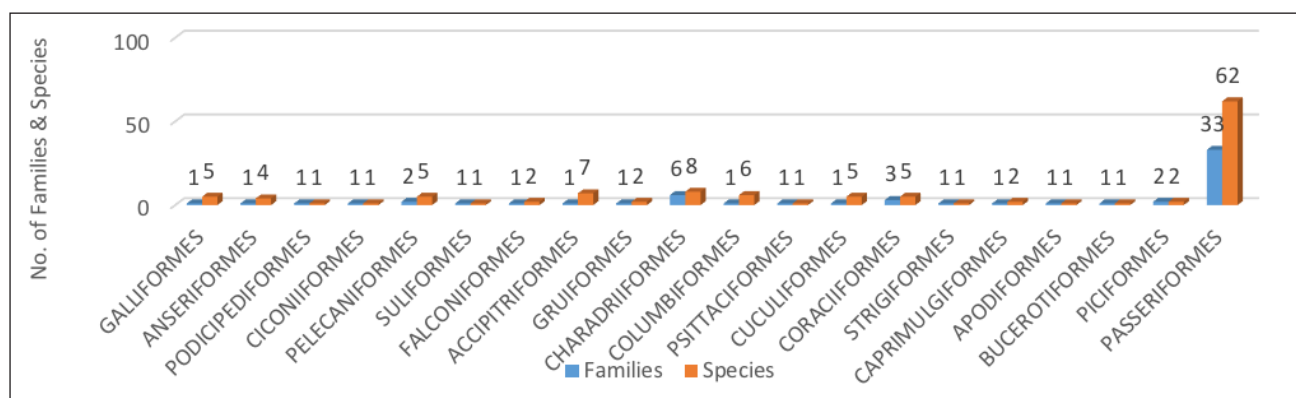


Osam Hill, Patanvav, Gujarat. Source: Google Earth retrieved on 1 May 2020 (map not to scale).

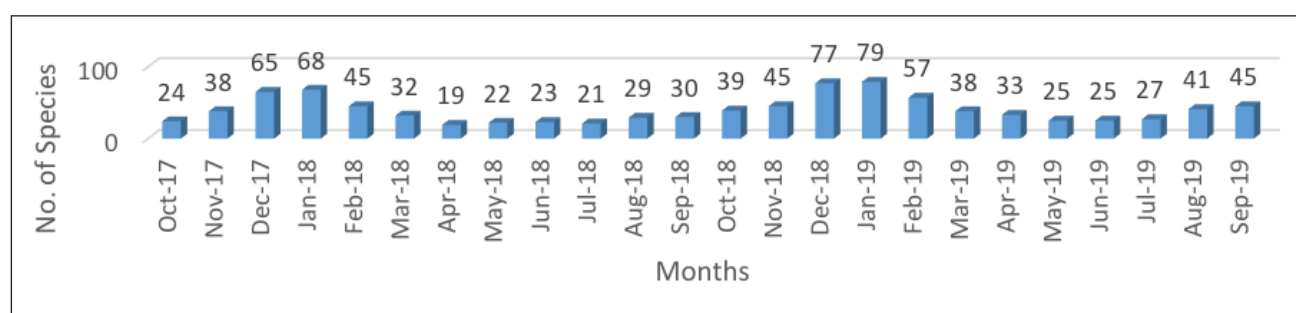
to September 2019. Data were collected by random sampling method (Taherdoost 2016). Feeding guild of birds were also observed.

Following both the methods, area was explored by walking on foot in the field. Birds were observed with the help of Nikon aculon 10–22 x 50mm

binocular. Identification of birds was done by using standard field guides (Ali & Ripley 1983; Grimmett et al. 2011; Ali 2012). The status of birds was categorized into Resident (R): which is observed throughout season, Winter Migrant (WM): sighting observed during March–May, Passage Migrant (PM): they occur for a short period between the origin and destination mainly found in pre and post season period, Monsoon Migrant (MM): sighting observed during rainy season June–October, Common species (C): Species



Order-wise families and species richness.

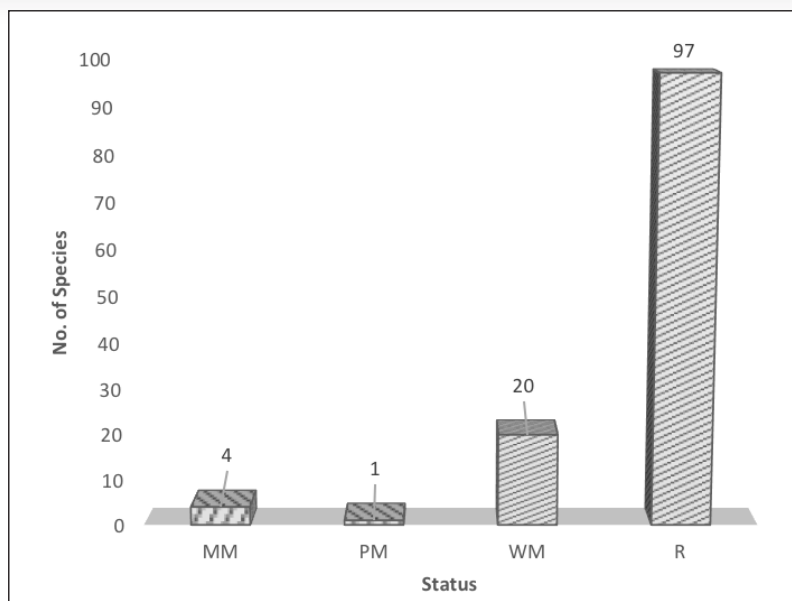


Month-wise number of species.

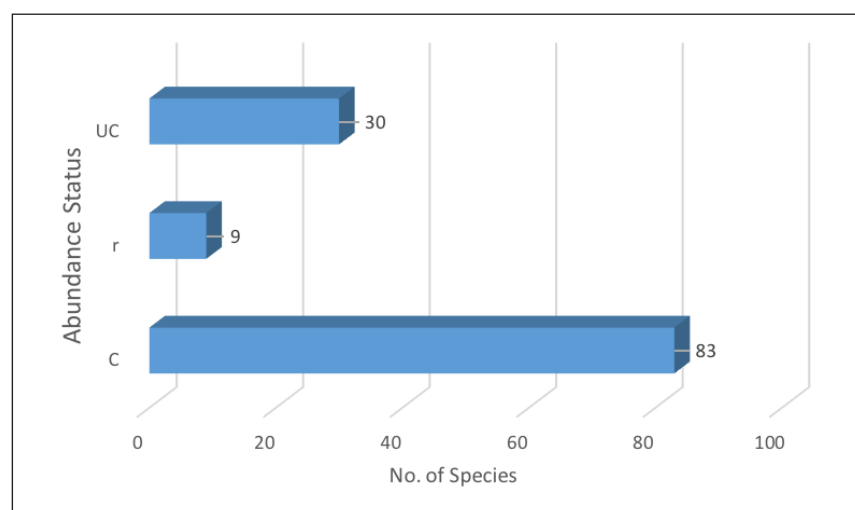
Observed more than four times during survey (<4), Un-Common species (UC): Species observed three to four times during survey and rare species. Rare (r): Species observed once or twice during survey.

The threatened status of the birds given in the checklist as per IUCN Red List of Threatened Species (BirdLife International 2001a,b). The common-rare, resident-migratory status of the birds are classified as per Bird Fauna in northeast India (Saikia & Saikia 2000). Total time spent for the observations was 650h. Observations were taken mainly for 350 hours in morning session and 300 hours in evening session. The observations were taken twice a day while the avifauna is usually most active (0630–1000 h and 1600–1830 h).

During the study, total of 20 orders, 61 families and 122 species of birds were observed (Table 1) and it holds almost 20% bird species of Gujarat (Ganpule 2020). The majority of migratory birds were observed during winter. The Osam Hill provides best habitat for migratory and residential



Status: R—Residential | WM—Winter Migratory | MM—Monsoon Migratory | PM—Passage Migratory.



Abundance status: C—Common | UC—Uncommon | r—Rare.

birds and supports a rich species diversity (20% count) of state avifauna.

During the two-year survey, highest number of species were found from December to February. December to February is the winter season and study area attracts 20%

count of bird species of state diversity. In summer, i.e., April to June temperature was too high between 40–48°C hence, fewer bird species were encountered. Sightings in the year 2018–19 were more than the year 2017–18 due to knowledge of sighting places from previous year.

Table 1. Checklist of birds of Osam Hill, recorded during September 2017 to October 2019.

Order	Family	Common Name	Scientific Name	Status	Abundance Status	Feeding Guilds
Galliformes	Phasianidae (Pheasants and allies)	Painted Francolin	<i>Francolinus pictus</i> , Jardine and Selby 1828	R	UC	O
		Grey Francolin	<i>Francolinus pondicerianus</i> , Gmelin, JF 1789	R	C	O
		Rain Quail	<i>Coturnix coromandelica</i> , Gmelin, JF 1789	R	C	O
		Rock Bush-Quail	<i>Perdula argoondah</i> , Sykes 1832	R	UC	G
		Indian Peafowl	<i>Pavo cristatus</i> , Linnaeus 1758	R	C	O
Anseriformes	Anatidae (Ducks, Geese, Swans)	Lesser Whistling-Duck	<i>Dendrocygna javanica</i> , Horsfield 1821	R	C	O
		Knob-billed Duck	<i>Sarkidiornis melanotos</i> , Pennant 1769	R	C	H
		Indian Spot-billed Duck	<i>Anas poecilorhyncha</i> , Forster, JR 1781	R	C	H
		Eurasian Teal	<i>Anas crecca</i> , Linnaeus 1758	WM	UC	O
		Little Grebe	<i>Tachybaptus ruficollis</i> , Pallas 1764	R	C	I
Podicipediformes	Podicipedidae (Grebes)	Painted Stork	<i>Mycteria leucocephala</i> , Pennant 1769	R	C	P
Ciconiiformes	Ciconiidae (Storks)	Black-headed Ibis	<i>Threskiornis melanocephalus</i> , Latham 1790	R	C	C
		Red-naped Ibis	<i>Pseudibis papillosa</i> , Temminck 1824	R	C	O
		Indian Pond Heron	<i>Ardeola grayii</i> , Sykes 1832	R	C	I/P
		Western Cattle Egret	<i>Bubulcus ibis</i> , Linnaeus 1758	R	C	I
		Little Egret	<i>Egretta garzetta</i> , Linnaeus 1766	R	C	I/P
Suliformes	Phalacrocoracidae (Cormorants, Shags)	Little Cormorant	<i>Microcarbo niger</i> , Vieillot 1817	R	C	P
Falconiformes	Falconidae (Caracaras, Falcons)	Common Kestrel	<i>Falcon tinnunculus</i> , Linnaeus 1758	WM	UC	C
		Eurasian Hobby	<i>Falco subbuteo</i> , Linnaeus 1758	WM	r	C
Accipitriformes	Accipitridae (Kites, Hawks, Eagles)	Black Kite	<i>Milvus migrans</i> , Boddaert 1783	R	UC	C
		Black-winged Kite	<i>Elanus caeruleus</i> , Desfontaines 1789	R	C	C
		Oriental Honey-buzzard	<i>Pernis ptilorhynchus</i> , Temminck 1821	R	C	C
		Eurasian Marsh-Harrier	<i>Circus aeruginosus</i> , Linnaeus 1758	WM	UC	C
		Shikra	<i>Accipiter badius</i> , Gmelin, JF 1788	R	C	C
		White-eyed Buzzard	<i>Butastur teesa</i> , Franklin 1831	R	UC	C
		Booted Eagle	<i>Hieraetus pennatus</i> , Gmelin, JF 1788	WM	UC	C

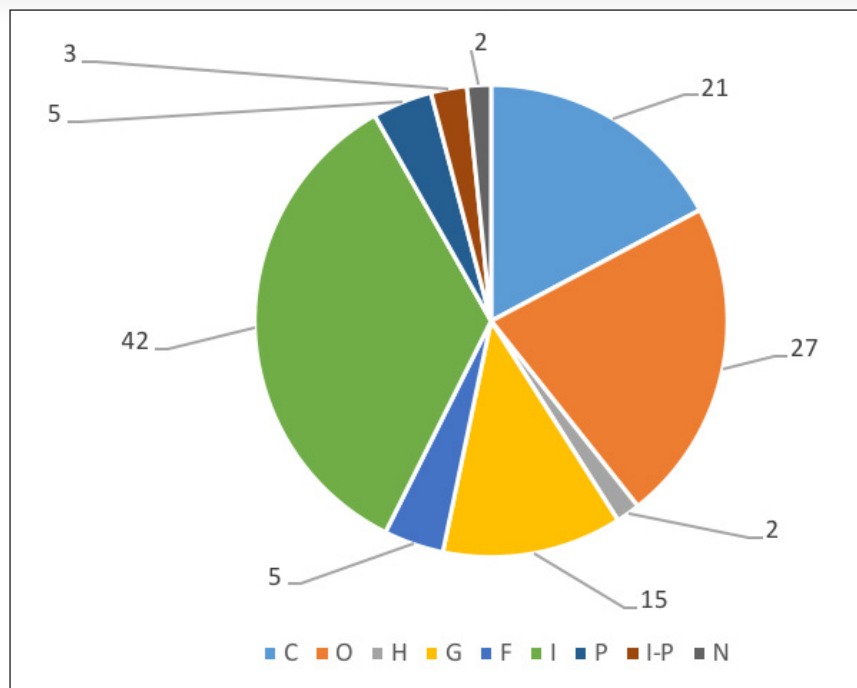
Order	Family	Common Name	Scientific Name	Status	Abundance Status	Feeding Guilds
Gruiformes	Rallidae (Rails, Crakes and Coots)	White-breasted Waterhen	<i>Amaurornis phoenicurus</i> , Pennant 1769	R	C	O
		Eurasian Coot	<i>Fulica atra</i> , Linnaeus 1758	R	C	O
Charadriiformes	Turnicidae (Buttonquail)	Barred Buttonquail	<i>Turnix susciator</i> , Gmelin, JF 1789	R	C	O
	Burhinidae (Stone-curlews, Thick-knees)	Eurasian Thick-knee	<i>Burhinus oedicnemus</i> , Linnaeus 1758	R	C	C
	Recurvirostridae (Stilts, Avocets)	Black-winged Stilt	<i>Himantopus himantopus</i> , Linnaeus 1758	R	C	O
	Charadriidae (Plovers)	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i> , Boddaert 1783	R	UC	C
		Red-wattled Lapwing	<i>Vanellus indicus</i> , Boddaert 1783	R	C	C
Columbiformes	Scolopacidae (Sandpipers, Snipes)	Little Ringed Plover	<i>Charadrius dubius</i> , Scopoli 1786	R	C	C
		Common Sandpiper	<i>Actitis hypoleucos</i> , Linnaeus 1758	WM	C	C
	Laridae (Gulls, Terns, Skimmers)	River Tern	<i>Sterna aurantia</i> , Gray, JE 1831	R	C	C
		Common Pigeon	<i>Columba livia</i> , Gmelin, JF 1789	R	C	G
	Columbidae (Pigeons, Doves)	Eurasian Collared-Dove	<i>Streptopelia decaocta</i> , Frivaldszky 1838	R	C	G
		Red Collared-Dove	<i>Streptopelia tranquebarica</i> , Hermann 1804	R	r	G
		Spotted Dove	<i>Streptopelia chinensis</i> , Scopoli 1786	R	C	G
		Laughing Dove	<i>Spilopelia senegalensis</i> , innaeus 1766	R	UC	G
		Yellow-footed Green-Pigeon	<i>Treron phoenicopterus</i> , Latham 1790	R	C	F
		Rose-ringed Parakeet	<i>Psittacula krameri</i> , Scopoli 1769	R	C	F
Psittaciformes	Psittaculidae (Old World Parrots)	Jacobin Cuckoo	<i>Clamator jacobinus</i> , Boddaert 1783	MM	C	I
Cuculiformes	Cuculidae (Cuckoos)	Common Hawk-Cuckoo	<i>Hierococcyx varius</i> , Vahl 1797	MM	C	I
		Grey-bellied Cuckoo	<i>Cacomantis passerinus</i> , Vahl 1797	MM	r	I
		Asian Koel	<i>Eudynamis scolopaceus</i> , Linnaeus 1758	R	C	F
		Greater Coucal	<i>Centropus sinensis</i> , Stephens 1815	R	C	O
Strigiformes	Strigidae (Owls)	Spotted Owllet	<i>Athene brama</i> , Temminck 1821	R	C	C
Caprimulgiformes	Caprimulgidae (Nightjars)	Indian Nightjar	<i>Caprimulgus asiaticus</i> , Latham 1790	R	C	I
		Jungle Nightjar	<i>Caprimulgus indicus</i> , Latham 1790	R	r	I
Apodiformes	Apodidae (Swifts)	Little Swift	<i>Apus affinis</i> , Gray, JE 1830	R	C	I
Bucerotiformes	Upupidae (Hoopoes)	Common Hoopoe	<i>Upupa epops</i> , Linnaeus 1758	WM	UC	I

Order	Family	Common Name	Scientific Name	Status	Abundance Status	Feeding Guilds
Coraciiformes	Coraciidae (Rollers)	Eurasian Roller	<i>Coracias garrulous</i> , Linnaeus 1758	PM	UC	I
	Alcedinidae (Kingfishers)	White-throated Kingfisher	<i>Halcyon smyrnensis</i> , Linnaeus 1758	R	C	I/P
		Common Kingfisher	<i>Alcedo atthis</i> , Linnaeus 1758	R	UC	P
		Pied Kingfisher	<i>Ceryle rudis</i> , Linnaeus 1758	R	C	P
	Meropidae (Bee-eaters)	Green Bee-eater	<i>Merops orientalis</i> , Latham 1801	R	C	I
Piciformes	Megalaimidae (Asian Barbets)	Coppersmith Barbet	<i>Megalaima haemacephala</i> , Statius Müller, PL 1776	R	C	F
	Picidae (Woodpeckers)	Yellow-crowned Woodpecker	<i>Leiopicus mahrattensis</i> , Latham 1801	R	UC	I
	Pittidae (Pittas)	Indian Pitta	<i>Pitta brachyura</i> , Linnaeus 1766	WM	UC	I
	Vangidae (Vangas and Allies)	Common Woodshrike	<i>Tephrodornis pondicerianus</i> , Gmelin, JF 1789	R	UC	I
		Large Cuckooshrike	<i>Coracina macei</i> , Lesson, R 1831	R	UC	I
Passeriformes	Campephagidae (Cuckooshrikes)	Black-headed Cuckooshrike	<i>Lalage melanoptera</i> , Rüppell 1839	WM	r	I
	Aegithinidae (Ioras)	Common Iora	<i>Aegithina tiphia</i> , Linnaeus 1758	R	C	I
	Campephagidae (Cuckooshrikes)	Small Minivet	<i>Pericrocotus cinnamomeus</i> , Linnaeus 1766	R	C	I
	Laniidae (Shrikes)	Bay-backed Shrike	<i>Lanius vittatus</i> , Valenciennes 1826	R	C	C
		Long-tailed Shrike	<i>Lanius schach</i> , Linnaeus 1758	R	C	C
	Dicruridae (Drongos)	Black Drongo	<i>Dicrurus macrocercus</i> , Vieillot 1817	R	C	C
		Ashy Drongo	<i>Dicrurus leucophaeus</i> , Vieillot 1817	R	UC	C
		White-bellied Drongo	<i>Dicrurus caeruleus</i> , Linnaeus 1758	R	r	I
	Oriolidae (Figbirds, Orioles, Tur-nagra)	Indian Golden Oriole	<i>Oriolus (Oriolus) kundoo</i> , Sykes 1832	R	UC	F
	Rhipiduridae (Fantails)	White-browed Fantail	<i>Rhipidura aureola</i> , Lesson R, 1831	R	UC	I
	Monarchidae (Monarchs)	Indian Paradise-Flycatcher	<i>Terpsiphone paradise</i> , Linnaeus 1758	R	C	I
		Black-naped Monarch	<i>Hypothymis azurea</i> , Boddaert 1783	R	UC	I
	Corvidae (Crows, Jays)	Rufous Treepie	<i>Dendrocitta vagabunda</i> , Latham 1790	R	C	O
		Indian Jungle Crow	<i>Corvus (Macrorhynchis) culminatus</i> , Sykes 1832	R	C	O

Order	Family	Common Name	Scientific Name	Status	Abundance Status	Feeding Guilds
Passeriformes	Corvidae (Crows, Jays)	House Crow	<i>Corvus splendens</i> , Vieillot 1817	R	C	O
	Paridae (Tits, Chickadees)	Great Tit	<i>Parus major</i> , Linnaeus 1758	R	C	O
	Hirundinidae (Swallows, Martins)	Dusky Crag-Martin	<i>Ptyonoprogne concolor</i> , Sykes 1832	R	C	I
		Wire-tailed Swallow	<i>Hirundo smithii</i> , Leach 1818	R	C	I
		Red-rumped Swallow	<i>Cecropis daurica</i> , Laxmann 1769	R	C	I
	Alaudidae (Larks)	Rufous-tailed Lark	<i>Ammomanes phoenicurus</i> , Franklin 1831	R	C	G
		Ashy-crowned Sparrow-Lark	<i>Eremopterix griseus</i> , Scopoli 1786	R	C	G
		Crested Lark	<i>Galerida cristata</i> , Linnaeus 1758	R	UC	I
	Pycnonotidae (Bulbuls)	Red-vented Bulbul	<i>Pycnonotus cafer</i> , Linnaeus 1766	R	C	O
	Cisticolidae (Cisticolas and Allies)	Ashy Prinia	<i>Prinia socialis</i> , Sykes 1832	R	UC	I
		Plain Prinia	<i>Prinia inornata</i> , Sykes 1832	R	C	I
		Grey-breasted Prinia	<i>Prinia hodgsonii</i> , Blyth 1844	R	C	I
	Vireonidae (Vireos, Greenlets, Shrike-Babblers)	Green Shrike-Babbler	<i>Pteruthius xanthochlorus</i> , Gray, JE & Gray, GR 1847	WM	C	O
	Phylloscopidae (Leaf Warblers and Allies)	Sulphur-bellied Warbler	<i>Phylloscopus griseolus</i> , Blyth 1847	WM	r	I
	Timaliidae (Babblers, Scimitar Babblers)	Tawny-bellied Babbler	<i>Dumetia hypertythra</i> , Franklin 1831	R	r	O
	Leiothrichidae (Laughingthrushes and Allies)	Common Babbler	<i>Argya caudata</i> , Dumont 1823	R	C	O
		Large Grey Babbler	<i>Argya malcolmi</i> , Sykes 1832	R	C	O
		Jungle Babbler	<i>Argya striata</i> , Dumont 1823	R	C	O
	Sylviidae (Sylviid Babblers)	Yellow-eyed Babbler	<i>Chrysomma sinense</i> , Gmelin, JF 1789	R	UC	O
	Zosteropidae (White-eyes)	Oriental White-eye	<i>Zosterops palpebrosus</i> , Temminck 1824	R	C	N
	Sturnidae (Starlings, Rhabdornis)	Common Myna	<i>Acridotheres tristis</i> , Linnaeus 1766	R	C	O
		Bank Myna	<i>Acridotheres ginginianus</i> , Latham 1790	R	UC	O
		Brahminy Starling	<i>Sturniapa godarum</i> , Gmelin, JF 1789	R	C	O
		Rosy Starling	<i>Pastor roseus</i> , Linnaeus 1758	WM	C	O

Order	Family	Common Name	Scientific Name	Status	Abundance Status	Feeding Guilds
Passeriformes	Muscicapidae (Chats, Old World Flycatchers)	Oriental Magpie-Robin	<i>Copsychus saularis</i> , Linnaeus 1758	R	C	O
		Indian Robin	<i>Saxicoloides fulicatus</i> , Linnaeus 1766	R	C	I
		Black Redstart	<i>Phoenicurus ochruros</i> , Gmelin, SG 1774	R	C	I
		Common Stonechat	<i>Saxicola torquatus</i> , Linnaeus 1766	WM	C	I
		Desert Wheatear	<i>Oenanthe deserti</i> , Temminck 1825	WM	UC	I
		Blue Rock Thrush	<i>Monticola solitarius</i> , Linnaeus 1758	WM	UC	I
		Red-breasted Flycatcher	<i>Ficedula parva</i> , Bechstein 1792	WM	C	I
		Tickell's-Blue Flycatcher	<i>Cyornis tickelliae</i> , Blyth 1843	R	C	I
		Grey-headed Canary-Flycatcher	<i>Culicicapa ceylonensis</i> , Swainson 1820	R	UC	I
	Stenostiridae (Fairy Flycatchers)	Purple Sunbird	<i>Cinnyris asiaticus</i> , Latham 1790	R	C	N
	Passeridae (Old World Sparrows, Snowfinches)	House Sparrow	<i>Passer domesticus</i> , Linnaeus 1758	R	C	G
		Baya Weaver	<i>Ploceus philippinus</i> , Linnaeus 1766	MM	C	G
	Estrildidae (Waxbills, Manias and Allies)	Scaly-breasted Munia	<i>Lonchura punctulata</i> , Linnaeus 1758	R	C	G
		Western Yellow Wagtail	<i>Motacilla flava</i> , Linnaeus 1758	WM	C	I
	Motacillidae (Wagtails, Pipits)	White Wagtail	<i>Motacilla alba</i> , Linnaeus 1758	WM	C	I
		White-browed Wagtail	<i>Motacilla maderaspatensis</i> , Gmelin, JF 1789	R	C	I
	Fringillidae (Finches, Euphonies)	Paddyfield Pipit	<i>Anthus rufulus</i> , Vieillot 1818	R	C	I
		Common Rosefinch	<i>Carpodacus erythrinus</i> , Pallas 1770	WM	UC	G
	Estrildidae (Waxbills, Munias and Allies)	Indian Silverbill	<i>Euodice malabarica</i> , Linnaeus 1758	R	C	G
		Black-headed Bunting	<i>Emberizom elanocephala</i> , Scopoli 1769	WM	UC	G
	Emberizidae (Buntings)	Striated Bunting	<i>Emberiza striolata</i> , Lichtenstein 1823	WM	r	G

R—Residential | WM—Winter Migratory | MM—Monsoon Migratory | PM—Passage Migratory | C—Common | UC—Uncommon | r—Rare | C—Carnivores | O—Omnivores | H—Herbivores | G—Granivores | F—Frugivores | I—Insectivores | P—Piscivores | I—P—Insectivores & Piscivores | N—Nectarivores.



Feeding Guild: C—Carnivores | O—Omnivores | H—Herbivores | G—Granivores | F—Frugivores | I—Insectivores | P—Piscivores | I-P—Insectivores and Piscivores | N—Nectarivores.

The status is concerned, out of 122 species of birds, 97 were resident, 20 winter migrant, 4 summer migrant and 1 passage migrant species. The highest 79 species richness was recorded in January 2019 which is comparatively not common in other months. The winter migrant birds arrive from different states of India like Jammu and Kashmir, Arunachal Pradesh, and also from different countries like Siberia, Tibet, and different range of the Himalaya. Out of 25 migratory species, 20 were winter migratory species including Eurasian Hobby *Falco*

subbuteo, Desert Wheatear *Oenanthe deserti*, Blue Rock-Thrush *Monticola solitarius*, Eurasian Teal *Anas crecca*; four of them are monsoon migrants like Jacobin Cuckoo *Clamator jacobinus*, Common Hawk-Cuckoo *Hierococcyx varius* and the one passage migrant is Eurasian Roller *Coracias garrulous* which is observed during September and October.

According to their encounter rate, the total 122 bird species found in study area were classified including Yellow-eyed Babbler *Chrysomma sinense*, Indian Pitta *Pitta brachyuran*, Grey-headed Canary Flycatcher

Culicicapa ceylonensis were uncommon, and nine species (7%) such as Striolated Bunting *Emberiza striolata*, Red Collared-Dove *Streptopelia tranquebarica*, White-bellied Drongo *Dicrurus caeruleus* were rare.

Studies also focused on feeding guilds of birds with the help of direct observations as well as literature. Out of 122 species observed, 35% were insectivorous followed by 23% omnivorous, 17% carnivorous, 12% granivorous and rest of the 13% were frugivorous, piscivores, herbivorous, nectarivorous, and insectivorous-piscivores.

Conservation status: The River Tern *Sterna aurantia* is Vulnerable (VU), Painted Stork *Mycteria leucocephala* and Black-headed Ibis *Threskiornis melanocephalus* are Near Threatened (NT) according to IUCN Red List and other 119 species are under Least Concern (LC).

Acknowledgement: Authors are thankful to the anonymous reviewer.

References

Ali, S. (1956). *The Birds of Gujarat*. Gujarat Research Society.

Ali, S. (2012). *The book of Indian birds*. 13th (Revised) ed. Bombay Natural History Society and Oxford University Press, Mumbai.

Ali, S. & S.D. Ripley (1983). *Handbook of the Birds of India and Pakistan*. Compact edition, Oxford University Press, Oxford, 737 pp.

BirdLife International (2001a). Threatened Birds of Asia: *The Birdlife International Red Data Book-Vol.1*, Birdlife International. Cambridge, UK.

BirdLife International (2001b). Threatened Birds of Asia: *The Birdlife International Red Data Book-Vol.2*. Birdlife International. Cambridge, UK.

Dharmakumarsinghi, R.S. (1954). *Birds of Saurashtra*. TOI Press, Bombay.

Ganpule, P. (2020). Second Update to the Gujarat checklist. *Flamingo* 18(2&3): 11–20.

Grimmett, R., C. Inskipp & T. Inskipp (2011). *Birds of the Indian Subcontinent (2nd edition)*. Oxford University Press, India.

Joshi, K. (2009). Avifauna of Specific Attention to Wetland Areas at Rajkot. M.Sc. Thesis Saurashtra University, Rajkot, 32 pp.

Saikia, P.K. & M.K. Saikia (2000). Diversity of Bird Fauna in northeast India. *Journal of Assam Science Society* 41 (2): 379–396.

Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *International Journal of Academic Research in Management* 5(2): 18–27.

Trivedi, V. & S. Vaghela (2020). Avifauna of Saurashtra University Campus, Rajkot, Gujarat, India. *Journal of Threatened Taxa* 12(13): 16764–16774.

Vadhel, G.S. (2010). Water Birds of Nyari - 1 Reservoir and some Occupancy sites of Crane at Rajkot and their vicinities. M.Sc. Thesis, Saurashtra University, Rajkot, 26 pp.

Ravikumar K. Patel¹, Agnikumar H. Vyas², Jatin V. Raval³ & Archana M. Gajjar⁴

¹⁻³ Zoology Lab, Department of Life Sciences, Bhakta Kavi Narsinh Mehta University, Junagadh, Gujarat 362263, India.

⁴ Department of Zoology, Bahauddin Government Science College, Junagadh, Gujarat 362001, India.

Emails: ³drjatinraval@gmail.com, ³drjatinraval@bknmu.edu.in, ³drjatinraval@ymail.com (corresponding author)

Citation: Patel, R.K., A.H. Vyas, J.V. Raval & A.M. Gajjar (2022). Preliminary survey on avianfauna at Osam Hill, Gujarat, India. Bird-o-soar #186, In: *Zoo's Print* 37(12): 17–26.