

Threatened animals of Little Rann of Kachchh (LRK), Gujarat, India and their distribution in LRK in the recent time-frame

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Abstract

*The Little Rann of Kachchh (LRK) is the only saline desert in India besides the Great Rann of Kachchh and it is spread over an area of 5,180 sq. km. A large portion (i.e. 3,569 sq. km) of it is legally protected as the Wild Ass Sanctuary (WAS). The LRK is inhabited by at least 210 species of birds, 33 species of mammals and 33 species of herps (reptiles and amphibians). Several species are globally Near Threatened (as per IUCN's Red List of Threatened Species 2017-3) and some are threatened [as per Schedule-I of the Wildlife (Protection) Act, 1972 and IUCN Red List]. An ecological study was conducted by GEER Foundation from October 2015 to March 2017 and as a part of it, an attempt was made to have an inventory of Near Threatened and threatened species of birds, mammals and Herpetofauna inhabiting fringes, major bays (islands) and mudflat areas of the LRK. It was found that 12 species of (birds, mammals, herps) were Schedule I species; whereas 1, 3, and 9 species were globally Critically Endangered (CR), Endangered (EN) and Vulnerable (VU) respectively. Moreover, 14 species were found to be Near Threatened (NT). The study indicated existence of a number of threatened (Schedule I, CR, EN and VU) and Near Threatened (NT) species in LRK. Therefore, it is recommended that stringent conservation measures should be implemented as the LRK is used for a wide range of socio-economic activities like salt manufacturing, agriculture, fisheries, charcoal making (from *Prosopis juliflora*) and livestock grazing.*

Keywords: Bet, birds, fringe, Herps, IUCN red list of threatened species 2017-3, little Rann of Kachchh (LRK), mammals, Near Threatened species, schedule-I species, threatened species.

Introduction

The Little Rann of Kachchh (LRK) having an area of 5,180 sq. km is the only saline desert in India besides the Great Rann of Kachchh with which it is connected on its northern fringe¹⁻³. A large portion (i.e. 3,569sq.Km) of the Wild Ass Sanctuary (WAS) is located in Little Rann of Kachchh. As per Lieut. Burns in his Memoires (1828-1829), it is a space without counterpart in the globe. It is known to be inhabited by 210 species^{4,5} of birds, 33 species of mammals^{6,7} and 33 species of herpetofauna^{2,4,8}. A study carried out by GEER Foundation about two decades back had shown the existence of several threatened animal species in the LRK. However, information on number of globally or nationally threatened animal species [as per IUCN Red List of Threatened Species and as per Schedule-I of the Wildlife (Protection) Act, 1972] and Near Threatened species (as per the IUCN Red List) has been lacking for the recent time-frame.

Therefore, as a part of a biodiversity study for the LRK from October 2015 to March 2017 by GEER Foundation, efforts were made to determine threatened and Near Threatened species of birds, mammals and herpetofauna so that the status of such species would be known for the recent time-frame, which in turn, will be useful to the management of the Wild Ass Sanctuary falling in the LRK.

Study area: The Little Rann of Kachchh (LRK) is a saline desert-cum-seasonal wetland in the western part of Gujarat state. It is located between 23°10'N and 23°45'N Latitudes and 70°45'E and 71°45'E Longitudes and spread over Surendra nagar and Morbi districts of Saurashtra region, Patan and Banaskantha of North Gujarat region and Kachchh district of Kachchh region⁹. It is a triangular shaped landmass having barren mudflats with salt-encrustation (except in monsoon and post-monsoon periods), four fringes (Eastern, Western, Southern and Northern) and numerous islands (locally called *bets*).

The study area for the present study by GEER Foundation was mainly consisted of all the fringes (i.e. Eastern, Western, Southern and Northern fringe areas), larger islands/*bets* (i.e. the islands having area of minimum 10sq.km. that included Nanda, Shedwa, Gon, Mardak, Jilandhar, Vachchhraj Solanki, Pung and Dhut islands) and the barren mudflat areas falling between the fringes and nearest islands and these transects were referred to as fringe-to-island mudflat transects.

The LRK is located partly in Kachchh biotic province (3A) of the Indian Desert Bio-geographic zone (3) and partly in Gujarat-Rajwada biotic province (4B) of the Semi-Arid bio-geographic zone (4).

Methodology

A total of 63 transects were conducted covering different seasons^{10,11}. Of the total 63 transects, 23 were fringe transects (71.2km.), 32 were *bet* transects (81.8km.) and 8 transects were fringe-to-island mudflat transect (93km.). Total length of all the transects was 246km. whereas fringe transects and island transects were walked, the mudflat transects were conducted by slowly driving a two-wheeler. Before the actual surveys, data-sheets were developed to record the name of species, their count (individual numbers) as per the age-group and sex, activity and habitat at the time of sighting, location of the sighting in terms of name of the locality (if any) and geographical coordinates. Observations were made using pairs of 10x40 binoculars to record the birds and mammals on both sides of the transects usually in 250m band on each side of the transect. Herpetofauna was explored through Visual Encounter Surveys (VES) along the bird/mammal transects. The fringe-transects varied from 1km to 3.5km in length; the island/bet transects varied from 1km to 5km length depending on the area of respective islands and mudflat transects varied from 4km to 25km in length. For attempting to have photographic evidences of nocturnal threatened/Near Threatened animal species, camera traps were employed at total 37 locations in the LRK.

Results and discussion

In the IUCN Red List of Threatened Species (2017-3), following categories exist that reflect the status of threat to the survival of various organisms on earth.

Critically Endangered (CR): A taxon is “Critically Endangered” globally when the best available evidence indicates that it meets any of five criteria decided by IUCN¹² and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered (EN): A taxon is “Endangered” globally when the best available evidence indicates that it meets any of the five criteria decided by IUCN⁵ and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable (VU): A taxon is “Vulnerable” globally when the best available evidence indicates that it meets any of the five criteria decided by IUCN¹², and it is therefore considered to be facing a high risk of extinction in the wild.

Moreover, under the Indian Wildlife (Protection) Act, 1972 various wild animals are categorized as Schedule I to VI species, of which, Schedule I reflects highly threatened status of various animals in India.

During its biodiversity study from October 2015 to March 2017, GEER Foundation had recorded total 210 species of birds, 26 species of mammals and 24 species of herpetofauna. The recorded species were further screened to know which species belonged to Critically Endangered (CR) category, which species belonged to Endangered (EN) category and which species belonged to Vulnerable (VU) category of the IUCN Red List of Threatened Species (2017-3). Moreover, the species belonging to the Schedule-I of the Wildlife (Protection) Act, 1972 were also determined.

It was revealed that only 1 species was Critically Endangered (CR), 2 species were Endangered (EN) and 9 species were Vulnerable (VU) as per IUCN Red List. Moreover, total 13 species of animals belonged to Schedule-I as per the Wildlife (Protection) Act, 1972. A total of 23 threatened species [including Critically Endangered, Endangered and Vulnerable species as per IUCN Red List and Schedule 1 species as per Wildlife (Protection) Act, 1972] were recorded during the study in LRK (Table-1a, Figure-1).

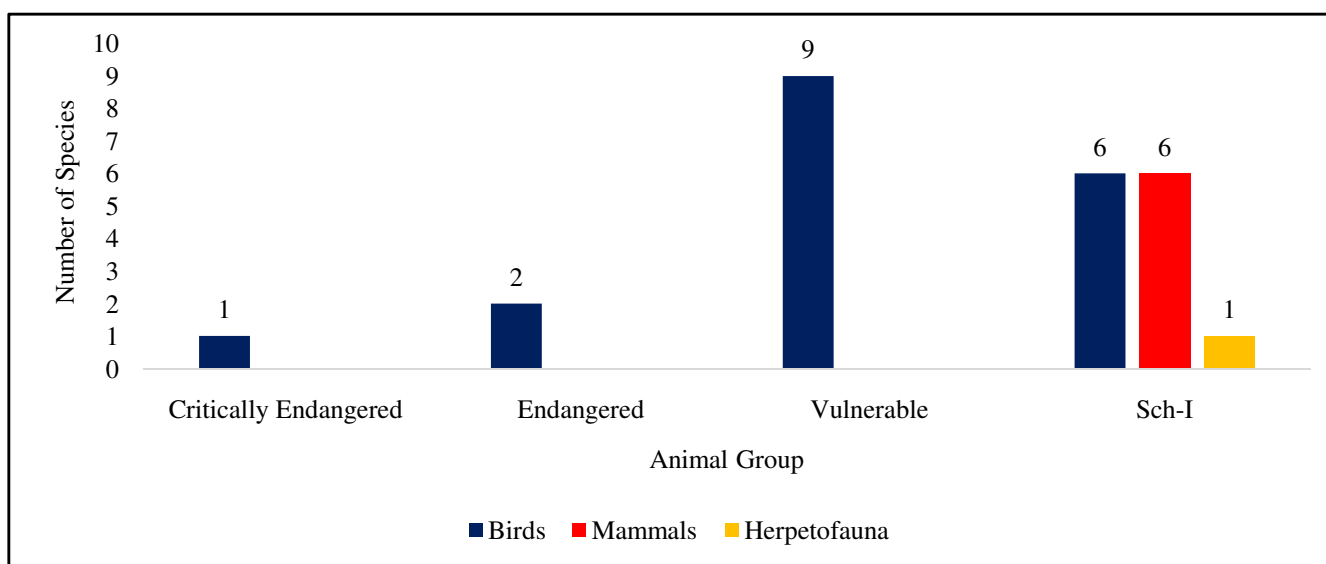


Figure-1: Comparative account of threat status (i.e., CR, EN, VU and Sch. 1) of birds, mammals and herpetofauna in LRK.

Table-1a: Threatened animals in LRK as per IUCN Red List of Threatened Species and Wildlife (Protection) Act, 1972 (Schedule-I).

Common Name	Scientific Name	Taxon animal (B/M/H)	IUCN Threat Status (CR/EN/VU)	Sch-I
White-rumped Vulture	<i>Gyps bengalensis</i>	B	CR	I
Steppe Eagle	<i>Aquila nipalensis</i>	B	EN	-
Saker Falcon	<i>Falco cherrug</i>	B	EN	-
Red-necked Falcon	<i>Falco chicquera</i>	B	-	I
Woolly-necked Stork	<i>Ciconia episcopus</i>	B	VU	-
Common Pochard	<i>Aythya farina</i>	B	VU	-
Greater Spotted Eagle	<i>Aquila clanga</i> *	B	VU	-
Eastern Imperial Eagle	<i>Aquila heliaca</i>	B	VU	-
Indian Spotted Eagle	<i>Aquila hastata</i> *	B	VU	-
Sarus Crane	<i>Grus Antigone</i>	B	VU	-
Asian Houbara	<i>Chlamydotis macqueeni</i>	B	VU	I
Southern Grey Shrike	<i>Lanius meridionalis</i>	B	VU	-
Stoliczka's Bushchat	<i>Saxicola macrorhyncha</i>	B	VU	-
Eurasian Spoonbill	<i>Platalea leucorodia</i>	B	-	I
Osprey	<i>Pandion haliaetus</i>	B	-	I
Indian Peafowl	<i>Pavo cristatus</i>	B	-	I
Indian Wild Ass	<i>Equus hemionus khur</i>	M	-	I
Chinkara	<i>Gazella bennettii</i>	M	-	I
Desert Cat/Wild Cat	<i>Felis sylvestris ornata</i>	M	-	I
Desert Fox/White footed Fox	<i>Vulpes vulpes pusilla</i>	M	-	I
Blackbuck	<i>Antelope cervicarpa</i>	M	-	I
Indian Wolf	<i>Canis lupus</i>	M	-	I
Indian Flap-shelled Turtle	<i>Lissemys punctata</i>	H	-	I

*Note- *Aquila clanga* and *Aquila hastata* are also known as *Clanga clanga* and *Clanga hastata* respectively as per the IUCN Red Data List, 2017-3

From Table-1a, it can be understood that the White-rumped Vulture (a bird species) was the only Critically Endangered (CR) animal during the study period. It was also a Schedule-I species. Among Endangered species, there were two raptors (i.e., Saker Falcon and Steppe Eagle). Total 9 Vulnerable (VU)

species included all birds (Woolly-necked Stork, Common Pochard, Greater Spotted Eagle, Indian Spotted Eagle, Eastern Imperial Eagle, Sarus Crane, Asian Houbara, Southern Grey Shrike and Stoliczka's Bushchat). Table 1a also indicates that total 13 animal species including 6 species of birds (i.e., White-

rumped Vulture, Asian Houbara, Eurasian Spoonbill, Osprey, Indian Peafowl, Red-necked Falcon), 6 species of mammals (i.e., Indian Wild Ass, Chinkara, Desert Cat, Desert Fox, Blackbuck and Indian Wolf) and 1 species of reptile (Indian Flashed-shelled Turtle) recorded during the study were Schedule 1 species as per Wildlife (Protection) Act, 1972. It might be noted that out of total 13 Schedule 1 animal species recorded, 11 species were only Schedule 1 species (including 4 bird species, 6 mammal species and 1 reptile species) and 2 species were also threatened ones as per IUCN Red List [i.e. White-Rumped Vulture(CR) and Asian Houbara (VU)] in addition of being Schedule I species.

Among the threatened bird species, maximum proportion of the species (i.e., 50 % of the total threatened bird species) belonged Vulnerable (VU) category. About 33% of the total threatened bird species were found to be the Sch-I species [as per the Wildlife (Protection) Act, 1972] category. The proportion of the Critically Endangered (CR) bird species was minimum (6%) (Figure-2).

Near Threatened (NT) species: A taxon is globally “Near Threatened” when it has been evaluated against the criteria⁵, but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

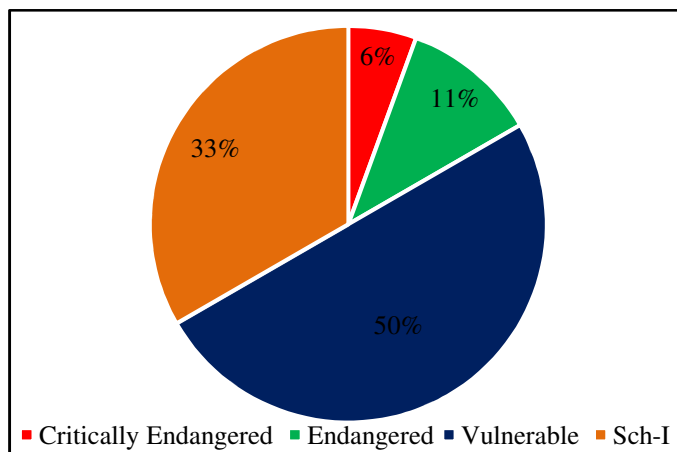


Figure-2: Proportions of bird species belonging to various Threat categories.

Not a single threatened mammal belonged to any of the IUCN Red List category. Rather, they all belonged to the category of Sch-I as per the Wildlife (Protection) Act, 1972.

The biodiversity study in LRK by GEER Foundation from October 2015 to March 2017 had revealed that very large number of animal species belonged to this category (Table-1b).

Table-1b: Near Threatened (NT) animals in LRK as per IUCN Red List.

Common Name	Scientific Name	Taxon animal (B/M/H)	IUCN Threat Status
Dalmatian Pelican	<i>Pelecanus crispus</i>	B	NT
Oriental Darter	<i>Anhinga melanogaster</i>	B	NT
Painted Stork	<i>Mycteria leucocephala</i>	B	NT
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	B	NT
Black-headed Ibis	<i>Threskiornis melanocephalus</i>	B	NT
Lesser Flamingo	<i>Phoenicopterus minor</i>	B	NT
Pallied Harrier	<i>Circus macrourus</i>	B	NT
Cinereous Vulture	<i>Aegypius monachus</i>	B	NT
Himalayan Vulture	<i>Gyps himalayensis</i>	B	NT
Red-necked Falcon	<i>Falco chicquera</i>	B	NT
Eurasian Curlew	<i>Numenius arquata</i>	B	NT
Black-tailed Godwit	<i>Limosa limosa</i>	B	NT
River Tern	<i>Sterna aurantia</i>	B	NT
Indian Wild Ass	<i>Equus hemionus khur</i>	M	NT
Striped Hyena	<i>Hyaena hyaena</i>	M	NT

Note: B- Bird, M- Mammal, H- Herpetofauna; NT- Near Threatened.

Table-1b has revealed that a total of 15 Near Threatened (NT) species were recorded that included 13 species of birds and 2 species of mammals. Table-2 gives observation details for various threatened species recorded during the present study. It

indicates that from the view-point of occurrence of threatened species, Western and Eastern fringe and Mardak, Nanda, Pung and Shedwaisl ands (bets) were important during the study.

Table-2: Observation details for various threatened species recorded during the present study.

Name of the Threatened species	Bird(B)/Mammal(M)/Herp (H)	Max. no. recorded	Locality(Fringe/bet)
White-rumped Vulture	B	10	Southern fringe (near Degam village)
Steppe Eagle	B	1	Eastern, Western and Southern fringe
Saker Falcon	B	1	Eastern and Western fringe
Red-necked Falcon	B	1	Eastern fringe
Woolly-necked Stork	B	1	Eastern fringe
Common Pochard	B	3	Eastern and Western fringe
Greater Spotted Eagle	B	1	Eastern, Western and Southern fringe
Eastern Imperial Eagle	B	1	Eastern, Western and Southern fringe and islands like Mardak and Pung
Indian Spotted Eagle	B	1	Eastern, Western and Southern fringe
Sarus Crane	B	3	Western fringe
Asian Houbara	B	2	Eastern (Near Odu Village) and Western fringe and islands like Mardak and Pung
Southern Grey Shrike	B	1	Eastern, Western and Southern fringe and islands like Nanda, Mardak, Jilandhar and Vachchhraj
Stoliczka's Bushchat	B	1	Western and Southern fringe
Eurasian Spoonbill	B	1	Eastern, Western and Southern fringe and islands like Nanda and Mardak
Osprey	B	1	Eastern, Western and Southern fringe
Indian Peafowl	B	30	Eastern, Western and Southern fringe and islands like Nanda, Mardak, Shedwa, Gataka, Jilandhar, Vachchhraj and Pung
Indian Wild Ass	M	>200	Eastern, Western and Southern fringe and islands like Nanda, Mardak, Shedwa, Dhut, Nagada, Gataka, Gon, Jilandhar, Vachchhraj, Keshmara, Ratadiya, Pung, Dungri, Khijadiya
Chinkara	M	2	Eastern, Western and Southern fringe and islands like Nanda, Mardak, Shedwa, Pung, Nagada, Gataka and Gon
Desert Cat/Wild Cat	M	1	Western fringe
Desert Fox / White footed Fox	M	1	Eastern, Western and Southern fringe and islands like Nanda, Mardak, Shedwa, Keshmara, Vachchhraj, Gataka
Blackbuck	M	2	Eastern and Southern fringe
Indian Wolf	M	2	Eastern, Western and Southern fringe and islands like Nanda, Shedwa, Mardak
Indian Flap - shelled Turtle	H	6	Eastern, Western and Southern fringe and islands like Nanda

Conclusion

The study has indicated the existence of good number of threatened (Schedule I, CR, EN and VU) species and Near Threatened (NT) species in LRK. The study has shown that Western and Eastern fringes and Mardak, Nanda, Pung and Shedwa islands have supported a good number threatened species. As far as threatened and Near Threatened bird species (recorded during the study) are concerned, majority of them have been migratory and therefore their conservation can be considered to be a global responsibility. All the threatened and Near Threatened mammals and reptiles recorded during the study were resident species of the country and therefore their conservation can be considered as a national responsibility.

Recommendations: It is recommended that stringent measures should be implemented for the conservation of the threatened birds, mammals and reptiles in the LRK. Otherwise, a wide range of socio-economic activities like salt manufacturing, agriculture, fisheries, charcoal making (from *Prosopis juliflora*) and livestock grazing that are carried out in the LRK and its surrounding landscape may jeopardize the existence of the threatened and Near Threatened species of LRK. Special emphasis should be laid on wildlife conservation practices for the Western and Eastern fringes and Mardak, Nanda, Pung and Shedwa islands.

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