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NEW AVIFAUNA DIVERSITY RECORDED IN THE GREAT BARREN ZONE AND LINEAR TRENCH ZONE OF THE GREAT RANN OF KACHCHH, GUJARAT, INDIA

Rohan P. Thakker and Hitesh Solanki*

Department of Botany, Bioinformatics and Climate Change Impacts Management
Gujarat University, Ahmedabad, Gujarat, India

Corresponding Author. Email-Id: husolanki@yahoo.com, rohanthakker1985@gmail.com

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Abstract

1971's gazetteer of India wrote that 'the entire expanse of the Great Rann is covered with a thick salt layer mixed with fine sand and clay devoid of vegetation and habitation'. Which is not a scenario now, the Great barren zone and linear trench zone of Great Rann is getting converted into Grassland now. Approximately 5000 square kilometers of land is under this type of change. *Sporobolus arabicus* is a Grass species which has become dominant in the region where nothing used to grow. *Tamarix aphylla* is a shrub which can be seen very often. The road construction activity has increased in the region due to defense needs. The old Channel of Indus i.e. Dhoro puran has become active and which has become a source of fresh water in the region. Chinkara, blue bulls & wild boar can be seen very often. We have recorded species like white storks, mallard and Tree Pie which have

never been recorded in the great Barren Zone and Linear Trench Zone as it was devoid of vegetation and fresh water. The area comprises of about Above 3000 Sq. which we recorded for the first time. The Great Rann except the beyt zone is becoming rich in terms of avifaunal diversity. The ecology has started supporting the species.

INTRODUCTION

The Great Rann of Kachchh is a salt waste lying between 22°55' and 24°43' N. and 68°45' and 71°46' E., covering an area of about 9000 sq miles, and stretching along the north and east of the state of Kachchh, which it separates from Sindh on the north and from Radhanpur to Kathiawar on the east and south. It varies in width from 25 to 35 miles on the north to 2 miles on the east. It is believed to be the bed of an arm of the sea, raised by some natural convulsion above its original level, and cut off

from the ocean (*Imperial Gazetteer of India*, v. 11, p. 82.) The Rann of Kachchh is a peculiar territory, "A space without a counterpart in the globe (patel, 1971). Derived from the Sanskrit word "Irina" originated from the sea, is a salt flat, the waste. It is divided in two parts: the Great Rann of Kachchh to the north and the Little Rann of Kachchh, to the south east to the great Rann. The Rann is a low, slightly undulating waste, stretching for miles and devoid of all vegetation, except on its borders (McCann, C.1939). The entire expanse of the Great Rann is covered with a thick salt layer mixed with fine sand and clay devoid of vegetation and habitation (Patel, 1971). In appearance and general character, the two parts of the Rann differ, but little. There are four hilly elevations on the south edge of the Great Rann namely Khavda, Khadir, Bela, and Chorad, also there are plots of raised land called bets, and some of them are of considerable size. The whole area remains covered by water to the depth of 0.3 to 0.91 meter from April to October – the season of strong south west (SW) winds and occasional rains. Most of the water is salty, either sea water driven by the strong S W wind up the Kori creek or beyond the head of the Gulf of Kachchh or land water from the Luni or Banas or brackish local streams. In spite of the yearly flooding, the bed of Rann except in a few isolated spots does not become soft or slimy. As the flood water dries, they leave a hard salt surface covered with stone, shingle /rounded pebbles and salt. As the season wears on, and the heat grows greater, the ground bakes and blisters by the sun, shines over large tracts of salt dazzling whiteness and the air dim and quivering mocks all distance by an almost ceaseless mirage or "mrigjal ". Only on some raised rocky lands is water found and only near water is there brushwood, grass or any sign of growth of life is there. Except a chance bird or herd of wild asses in the region or a stray antelope chinkara, or an occasional camel caravan, no sign of life breaks the weary loneliness (Ali, 1945). A

small island in the Great Rann of Kachchh is known as Sindal bet or Andabet by BSF Jawans (as thousands of eggs of bird can be seen on small island) hordes of Greater and Lesser Flamingos fly in from different parts of the world and India after setting of each monsoon to build their nests and after breeding leave the region to fly again to other parts of India and the world. Information of this breeding colony was first given to outer world in 1883 by late Maharao Khengarji of Kachchh. Dr Salim Ali first visited in 1944 and 1945. About five lakh flamingos were recorded at flamingo city and about one lakh flamingos were recorded at the mouth of Banas in Little Rann. About a decade later during 1977 to 1987 there were no records available about the breeding of flamingos at Sindal bet or Flamingo City.

STUDY AREA

The Linear Trench Zone is a depression extending from the Kori Creek eastwards up to Kuar Bet. This trench like feature lying between the Banni and the Allah Bund comprises a depressed terrain which is inundated by tidal waters of the Arabian sea through the Kori Creek. It is a vast shallow depression where water by directed precipitation as well as from the neighboring mainland streams collects and stagnates. The sea water is able to travel eastwards as far as Kuar Bet, a distance of about 90 km inland. Tidal currents and strong winds are the main factors that control the flooding of this zone. Its Western portion in the proximity of the Kori Creek is a region of regular marine inundation. The Central portion, further inland comes under the influence of high tides only during monsoon months, while the Eastern portion farthest from the Kori Creek, is never affected by the normal tides. But during heavy tides in monsoon, sea water aided by strong winds reaches up to Kuar Bet. But this part of the linear Zone slightly more depressed than the central portion, the tidal waters augmented with rain waters, stagnates in this

depression which on evaporation gives rise to a vast salt-encrusted plain. Since 2004, the vegetation in the great Rann of Kachchh has increased and is increasing day by day, not only in the beyt zone, which was the only zone where vegetation used to grow, but also in the plain salt flat zone where nothing used to grow (Figure 1 & 2). The old Channel of Indus i.e. *Dhoro puran* has become active and which has become a source of fresh water in the region. *Tamarix aphylla*, *Urochondra setulosus*, *Suaeda fruticosa*, *Suaeda nudiflora*, *Sporobolus arabicus* are some plant and herb species which are increasing in the region. In addition to these species, many new species are growing in the region as the soil is brought from outside for construction activity of roads and buildings in the region, for e.g. *Cucurbita*, *Cucumis*, *Heliotropium*, Pomegranate, Caster etc. The mammalian species including Chinkara, blue bull, Porcupine and wild boar are increasing day by day in the region. The region has come up as a new grassland region in the state. It might also happen in the future that the woody vegetation might be the next stage of the region. This region has come-up as an undisturbed habitat for birds and animals as there is no entry for common people as the area is under defense force. The Great Rann is becoming rich in terms of avifaunal diversity. The ecology has started supporting the species.

MATERIALS & METHODS

The work was carried out as regular visits during September 2012 to March 2013. The birds and their occurrence were noted using wide-range Binoculars and a Sony DSLR camera with zoom lenses. Birds sighted during the study period were categorized according to their status as Residents (LR; birds that have been known to breed in the study area itself and encountered during every visit), and local migrants (LM; birds which were encountered during the study period and breeding in surrounding areas). Some birds sighted

occasionally during the study period, which are not resident of study area, are included as migrant birds (MB). Bird identification was followed based on Ali and Ripley (1996), and Grimmett et al. (1999).

OBSERVATIONS

A total number of 45 species of birds were identified and recorded in the region with photographs (Table 1). From the view point of avifauna diversity, the region is becoming rich day-by-day. Apart from this, *Sporobolus arabicus* (Figure 4) is a grass species which has covered the region wherever the vegetation was possible including non beyt region too. Due to this, insects have become available as food for the birds in the region. Apart from this, due to construction activity of the roads in the region, road-side-peats came into existence which is regularly filled by the rain water and is also acting as new wet-lands and supports for the birds in the region. This new vegetation has started supporting many bird species like prey birds and many other wetland birds like Mallard, common crane, white stork, common teal, white breasted king-fisher, Dalmatian pelican, and Rosy pelican etc (Figure 3). In which mallard, common teal and white stork has never been recorded in the study area.

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Table 1: Birds that were recorded in Great Rann of Kachchh during (2012-2013) and their status

| Sr. No. | Common name | Scientific name | Vernacular name | Status |
|---------|-------------------------|----------------------------------|------------------------------|--------|
| 1) | Rosy Pelican | <i>Pelecanus onocrotalus</i> | <i>Gulabi pen</i> | LM |
| 2) | Greater Flamingo | <i>Phoenicopterus ruber</i> | <i>Moto hanj</i> | LM |
| 3) | Lesser Flamingo | <i>Phoenicopterus minor</i> | <i>Nano hanj</i> | MB |
| 4) | Mallard | <i>Anas platyrhynchos</i> | <i>Nilshir</i> | MB |
| 5) | White eared Bulbul | <i>Pycnonotus leucotis</i> | <i>Ran bulbul</i> | LR |
| 6) | Cinereous Vulture | <i>Aegypius monachus</i> | <i>Kadu gidh</i> | O |
| 7) | Blue Rock Pigeon | <i>Columba livia</i> | <i>Kabutar, parevu</i> | LR |
| 8) | House Crow | <i>Corvus splendens</i> | <i>Kagdo</i> | LR |
| 9) | House Sparrow | <i>Passer domesticus</i> | <i>Chakli</i> | LR |
| 10) | Common Kestrel | <i>Falco tinnunculus</i> | <i>Largi</i> | LM |
| 11) | Imperial Eagle | <i>Aquila heliaca</i> | <i>Shahi jhumus</i> | MB |
| 12) | Steppe Eagle | <i>Aquila nipalensis</i> | <i>Pardeshi jhumas</i> | MB |
| 13) | White Bellied Sea Eagle | <i>Haliaeetus leucogaster</i> | <i>Dariyai garood</i> | MB |
| 14) | Tree Pie | <i>Dendrocitta vagabunda</i> | <i>Kherkhatto</i> | LM |
| 15) | Black winged stilt | <i>Himantopus himantopus</i> | <i>Gajpaun</i> | LR |
| 16) | Little Green Bee-eater | <i>Merops orientalis</i> | <i>Nano patrango</i> | LR |
| 17) | Blue Cheeked Bee-eater | <i>Merops persicus</i> | <i>Patrango</i> | MB |
| 18) | Grey Partridge | <i>Francolinus pondicerianus</i> | <i>Teetar, safed teetar.</i> | LR |
| 19) | Common Crane | <i>Grus grus</i> | <i>Kunj</i> | MB |
| 20) | Demoiselle Crane | <i>Grus virgo</i> | <i>Karkaro</i> | MB |

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|----|----------------------------|------------------------------|--------------------------|----|
| 21 | Houbara Bustard | <i>Chlamydotis undulata</i> | Tilor | MB |
| 22 | White stork | <i>Ciconia ciconia</i> | Safed dhonk | MB |
| 23 | Cattle Egret | <i>Bubulcus ibis</i> | Dhor baglo | LR |
| 24 | Little Egret | <i>Egretta garzetta</i> | Nano dhodo baglo | LR |
| 25 | Indian Reef Heron | <i>Egretta gularis</i> | Kala bagla | LR |
| 26 | Large Egret | <i>Casmerodius albus</i> | Moto dhodo baglo | LR |
| 27 | Desert Chat | <i>Ashbyia lovensis</i> | Gibberbird | LR |
| 28 | Wire-Tailed Swallow | <i>Hirundo smithii</i> | Leishra | LR |
| 29 | Hoopoe | <i>Upupa epops</i> | Hudhud, ghantitankno | LM |
| 30 | Indian Roller | <i>Coracias benghalensis</i> | Chash | LR |
| 31 | European Roller | <i>Coracias garrulus</i> | Kashmiri chash | MB |
| 32 | Pied Kingfisher | <i>Ceryle rudis</i> | Kabro kalkaliyo | LR |
| 33 | White Breasted King-fisher | <i>Halcyon smyrnensis</i> | Kalkaliyo | LR |
| 34 | Brown Headed Sea-Gull | <i>Larus brunnicephalus</i> | Ladakhi dhomdo | MB |
| 35 | Black Drongo | <i>Dicrurus macrocercus</i> | Kadiyo koshi, kado koshi | LR |
| 36 | Crested Lark | <i>Galerida cristata</i> | Moto chandul | LR |
| 37 | Tawny Eagle | <i>Aquila rapax</i> | Deshi jhumas | LR |
| 38 | Gadwall | <i>Anas strepera</i> | Luhar | MB |
| 39 | Great Crested Grebe | <i>Podiceps cristatus</i> | Moti chotili dubki | MB |
| 40 | Common Teal | <i>Anas crecca</i> | Nani murghabi | MB |
| 41 | Desert Wheatear | <i>Oenanthe deserti</i> | Shyam kanth rann piddo | LR |
| 42 | Variable Wheatear | <i>Oenanthe picata</i> | Moto kabro piddo | LR |
| 43 | Gull billed Tern | <i>Gelochelidon nilotica</i> | Dhodi wabgali | LM |
| 44 | Booted Eagle | <i>Aquila pennata</i> | Baghati | LM |
| 45 | Dalmatian pelican | <i>Pelicanus crispus</i> | Ruperi pen | MB |

(A- Abundant, C- Common , LM-local migrant, MB- migrant bird, O- occasional, LR- local Resident)

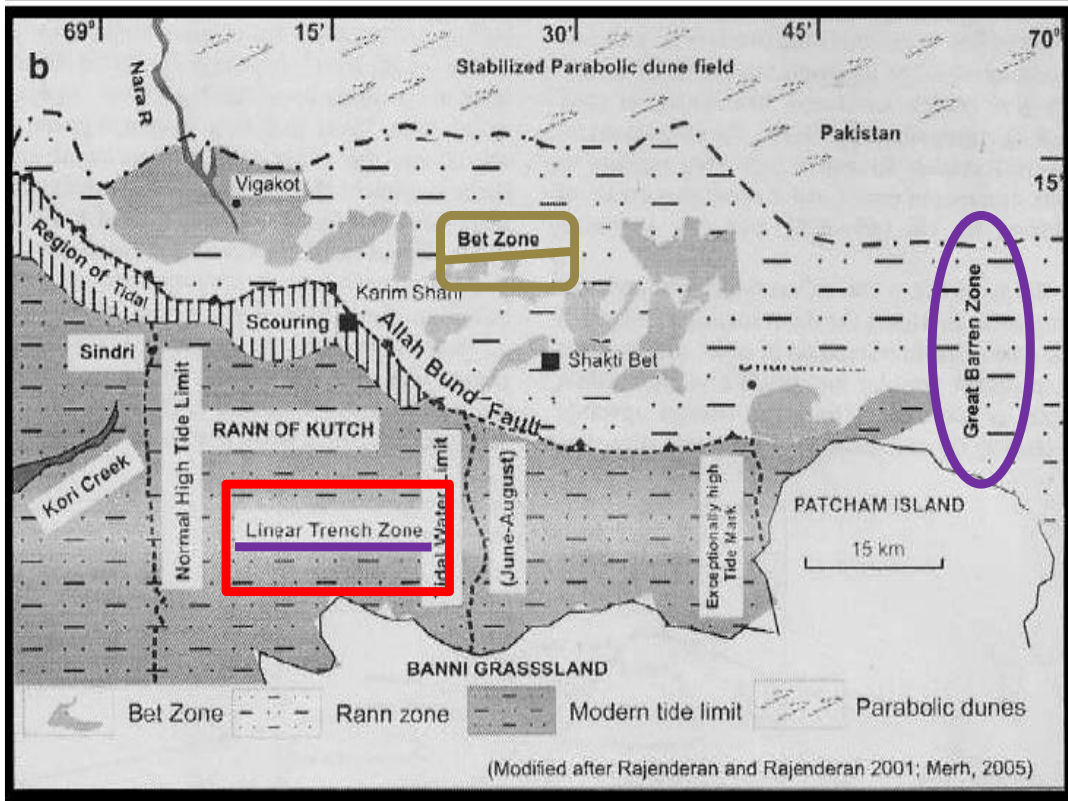


Figure 1: Geographical location of study area in detail

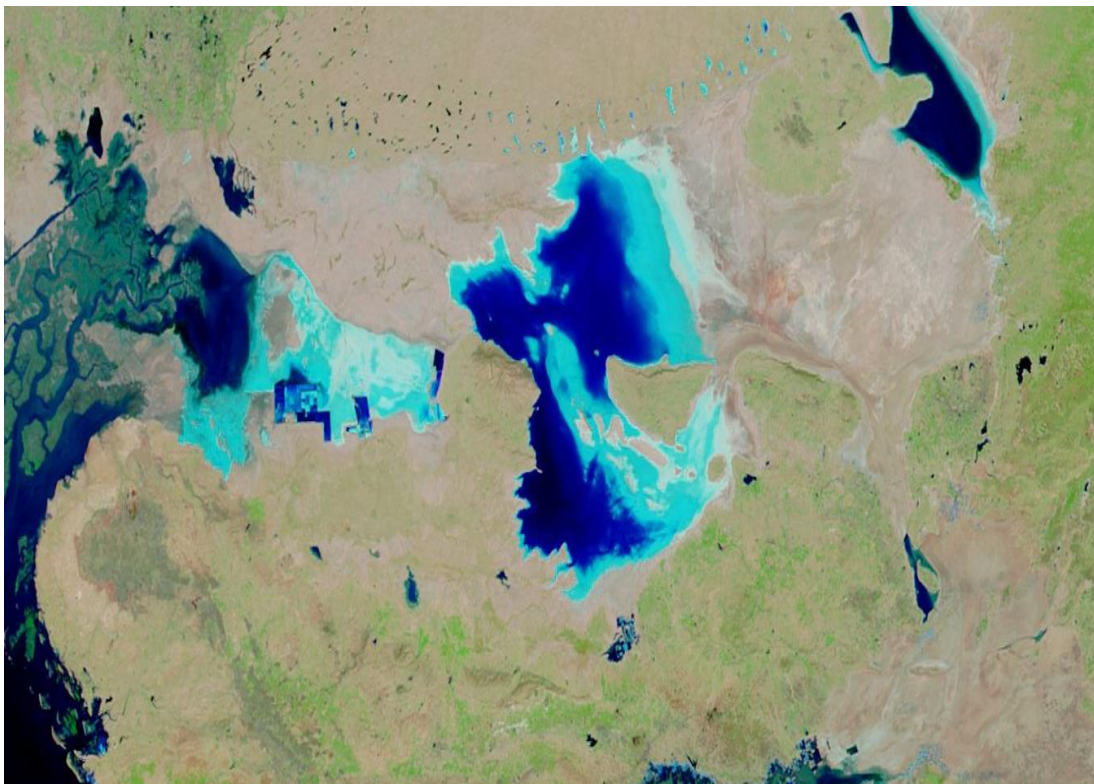


Figure 2: Map showing different zones of the Great Rann of Kachchh
(Source: Satellite image of Modis Data, 1st March, 2014)

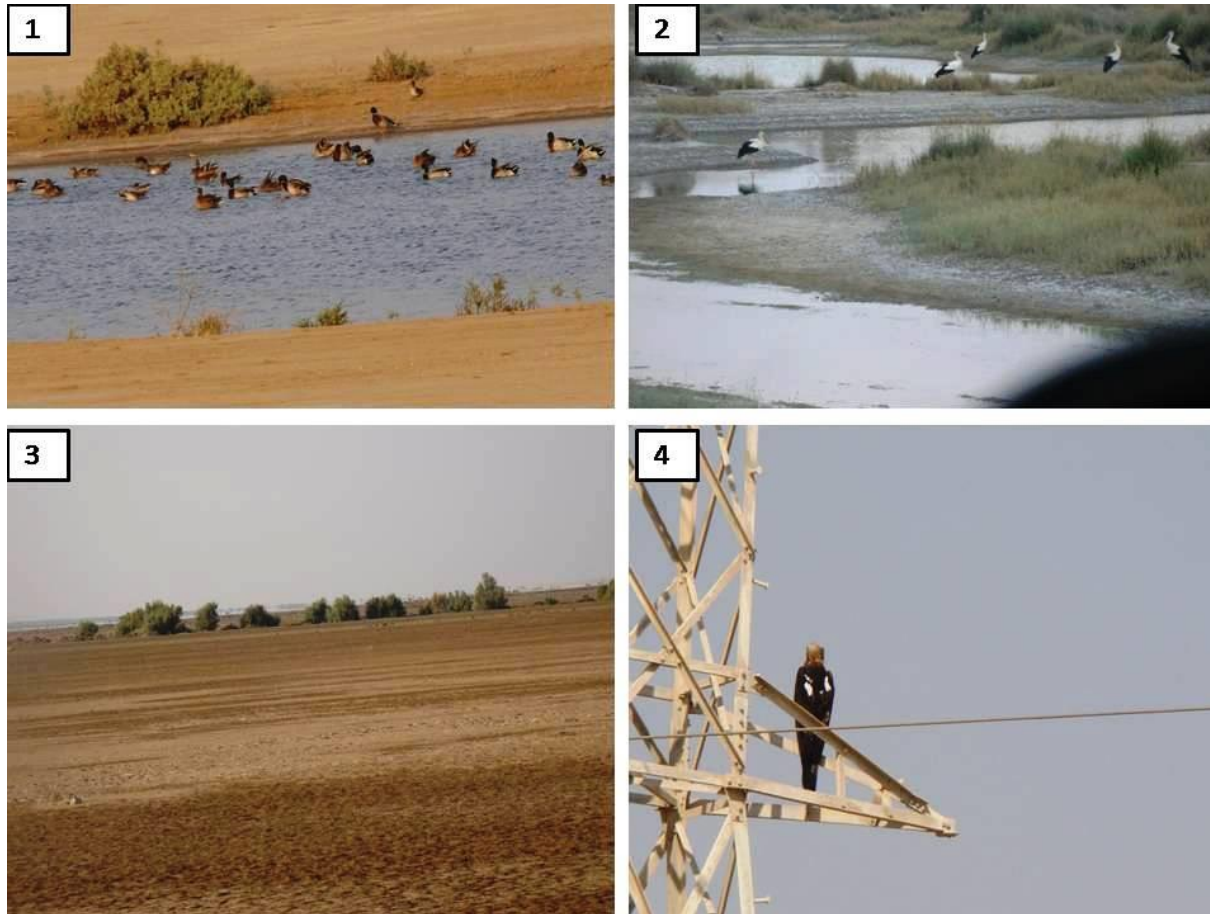


Figure 3: 1) Mallard in Great Rann of Kachchh, 2) White storks in Great Rann of Kachchh, 3) Tamarix sp. on road side pits, 4) Imperial Eagle in Great Rann of Kachchh



Figure 4: *Sporobolus arabicus* in Great Rann of Kachchh