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**STATUS AND CONSERVATION STRATEGIES OF INDIAN WILD ASS  
(EQUUS HEMIONUS KHUR) IN LITTLE RANN OF KUTCH, GUJARAT - A  
REVIEW**

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**Abstract**

*The Little Rann of Kutch is considered a large ecotone, a transitional area between marine and terrestrial ecosystems with an influx of both freshwater and sea water. The sanctuary expands over an area of 4953.71 Km<sup>2</sup>. The main vegetation in the region includes many species of grasses that are widely available as the source of food for the wild asses. The Khur Equus hemionus khur was formerly widespread in the arid zone of northwestern India and Pakistan, westwards through much of central Asia. However, it is now limited to the Little Rann of Kutch in Gujarat, India. Animal has started spreading its range from Little Rann of Kutch to its surrounding areas of Greater Rann, Banaskantha, to as far as neighboring State of Rajasthan. The Asiatic Wild Ass has experienced a major decline in population size and range size. However, degrading habitats and increasing environmental imbalance learnt from the observations of physical environmental factors, give indication about possible extinction or loss of species before even knowing them. In order to minimize such loss, the state of Gujarat is participating in global and national pursuit of wildlife and biodiversity conservation by implementing the National Action Plans and Conservation Network. The strenuous efforts by Government of Gujarat envisioned the conservation strategies to preserve the ecohabitat, Rann of Kutch, the only refuge to the endangered Indian Wild Ass (Equus hemionus khur).*

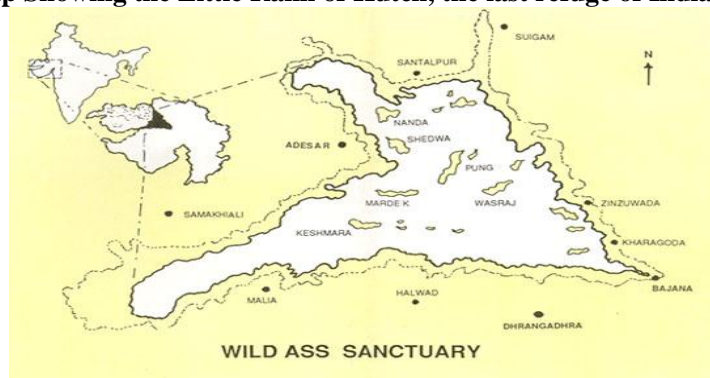
**Key Words:** Rann of Kutch, Wild Ass, Status, Government Policies, Conservation Strategies

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**Introduction**

Kutch is a district in State of Gujarat in Western India. Covering an area of 45,652 km<sup>2</sup>, it is the largest district of India. Kutch literally means something which intermittently becomes wet and dry; a large part of this district is known as 'Rann of Kutch' which is shallow wetland that submerges in water during the rainy season and becomes dry during other seasons (Fig. 1). In Sanskrit, 'Rann' literally means a 'tortoise'. The Rann is famous for its marshy salt flats, which become snow white after the shallow water dries up each season before the monsoon rains. During monsoon, the Rann gets inundated for a period of about one month. It is dotted with about 74 elevated plateaus or islands, locally called 'bets'. The largest plateau called 'Pung Bet' has an area of 30.5 km<sup>2</sup> and the highest island is Mardak about 55 m. The district is also famous for ecologically important Banni Grasslands with their seasonal marshy wetlands that forms the outer belt of the Rann of Kutch. Kutch District is surrounded by the Gulf of Kutch and the Arabian

Sea in south and west, while northern and eastern terrains are surrounded by the Green Rann and Little Rann (seasonal wetlands) of Kutch. In past, when there were not many dams built on its rivers, the Rann of Kutch remained wetlands for a large part of the year. Even today, the region remains wet for a considerable part of year. Gujarat is as famous for its large wild ass herds as it is for its Asiatic Lions. To protect these rare animals, a sanctuary covering an area of over 4,953.07 sq. km. was created to offer protection to more than 2,100 wild asses inhabiting this area. In the Little Rann of Kutch, the asses are attracted by the flat green grass covered expanse, the islands where coarse grasses spring up during the monsoon and are known as bets. The wildlife Sanctuary was established in 1972 and came under the Wildlife Protection Act of 1973. The sanctuary is one of the last refuge on earth where the endangered wild ass subspecies Indian Wild Ass (Khur) (*Equus hemionus khur*) belonging to Asiatic Wild Ass species Onager (*Equus hemionus*) can be spotted.

**Fig. 1 Map Showing the Little Rann of Kutch, the last refuge of Indian Wild Ass****Little Rann of Kutch****Flora and Fauna:**

The Little Rann of Kutch located between 22° 55' N to 24° 35' N 70° 30' E to 71° 45' E. The Rann of Kutch is full of dry thorny shrubs and there are no large trees. The Vegetation is largely xerophytic with the ground cover predominated by ephemerals. Their active growth is triggered by the advent of monsoon rains. Although the islands and fringes both have been colonized by *Prosopis juliflora*, the islands have a richer floral diversity than that of the fringes. 253 flowering plant species have been listed, out of which the number of species of trees was 18, shrubs-23, climbers/twiners-18, herbs-157 and grasses-37. Bets and fringe area of extensive marine saline flats of the Little Rann of Kutch mainly support a variety of indigenous plants like *Suaeda spp.*, *Salvadora persica*, *Capparis decidua*, *Calotropis procera*, *Tamarix sp.*, *Aeluropus lagopoides*, *Cressa cretica*, *Sporobolus spp.*, *Prosopis chilensis*, etc. The dominant families representing more than 10 species are Fabaceae, Asteraceae, Cyperaceae and Poaceae. Herbaceous taxa are predominant over shrubs and trees. 107 species of algae are present in the water bodies in and around the Sanctuary. The Sanctuary is habitat by around 93 species of invertebrates, including 25 species of zooplanktons, one species of annelid, 4 crustaceans, 24 insects, 12 molluscs and 27 spiders. Totally 4 species of amphibians and 29 species of reptiles that includes 2 species of turtles, 14 species of lizards, 12 species of snakes

and 1 species of crocodile occur. The most famous wildlife of the region includes the Indian Wild Ass, as well as the chinkara, desert fox, jackal, desert cat, caracal, nilgai, wolf, blackbuck, and striped hyena. Though a bleak landscape it is rich in biodiversity and is an ecologically important area for wildlife and many local and migratory water birds like cranes, ducks, pelicans, flamingoes and land birds like sand grouse, francolins and the Indian bustards (Bunsha, 2006).

**Description:**

The Little Rann, is the only place on earth where the endangered Indian Wild Ass (*Equus hemionus khur*), known locally as the 'ghudkhar', still survives (Fig. 2). Wild ass is also referred to as *khur*. They are capable of marathon runs at a pace of about 24 km/hr. for as long as two hours, reaching a top speed of 70 km per hour over short distances. Few animals in the animal kingdom can match the wild ass in terms of speed and stamina. In India, the horse tribe is represented by the Indian wild ass. Asiatic Wild Ass weighs approximately 200-260 kg. The Indian wild ass, as with most other Asian wild ass subspecies, is quite different from the African Wild Ass Species. The coat is usually sandy, but varies from reddish grey, fawn, to pale chestnut. The animal possesses an erect, dark mane which runs from the back of the head and along the neck. The mane is then followed by a dark brown stripe running along the back, to the root of the tail.

**Table 1 Systematic Position of Indian Wild Ass**

<b>Kingdom</b>	<b><u>Animalia</u></b>
<b>Phylum</b>	<b><u>Chordata</u></b>
<b>Subphylum</b>	<b><u>Vertebrata</u></b>
<b>Class</b>	<b><u>Mammalia</u></b>
<b>Order</b>	<b><u>Perissodactyla</u></b>
<b>Family</b>	<b><u>Equidae</u></b>
<b>Genus</b>	<b><u>Equus</u></b>
<b>Subgenus</b>	<b><u>Asianus</u></b>
<b>Species</b>	<b><u>hemionus</u></b>

Subspecies	<i>khur</i>
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Fig. 2 Wild Ass (*Equus hemionus khur*)



#### Food and Feeding Habit:

Wild asses graze between dawn and dusk. The animal feeds on grass, leaves and fruits of plant, crop, *Prosopis* pods, shrubs and saline vegetation that grow on the Bets.

#### Territoriality and Breeding Behavior:

Four social units are identified in Khur; family group, stallion, all male group and displaced stallion. Stallions in the Rann of Kutch exhibit both seasonal and year-round territoriality with females, forming small seasonal harems. Territorial stallions defend territories throughout the year in the Rann of Kutch. Females remain on territories during the breeding season (monsoon season), with some females remaining on one territory and others moving between territories. A few mares continue to remain on territories all year round. The wild ass is a strong animal and a stallion, fights viciously for the possession of the mare in the mating season. The combatants rear up on their hind legs and kick and bite viciously. Stallions live either solitarily, or in small herds of two and three, while family herds remain large. Mating occurs during rainy season. When a mare comes into heat, she separates from the herd with a stallion, who battles against rivals for her possession. After few days, the pair returns to the herd. After mating, one foal is born between July and September. Gestation is 11 months and breeding is seasonal. Peak birthing season occurs between April and September. The mare gives birth to one foal. The male foal weans away by 1-2 years of age, while the female continues to stay with the family herd.

#### Range and Habitat:

The saline deserts (Rann), arid grasslands and shrub lands are its most preferred environments. The Indian Wild Ass's range once extended from Western India, Southern Pakistan (i.e. Provinces of Sindh, Baluchistan, Afghanistan and South-eastern Iran), today its last refuge lies in the Indian Wild Ass Sanctuary, Little Rann of Hitesh U. Shingadia

Kutch and its surrounding areas of the Great Rann of Kutch in the Gujarat State of India. The animal, however, is also seen in the districts of Surendranagar, Banaskantha, Mehsana and other Kutch districts.

#### Range Extension and Management:

The strenuous efforts of conservation today has led to increase in numbers of Wild Ass and its range extending from Little Rann of Kutch, where the world's last population of this subspecies had got confined to in recent years and has gradually started moving out and colonizing Greater Rann of Kutch also extending into the neighboring Indian State of Rajasthan in the bordering villages in Jalore district bordering the Rann of Kutch in Gujarat. Gujarat's supposed monopoly over this subspecies, also referred to as Khur (*Equus hemionus khur*) has thus been out of order. Within Rajasthan it has started making its presence felt in Khejariali and its neighborhood, where a 60 km<sup>2</sup> area was transferred by the Rajasthan Forest Department by the Revenue Authorities in 2007. At this place Rabaris (camel and sheep breeders) live in the *Prosopis juliflora* jungles in the company of chinkaras, hyenas, common fox, desert cat, wolf, etc.

#### Present Status:

The status of Indian wild ass is listed as endangered as the Asiatic Wild Ass is estimated to have declined by more than 50% over the past decade and a half based on direct observation and potential/actual levels of exploitation. Further on if the exploitation continues the Asiatic Wild Ass is also estimated to carry on declining by more than 50% over the next 10 to 21 years (Moehlman *et al.*, 2008).

#### Major Threats:

It is unknown how the Indian wild ass disappeared from its former haunts in parts from Western India and Pakistan, since the animal was never a hunting target of Indian Maharajas and

colonial British officials of the British Raj. Threats to the species include loss of habitat as a result of human settlement, cultivation, overgrazing, developmental activities, conflict with humans (crop depredation), competition for water, salt extraction, poaching for meat, competition with domestic livestock, etc. Perhaps the greatest threat to the populations of Asiatic Wild Ass appears to be the potential for catastrophic population declines due to poaching. Disease and/or drought are 'stress events' that are a constant threat to small, isolated Wild Ass populations, such as those in India. Unfortunately, the Indian Wild Ass Sanctuary is in danger from several sources and the poachers who have begun to frequent the region are not even the greatest of these. Illegal salt mining tops the list, as about one third of India's salt comes from mining around the Little Rann. The noise and air pollution caused by transportation of this colossal amount of salt is gradually eating away at the wildlife habitat. The Indian Army also maintains a firing range of over 200 square km. inside the Sanctuary borders. Furthermore, the chemical factories popping up in the area, out of the way of where there are people to become aware of their atrocious environmental practices, are contaminating the region with hazardous industrial chemicals. This is by far the most direct threat from increasing human activities. The ecology of the Wild Ass Sanctuary, for example, is threatened by a canal building project - the Sardar Sarovar Project of the Narmada Development Authority. From 1958-1960, the wild ass became a victim of a disease known as 'Surra', caused by *Trypanosoma evansi* and transmitted by flies, which caused a remarkable decline of its population in India. In November and December 1961, the wild ass population was reduced to just 870 after the outbreak of South African Horse Sickness. Besides diseases, the ass's other threats include habitat degradation due to salt activities, the invasion of the *Prosopis juliflora* shrub and encroachment and grazing by the cattle herds of Maldharis, the nomadic tribe residing in the outskirts of the forests in Gujarat (Bavadem, 2000). Conservation efforts since 1969 have helped boost the animal's population to around 4000.

#### **Strategies of Conservation:**

In the last century, the Indian wild ass lived all over the dry regions of northwestern India in Jaisalmer, Bikaner and western Pakistan including, Sind and Baluchistan. Today, it survives only in the Little Rann of Kutch and a few stray towards the Great Rann of Kutch with

some reaching bordering villages in the Jalore district of the Indian State of Rajasthan. First census of the wild ass was done in 1940, when there were an estimated 3,500 wild asses. But, by the year 1960, this figure fell to mere 362; it was then categorized as a highly endangered species. In the years 1973 and 1976, Rann of Kutch and adjoining districts were taken up as the area for conservation for this sub-species also known as 'Khur'. From 1976, the forest department began conducting the wild ass census. Water holes were increased in the area; the forest department has also started a project for having fodder plots though the forest department is yet striving to achieve desired success. In 1998, the wild ass population was estimated at 2,940, by the year 2004 it has increased to an estimated 3,863. A recent census conducted by forest department in 2009 has revealed that the population of wild ass in the state was than estimated to about 4,038, an increase of 4.53% as compared to 2004. Of late it has been spotted right outside Ahmedabad near Nal Sarovar Bird Sanctuary. It seems it is no more confined to the 4,953.71 km<sup>2</sup> area of the Rann of Kutch, but it is now being found right up to the Kala Dungar near Banni Grasslands in Kutch and Nal Sarovar near Ahmedabad. Within the State of Gujarat, it is now also observed though sporadic in districts of Surendranagar, Rajkot, Patan and Banaskantha. This population of wild asses is the only gene pool of Indian wild asses in the entire world and one of the six geographical varieties or sub-species surviving on the planet.

The population has been growing since 1976 but the wild ass experts warn, long-term trends show intense fluctuations. This area in Kutch, Gujarat is drought-prone due to erratic monsoon, the wild ass population could decline suddenly as a result of a massive die-off. It is only if there are no severe droughts, the species is likely to grow and disperse in the Great Rann and adjoining Rajasthan habitats that the wild ass occupied in the recent past. The Gujarat Ecological Education and Research Foundation (GEER) report has recommended that the Thar desert in Rajasthan should be developed as an alternative site for re-establishing the Indian wild ass by reintroduction a few of them there. It is nominated by the Forest department to be a 'Biosphere Reserves', which are areas of terrestrial and coastal ecosystems internationally recognized within the framework of UNESCO's Man and Biosphere (MAB) Programme. It will focus on conserving biological diversity, research, monitoring and providing sustainable development models; the proposal has been sent

to and listed at UNESCO (Bhattacharya, 2006; Kaushik, 2008). The collective efforts of various socio-economic segments of Kutch, common masses, the policies laid down by the Government of India, Forest department officials, NGO's, Nature clubs of various schools and colleges are striving hard to conserve the natural habitat to prevent decline in the population of our pride and only species of Wild Ass in the Indian subcontinent. *Equus hemionus khur* is included in CITES Appendix I, with the other subspecies being on CITES Appendix II. The species is included in Appendix II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). The State Government resolved that after having consultations with the local communities may declare any area owned by the Government, particularly the areas adjacent to National Parks and sanctuaries and those areas which link one protected area with another, as a conservation reserve for protecting landscapes, seascapes, flora and fauna and their habitat, provided that where the conservation reserve includes any land owned by the Central Government, its prior concurrence shall be obtained before making such declaration. The Government had introduced new scheme during the 10th plan for the wildlife education interpretation, training and ecotourism. Here teaching was mainly nature education through nature camp for the students, teachers and other elite group. The training was also given to the departmental staff working for wild-life wing. The interpretation programme was for visitors visiting the national parks and sanctuaries; while the ecotourism programme was for the public.

#### **Implementation of Conservation**

##### **Programmes:**

Over 30% of the Khur population is ranging outside the Protected Area. The Sardar Sarovar Canal has altered the land-use patterns and the agro-economy i.e. from rain dependent crops to irrigated cash crops benefiting the local populace. Around the Rann, mitigation measures for the ever-increasing number of wildlife and human conflicts are immediately desirable. *Prosopis juliflora*, is an exotic shrub spreading fast from corner to corner the habitat, the management needs to undertake thinning operation of this shrub for habitat improvement. Salt mining is the major economy for eight months in the year for the locals living around the Rann. This area produces 21% of India's salt. The transportation of the salt is through well-defined routes. Presently truckers' criss-cross

through the area (habitat) thereby causing unwarranted damage to frail arid grasslands.

The Sardar Sarovar canal has fragmented the Khur population. There is a need to assess potential linkages between the fragmented Khur population and its source Rann population. There is a need to comprehend the demography and immigration patterns of Khur in the newly occupied sites (i.e. Nal Sarovar Bird Sanctuary, Velavadar Blackbuck National Park, areas in Bhal, Great Rann of Kutch and the areas in the neighboring State of Rajasthan). The existing sanctuary infrastructure and staffing needs to be strengthened which is at the moment inadequate for managing a Sanctuary of 5,000 km<sup>2</sup>. There is a need for disease monitoring of domestic equids and other live stocks. The sanctuary was notified in 1973 and the land settlement process has been initiated. The sanctuary has been identified as a potential Natural World Heritage Site. There is a need for an assessment of the status of Khur along the Indo-Pakistan border adjoining the Rann. The Wild Ass Sanctuary was identified as one of the six landscape sites in India for biodiversity conservation through improved rural livelihoods, a programme which is aided by the World Bank.

##### **Recommendations and Suggestions:**

The government strategies are often more on forestry sector and therefore, the forestry practices in forest lands and protected areas should be more conservation oriented. Material needs of local populace should be met chiefly by increasing productivity of non-forest areas through social forestry and community services. The accountability of maintaining environmental equilibrium and restoration of ecosystem demands:

1. Minimizing invasive activities of deforestation
2. Promoting agro-tourism and ecotourism
3. Recharging ground water
4. Preventing salinity ingression
5. Conserving biological diversity
6. Promoting soil conservation
7. Constitutional intercession and legal norms pertaining to conservation
8. Endorse measures to accelerate declaration of the Sanctuary as Biosphere Reserve
9. Promoting social forestry and community services, etc.
10. Creating social awareness across the country to minimize exploitation of these animals for domestic use.

##### **Conclusion**

The budding population with aspirations for more development has selected the path of

industrialization. Low productivity, susceptible ecosystems and elevated pace of industrialization has caused adverse brunt on the sustainability of livelihood and development of people around the vicinity of the sanctuary. The environment and ecosystems have already started showing signs of stress in terms of depleting ground water, ingress of salinity, depletion of biodiversity, including species loss, heavy soil erosion, desertification, etc. consequently the need of hour is to conserve and preserve the existing nature on the mother earth.

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