

# The Indian wild ass —wild and captive populations

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**The ghor-khar is a rare subspecies of onager, or Asiatic wild ass, and its habits are little known. The only known wild population inhabits the Little Rann of Kutch Desert in Gujarat State in western India and, after its numbers fell dramatically in the 1960s, it was declared a protected species. Conservation measures, including the establishment of a Wild Ass Sanctuary in 1973, have been so successful that the most recent census, in 1983, recorded nearly 2000 individuals, compared with 362 in 1967. The authors made four visits to Gujarat to study wild asses between 1984 and 1986.**

The Indian wild ass or ghor-khar *Equus hemionus khur* is endemic to the Indian subcontinent. Although some people suspect that it still occurs in the Sind and Baluchistan regions of Pakistan, there are no data to confirm this and its only known wild population lives in the Little Rann of Kutch Desert on the Kathiawar Peninsula in northern Gujarat State, western India. This saline desert is a unique ecosystem with very specific flora and fauna. Monsoon rains, which last from July to September, the average rainfall being 517.8 mm (Jadhav, 1979), transform this habitat into a grassy meadow with saline pools, which are convenient nesting places for the lesser flamingo\*. Some localities, near Nimaknager for example, are feeding grounds for many hundreds of birds on southward migration in autumn. Among them are demoiselle and Siberian or great white cranes, white spoonbills, pigmy cormorants, painted and open-bill storks, and many geese and ducks.

The wild asses feed mainly on *Cyperus capillaris*, *Andropogon* sp., *Dichanthium annulatum*, *Aristida alscansiovis* and *Iseilema prostratum* (Jadhav, 1979), along with leaves of pilu, toothbrush tree or salt bush *Salvadora persica* and leaves and pods of mesquite tree *Prosopis*

*juliflora*. According to Shahi (1981), between September and March the wild asses invade cotton fields to eat the green cotton fruit.

Wild asses usually live in groups of up to 12 individuals, although single animals, mainly stallions, are seen occasionally. It is a polygynous species, an adult stallion leading a group of mares and young. The females are always white on the underside and have streaks of white on the rump, on the underside of the neck and on the back of the head. The stallion is usually darker in colour, and always stays some distance from its group.

The wild ass forms very large herds during the monsoon, which is both the mating season and time of birth of the young. On 30 August 1984 we observed a herd of wild ass composed of more



Herds of wild asses during the dry season on average consist of up to 12 individuals including some foals (10 January 1986) (Jan Smielowski).

\*Scientific names of animals are given in Table 1.

than 50 individuals, while on 9 August 1986, in a herd of 36 individuals, we recorded three newborn foals and two sexually active stallions. Parturition has been observed from July to September, occasionally in October. Foals are born after 11 months of pregnancy. Mares reach maturity in the second year and stallions a year later. Typically, females bear young every second year. After the rains they disperse into small groups; for example, on 21 March 1985 we saw a group of six and on 9 January 1986 we saw a mare with foals. Sometimes they travel up to 30 km looking for pasture, which remains green longest in depressions. During sunny days in the dry season they stay in the centre of an open area without any protection, always observing the surrounding habitat. They escape from predators by running at a speed approaching 60 km per hour (Sinha, 1983). They can tolerate temperatures of up to 44°C, quenching their thirst by eating shrubby seablite *Suaeda fruticosa*, which contains plenty of saline water (I.K. Chhabra, pers. comm., 1986). After dark they gather in clumps of mesquite bushes, or on stony hills (*bets*). The *bets* are situated on the open desert lowland and provide valuable pasture during the monsoon when the lowlands are flooded. Nada Bet, for example, is, according to Chhabra (pers. comm., 1986), a favourite refuge for small herds of Indian gazelles or chinkara. On 9–17 January

1986 we observed, not far from the *bets*, the spiny-tailed lizard, the Indian desert gerbil, the Indian grey francolin and the jungle cat. Alongside the wild ass herds also lives the nilgai, and sporadically also the blackbuck. Predation by the Indian grey wolf, which is the only predator on the wild ass, is very low; by 1983 there were only 65 wolves found in the area (Sinha, 1983).

In 1946, Ali (1946) recorded 3000–5000 individuals, and 10 years later Wynter-Blyth (1956) estimated the population also within these limits (4000 individuals). During the 1960s numbers dropped suddenly: in 1962 there were only 860–870 individuals (Gee, 1963) and by 1967 only 362 remained. Expeditions of forest guards had found a great number of dead wild asses, their death being attributed to surra, a protozoan illness transmitted by domestic animals in 1958, 1960 and 1964 (Gee, 1963; Spillett, 1968) and carried by midges *Culicoides* spp., which have also been responsible for South African Horse Sickness.

The wild ass received the status of a protected species of the first category on the Indian fauna schedule list, and the Wild Ass Sanctuary was declared on 12 January 1973 (Jadhav, 1979) and established under government notification No. GUJ-GAZ, of 22 February 1971 (Figure 1). The area of the Sanctuary is 4953.7 sq km, of which *bets* cover one-quarter (1272 sq km). The introduction of mesquite all over the area, which was begun in 1954, has been very important for the survival of the wild ass populations. Shahi (1981) states: '2000 acres are annually planted with mesquite and so far over 22,000 acres have already been brought under its cover'.

By 1976 protection measures had resulted in a population increase to 720 individuals, and the most recent census (Second Wild-ass Census), carried out by the Gujarat Government on 15–16 February 1983, recorded 1989 individuals (Sinha, 1983). These increases reflect the considerable success of the State Government's Forest Wildlife Conservation Programme.

The villagers (Maldharis and Bharwars) who keep herds of cattle, goats and sheep, are strict vegetarians and have no direct influence on the wild ass populations. Jadhav (1979) pointed out the importance of minimizing human interference

Table 1. Scientific names of animals mentioned in text\*

<b>Reptiles</b>	
Spiny-tailed lizard	<i>Uromastix hardwickii</i>
<b>Birds</b>	
Demoiselle crane	<i>Anthropoides virgo</i>
Indian grey francolin	<i>Francolinus pondicerianus</i>
Lesser flamingo	<i>Phoeniconaias minor</i>
Open-bill stork	<i>Anastomus oscitans</i>
Painted stork	<i>Mycteria leucocephala</i>
Pigmy cormorant	<i>Haliëtor pygmeus</i>
Siberian or great white crane	<i>Grus leucogeranus</i>
White spoonbill	<i>Platalea leucorodia</i>
<b>Mammals</b>	
Blackbuck	<i>Antilope cervicapra</i>
Indian desert gerbil	<i>Meriones hurrianae</i>
Indian gazelle or chinkara	<i>Gazella gazella bennettii</i>
Indian lion	<i>Panthera leo persica</i>
Indian grey wolf	<i>Canis lupus pallipes</i>
Jungle cat	<i>Felis chaus</i>
Nilgai	<i>Boselaphus tragocamelus</i>

\*Following: Ellerman and Morrison-Scott (1951), Schwartz and Thomas (1975), Howard and Moore (1980).

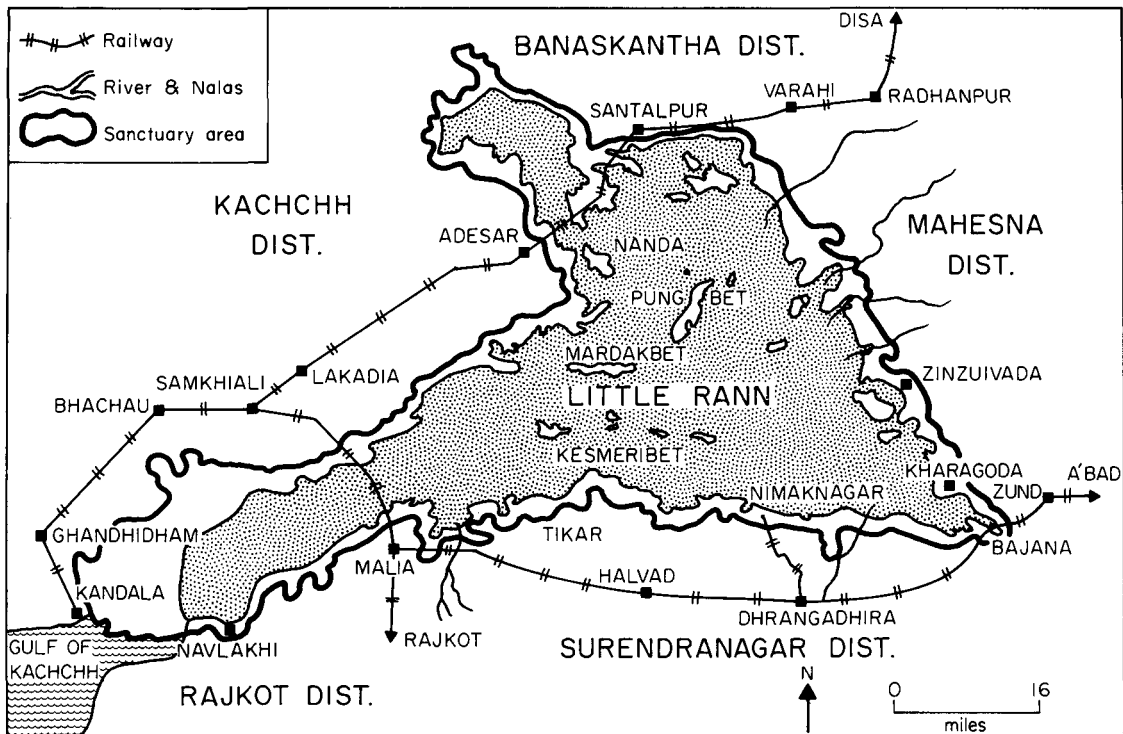


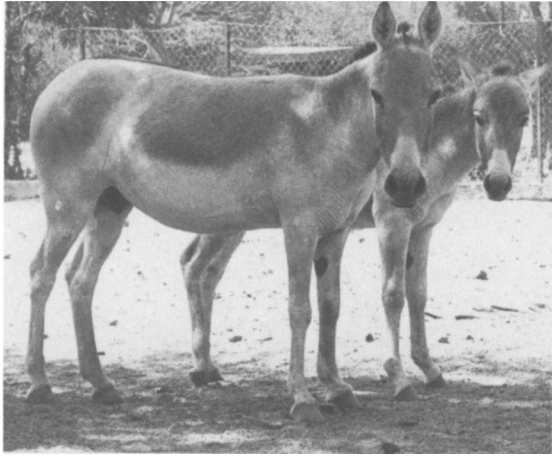
Figure 1. The Wild Ass Sanctuary in Little Rann of Kutch.

and maintaining ecological balance. The objectives of his plan included the protection of the whole ecosystem from fire to preserve the food base for the wild ass population, and the organization of drinking water facilities for wild animals, mainly wild asses, including deepening ponds. He also advocated planting mesquite and other plants to provide fodder and to prevent the erosion of the stony soils, which are subject to extremes of temperature and the high winds that blow from March to June.

One of the main aims of Jadhav's (1979) programme was the conservation of the wild ass by captive breeding. This was supported by Gee (1963) and Spillett (1968), but only recently did it become possible to specify a fixed number of 15 individuals to be captured each year from the wild ass population. Only foals were captured, to be reared in a special enclosure built according to instructions issued on 20 October 1977. In 1979–1980 the Wild Ass Rearing Centre at Narari was created for Government Department Zoological Gardens, circuses, and other agencies.

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Attempts at breeding this species in India were made as late as the 1960s because the wild ass had been exhibited in the world's zoos only twice before: in Paris, where in 1842–1849 nine foals were born, and in London, where a pair presented in 1934 by H.H. the Maharo of Kutch lived for more than 20 years, according to the record in the British Museum (Natural History) where the skeletons were deposited (J. Clutton-Brock, pers. comm.). The Sakkarbaug Zoo in Junagadh had exhibited the species from 1956. This zoo, as the only Indian zoo under the direct supervision of the Gujarat Forest Wildlife Conservation Office, is in a good position to obtain individuals from the wild. In 1975–1984 the Wildlife Conservation Office organized, under P.P. Rawal, some expeditions to capture wild asses. Some of the captured animals were transferred to other Indian zoos for further breeding. The zoos in Ahmedabad and New Delhi have already produced foals. According to our register, as of September 1984 six Indian zoological gardens had about 25 individuals.



The National Zoological Park in New Delhi regularly breeds ghor—the last young were born on 23 September 1987 and 7 March 1985 (Jan Smielowski).

After a four-day discussion in August 1984 we concluded that it would be profitable to organize a breeding centre for the Indian wild ass in Gujarat. At present, 6 August 1986, the Sakkarbaug Zoo in Jungadh, which is the world breeding centre of the Indian lion, has the largest breeding group of wild asses. When I visited it in 1985 I was surprised to see a captive-born mare feeding two foals, since no twins have ever been recorded. One of these was her own foal, born on 4 October 1985, and the other was a foal captured in the wild in November. The National Zoological Park in New Delhi also had three wild asses on 27 August 1986, of which two were born in this zoo, a female on 27 May 1979 and a male on 23 September 1984. Other zoos in Mysore (Karnataka), Ahmedabad (Gujarat), Hyderabad (Andhra Pradesh), Madras (Tamil Nadu), Calcutta (West Bengal) and Bhubaneshwar (Orissa) have pairs or single individuals. Now the problem of rearing this species in captivity has become much more pressing because captures of foals from the wild were stopped in 1986.

The only wealth of the soil of the Little Rann of Kutch is its salt, recovered by repeated water filtration from the ground. From year to year the water pools increase inside the sanctuary. Salt manufacture in the desert is controlled by a consortium. Every March, tons of salt crystal are removed from the area, producing 25 per cent of Indian salt. Human encroachment on the desert is

increasing, with more and more negative influence on the habitat. The encroachers cut wood for fuel and fodder for animals, and graze their herds; with them come the village dogs, which penetrate new, still untouched areas. It is possible that they could replace the natural predators in the future. On 9 January 1986 we observed three dogs attacking a young wild ass and its mother, but the mare drove them away.

In spite of all these changes in the habitat the presence of foals in the wild ass herds indicates that breeding is unaffected and the wild asses may be adapting to the new environment.

#### Acknowledgments

Our most grateful thanks go to Shri S.K. Sinha, Conservator of Forests, Vadodara, Gujarat, for his enthusiastic encouragement and very effective help during our field investigation in the Little Rann of Kutch. We are particularly grateful to Padmashri Reuben David for his helpful advice and valuable discussions during our visit to Municipal Hill Garden Zoo, Ahmedabad, Gujarat. Thanks are also due to our friends U. Vora and I.K. Chhabra for their competent co-operation during our field observations of the Indian wild ass.

#### References

- Ali, S. 1946. The wild ass of Kutch. *J. Bombay Nat. Hist. Soc.* **46**, 472–477.
- Ellerman, J.R. and Morrison-Scott, T.C.S. 1951. *Checklist of Palaearctic and Indian Mammals, 1758–1946*. British Museum, London.
- Ge, E.P. 1963. The Indian wild ass: a survey. *J. Bombay Nat. Hist. Soc.* **60**, 516–529.
- Howard, R. and Moore, A. 1980. *A Complete Checklist of the Birds of the World*. Oxford University Press, Oxford.
- Jadhav, S.A. 1979. *Wildlife management plan for wild ass sanctuary, Dhrangadhra, Gujarat State, India. 1979–80 and 1983–1984*, unpublished.
- Schwartz, A. and Thomas, R. 1975. *Checklist of West Indian Amphibians and Reptiles*. Special Publication, Carnegie Museum of Natural History, No. 1, Pittsburg.
- Shahi, S.P. 1981. The Indian wild ass (*Equus hemionus khur*). *Tigerpaper*, **8**, 20–23.
- Sinha, S.K. 1983. The unique desert wildlife of Gujarat. *Cheetal*, **24**, 5–8.
- Spillett, J.J. 1968. A report on wild life surveys in south and west India. November–December 1966. *J. Bombay Nat. Hist. Soc.* **65**, 1–46.
- Wynter-Blyth, M.A. 1956. An account of the wild ass and a brief history of the Indian lion. *Indian Forester*, **82**, 644–648.
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