The Ramro Korang Lake is a good location for the development of aquaculture. This lake has the potential to fulfil the fish requirement of the East Siang District, which currently depends upon other states for the supply of fishes.

The lake is totally unexplored as far as its aquatic diversity and water quality analysis are concerned. Therefore, this lake deserves top priority from the national institutions of fisheries, such as National Research Centre on Cold Water Fisheries, Bhimtal; National Bureau of Fish Genetic Resources, Lucknow; Central Institute of Freshwater Aquaculture, Bhubaneshwar; Central Institute of Fisheries Education, Mumbai, and Central Inland Fisheries Research Institute, Barrockpore or other international fisheries/ aquaculture organizations, to start research in the field of aquaculture development. Also, a survey needs to be conducted for identification of lakes in Arunachal Pradesh, so that all these lakes are documented and a proper programme formulated for their utilization and development for aquaculture.

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The Great Indian Bustard (*Ardeotis nigriceps*) on the verge of extinction

Bustards are magnificent, tall, long-necked and long-legged birds belonging to the avian family Otididae. There are about 23 species of bustards in the world, and the Great Indian Bustard (GIB; *Ardeotis nigriceps*) is the most endangered among these.

The GIB, the state bird of Rajasthan, is a shy bird living in arid and semi-arid (dry) grasslands and scrubs containing scattered bushes and some cultivation.

The GIB, once abundant in the grasslands across the Indian subcontinent, is reportedly extinct from 90% of its former range[1]. Now, the GIB is confined to some parts of Rajasthan, Gujarat, Maharashtra, Karnataka, Madhya Pradesh and Andhra Pradesh in India, and Sind in Pakistan[1], in scattered and isolated populations.

During the 19th century, flocks of more than 20 GIBs were a common sight in the Indian grasslands, but now even a flock of three is a rare sighting.

According to Rahmani[2], their population has declined to almost 50% during the last 10–15 years. Today, their total number is estimated to be about 500 individuals[3].

In India, the GIB is protected in 12 sanctuaries[4]. Ironically, it has disappeared from two such sanctuaries meant for its protection[2] and the cause could be mismanagement, corruption and poaching. Their highest living number is found in Rajasthan, followed by Gujarat. The Desert National Park (DNP), Rajasthan is the biggest of GIB sanctuaries[4], with only 70–75 individuals left[5]. The second main protected hotspot of their survival is the Lala–Parjan Sanctuary (also known as the Kutch GIB Sanctuary) in Gujarat.

Their population has declined drastically, despite the fact the birds are considered rare and are being protected since India's independence. Habitat deterioration, poaching and lack of proper conservation efforts are the main causes for their decline. In addition to over-grazing, expanding agricultural fields and urbanization, the Indira Gandhi Nahar Project (IGNP) and the better transport facilities have also contributed to their decline.

The Bombay Natural History Society has extensively studied the decline of this bird and has strongly urged the starting of a centrally-sponsored 'Project Bustard' (like Project Tiger) as a conservation strategy[6].

Listed in Schedule-I of the Wildlife Protection Act 1972 (India), the GIB is classified as 'endangered' on the IUCN Red List 2002, and Birdlife International

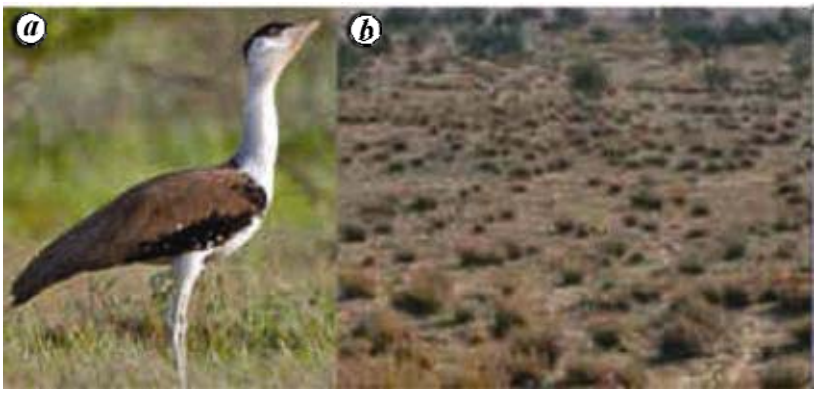

Figure 1. ***a***, The Great Indian Bustard (*Ardeotis nigriceps*); ***b***, Its habitat. (Courtesy: Bird Life International[1]).

has also classified it as 'endangered' in the Red Data Book in 2000. Its international trade and killings are prohibited, as it is listed in Appendix-I of the CITES.

In November 2004, the World Conservation Congress had urged the Government of India to start 'Project Bustard' (on the lines of Project Tiger) to protect the GIB and the other Indian bustards and their habitats[3]. Some misguided efforts in Maharashtra[7,8] to limit the area of the GIB sanctuary from the originally proposed 8500 km^2 to only 347 km^2 can be dangerous to protect the bird. However, the Rajasthan Government is keen to revive the falling GIB population and is planning to widen the DNP by relocating the nearby nine villages[5].

Protected dry grasslands, bigger sanctuaries and captive breeding may save this bird. Otherwise, the GIB will be extinct in the next 5–10 years.

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Justifying tiger farms – a step backward for tiger conservation?

We refer to the correspondence on the use of tiger farms for conservation by Xavier[1]. There seems to be an over-simplification of several points raised about the management of tiger farms and other issues related to tiger conservation. In the following discussion, the terms 'breeding centres' and 'tiger farms' are used interchangeably.

The concept of 'wise use of replenishable resources for the benefit of mankind' was mentioned by Xavier, but in the case of tigers, resource-use patterns are way past 'wise use' levels, to the extent of depleting them. A large-range contraction of tigers within the past decade[2] and the estimated 2500 or less breeding tigers in the wild would attest to this[3]. Promoting tiger farms generates the dangerous notion that the wild resource cannot be depleted, but if there is an insatiable demand and tiger farms cannot cope with the situation, the remaining wild tigers will eventually succumb as well, possibly due to the anthropogenic Allee Effect[4]. On a related note, Clayton *et al.*[5] have shown how the mere proposal of a captive programme for the babirusa, an endangered suid, caused a spike in the capture and trade of wild-caught individuals. Similarly, the set-up of several tiger breeding centres in India can potentially have adverse repercussions on wild populations.

Many researchers have maintained that it is impossible to differentiate tiger body parts taken from farmed animals and those from the wild[2,6]. This is contrary to the proposal of gene-tagging by Xavier[1]. Gene-tagging may work within a country, whereby tiger farms are compliant with strict regulations and enforcement is strong. But if regulated international trade is allowed and the tiger parts or products are shipped, there is no way for independent verification of the legality of the trade items. Besides, tiger parts are usually smuggled out via alternative routes to escape detection. Until there is a tight cooperative network between tiger farms, tiger range states and CITES parties sharing a constantly updated genetic database and the development of an inexpensive test kit, implementation of gene-tagging as a regulating tool is not feasible.

Breeding centres established for the sake of breeding tigers for reintroduction without 'commercial motives and methods'[1] would be a truly altruistic venture. Raising a captive-bred tiger to adulthood is a costly undertaking[2]. China's tiger farms are not established for the purpose of breeding tigers for re-introduction into the wild per se, but rather for tourism, and the eventual (underlying) aim of trade in tiger parts should the domestic trade ban be lifted. In short, the skepticism behind tiger farms is not unfounded because economics dictates the viability of such production systems. There is also a grave concern that a legalized trade in tiger parts begets the poaching of wild tigers to be sold as legitimate trade items[2,6,7]. The captive breeding of tigers for re-introduction into the wild or reserves formerly occupied by tigers is best left to zoos with sound breeding programmes, and not tiger farms or breeding centres where the provenance of the captive stock may be poorly recorded and not verified.

There is an adequate regulatory framework in most range states to protect tigers, but law enforcement is woefully inadequate[2] and compliance is lacking. Hence, we agree with Xavier that there should be stricter enforcement measures to check poaching, both within and outside protected areas where tigers occur. This would complement scientific long-term population monitoring, sensible land-use planning and swift human–wildlife conflict resolution in the toolbox of tiger conservation[8]. India may be best placed to save this iconic cat given that it probably has one of the largest tiger populations in the world[9] and has taken some pro-active steps in tiger conservation[8]. But the proposal of initiating tiger farming in India by Xavier, seems counter-productive to those efforts.

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