Conservation Breeding Programme for Pygmy Hogs (*Porcula salvania*)

Goutam Narayan* **and Parag Jyoti Deka**

The pygmy hog (*Porcula salvania*) is the smallest and the rarest wild suid in the world. Today, it is at the brink of extinction, as only a few isolated and small populations survive in the wild. In the past, it was found in the tall, wet grasslands in the area south of Himalayan foothills from Uttar Pradesh to Assam, through Nepal *terai* and Bengal *duars.*

Present Distribution

Currently, however, it is restricted to a few pockets along Assam's border with Bhutan and Arunachal Pradesh. In fact, the only viable population of the species exists in the Manas Tiger Reserve and nowhere else in the world. The World Conservation Union (IUCN) has accorded the highest priority rating (Status Category 6 - Critically Endangered) to the species putting it among the most endangered of all mammals. It is also listed in the Schedule I of the Indian Wildlife (Protection) Act, 1972.

Distinctive Characters

Pygmy hog measures about 65 cm (25 inches) in length and 25 cm (10 inches) in height and weighs 8 to 9 kg. Females are a little smaller and the newborn babies weigh only 150 - 200 g. A vestigial tail (2.5 cm or 1 inch in adults) and only three pairs of mammae distinguishes it from the wild boar (*Sus scrofa*) which, despite being much larger, often gets confused with pygmy hogs. The pygmy hog is locally called *Nal Gahori* or *Takuri Borah* in Assamese, *Oma Thakri* in Bodo, and *Sano Banel* in Nepali.

Threats and Importance

The main threats to survival of pygmy hog are loss and degradation of habitat due to human settlements, agricultural encroachments, flood control schemes, and improper management. Some management practices, such as planting of trees in the grasslands and indiscriminate use of fire to create openings and to promote fresh growth of grass, have caused extensive damage to the habitats the authorities intend to protect.

The survival of pygmy hogs is closely linked to the existence of the tall, wet grasslands of the region which, besides being a highly threatened habitat itself, is also crucial for survival of a number of endangered species such as the one-horned rhinoceros (*Rhinoceros unicornis*), tiger (*Panthera tigris*), swamp deer (*Cervus duvauceli*), wild buffalo (*Bubalus bubalis*), hispid hare (*Caprolagus hispidus*) and Bengal florican (*Eupodotis bengalensis*). The pygmy hog is one of the most useful indicators of current wildlife management practices in these habitats as it has disappeared from grassland which still support some other species. It is therefore important to understand why it is disappearing faster than other less sensitive species and take remedial actions if we wish to preserve the original habitats in their pristine state and with optimal diversity. This will eventually benefit all species of these threatened habitats. Preserving these important habitats, which are one of the richest in the Indian subcontinent in terms of their biodiversity, will also help in maintaining long term ecological and economic well being of the region.

Conservation Action Plan

It is therefore essential to formulate a properly structured action plan to save the species from extinction. This includes:

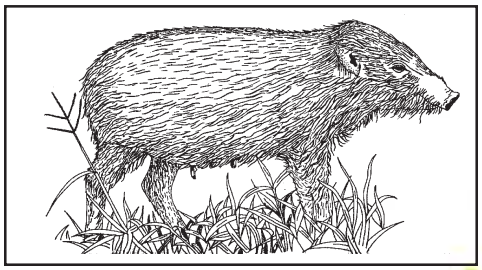
- conservation breeding of the species with aims to reintroduce them to selected sites from where they have disappeared as well as an insurance against the possible early extinction of the species in the wild;
- upgrading the (legal as well as actual) protection status of the above sites;
- field research to plan ideal management practices for maintenance of optimal diversity of these habitats and mechanism to implement the recommendations of such studies;
- reintroduction of viable number of pygmy hogs for their long term survival in the wild, monitoring the reintroduced populations; and
- monitoring and modifying management practices to promote survival of all original inhabitants of such habitats.

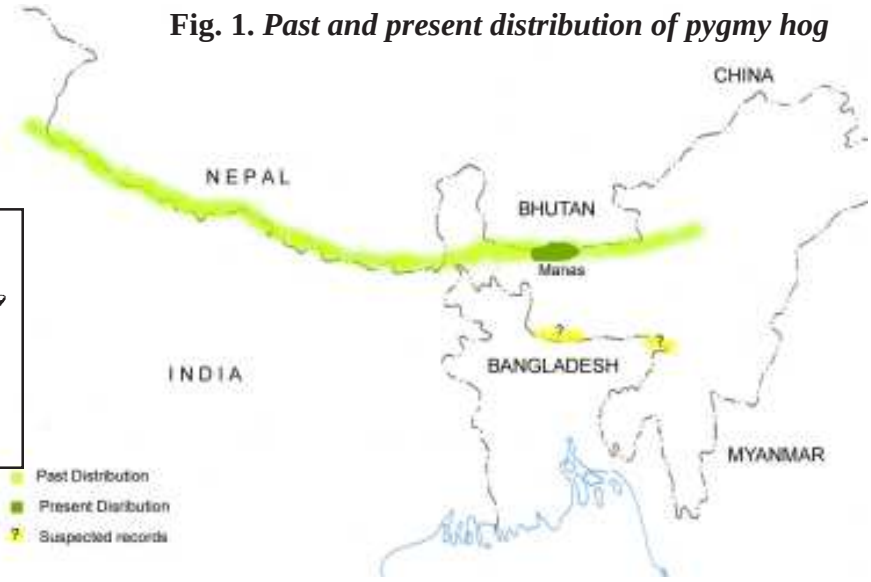
The Ongoing Programme

The Pygmy Hog Conservation Programme (PHCP) is a broad-based research and conservation programme which aims to fulfil at least some of the above requirements. This important recovery programme for the highly threatened species and their equally endangered habitats is being conducted under the aegis of a formal International Conservation Management and Research Agreement (ICMRA), signed between IUCN/SSC Pigs, Peccaries and Hippos Specialist Group, Durrell Wildlife Conservation Trust (DWCT), the Forest Department, Government of Assam, and the Ministry of Environment and Forests, Government of India; later renewed through a Memorandum of Understanding (MoU). Following the singing of the MoU, a local governing body consisting Indian experts and government officials has been formed for management of the Programme. The DWCT is the main financial sponsor for the Programme and funds for the first three years were largely provided by the European Union through the Trust. Currently, donations to the Trust by individuals and organisations are helping in continuation of the Programme.

***Pygmy Hog Conservation Programme. Indira Nagar, Basistha, Guwahati 781029, Assam, India. *Email*: pygmyhog@gmail.com**

Fig. 1. ***Past and present distribution of pygmy hog***





The main aim of this collaborative programme is conservation of the pygmy hogs and other endangered species of tall grasslands of the region through field research, captive breeding and reintroductions after adequate restoration of degraded former habitats. The above Agreement stipulates that ownership of all pygmy hogs bred in captivity would lie with the Government of Assam, till perpetuity. Translocation and reintroduction of any such animal is possible only with mutual consent of the agencies involved.

Conservation Breeding

One of the main objectives of the Programme is to establish a well structured conservation breeding project for pygmy hogs as an insurance against the possible early extinction of the species in the wild and as a source of animals for reintroductions projects. In 1996, six wild hogs (2 males, 4 females) were caught from Manas National Park and transferred to a custom built research and breeding centre built at Basistha near Guwahati. Five more hogs were caught and released at the capture site after fitting three males and a female with radio harness for radio-telemetry studies.

Increase in captive population: The six hogs settled down well in Basistha and 3 adult females, which were pregnant from wild, produced healthy litters in 1996. All but one of the 13 young (7 males and 6 females) were reared.

Seven more litters were born in 1997 and 24 (15.9) young were reared. However seven adult/sub-adult hogs died, six of them due to a mixed bacterial-fungal infection which was effectively controlled with local and international help. Nonetheless, the hog population almost doubled in 1997 from 18 to 35, which constituted a 580% increase in 21 months.

In the 1998 breeding season, five captive sows farrowed at Basistha adding 22 (11.11) more hogs to the population. In 1999, 11 (7.4) young from five normal litters were reared despite several babies dying of piglet diarrhoea, and in 2000, 14 (8.6) new hogs were reared taking the captive population to 65. This unanticipated and rapid increase in the captive population had created accommodation problems, but extension enclosures and a quarantine facility have been constructed with funds provided by the Assam Valley Wildlife Society.

Later, increasingly rigorous curbs were imposed on the reproduction of these animals and by 2001, the captive population was allowed to rise to 77, which constituted a 13-fold increase in the stock in 6 years. A population of about 70 hogs is being maintained by PHCP since then and in June 2007 there were 80 (36.44) hogs in captivity.

Reintroduction: As the captive population of the pygmy hogs at Basistha comprised the entire global population of captive pygmy hogs, it was important to shift some of hogs to a second site. Secondly, it was also necessary to establish pre-release enclosures for the reintroduction project. A large pre-release centre has been established at Potasali near Nameri National Park. This facility includes four holding enclosures and four large pre-release enclosures. These pre-release enclosures are a part of the soft release process and consist of near natural habitat where hogs earmarked for release to the wild are reared. Their behaviour and habitat use are being studied and it is encouraging to note that these hogs start behaving like wild animals and learn to survive in the wild. Once the reintroduction site is ready they are be taken there for release.

After extensive surveys to locate possible reintroduction sites a couple of sites in Assam were shortlisted. Sonai Rupai Wildlife Sanctuary, situated about 20 km west of Nameri, has been selected as one of the first release sites. The grasslands at the release site are being managed and protected with the help of sanctuary authorities and staff and we are confident the released hogs would settle down in this restored habitat. Sixteen pygmy hogs prepared for independent survival in the wild at the pre-release

facility were taken to Sonai Rupai in May 2008 under a soft release procedure and released in the wild. This is the first time that captive bred pygmy hogs were released in such numbers in the wild and all efforts are being taken to monitor them using indirect signs (nests, foraging marks, footprints, droppings etc.) as it is almost impossible to see them in the tall grass. Thirteen of the hogs continue to survive in the grassland even three months after release and one of the pregnant females has farrowed successfully in the wild.

Since the captive population of pygmy hogs at Basistha constitute about 10-20% of the total population of the species, the second centre is also an insurance against any catastrophe at the first location. Since the size of the initial founder population was very small (6) it may be necessary to introduce a few more wild hogs in to this population to improve the heterozygosity and survivability of the future reintroduced populations.

Genetic studies on pygmy hogs are being carried out with the help of the Centre for Cellular and Molecular Biology (CCMB), Hyderabad. A phylogenetic study using its mitochondrial DNA has revealed that pygmy hog belongs to a unique mono-specific genus, *Porcula*, and are not closely related to wild and domestic pig as was believed earlier. We are also trying to determine relatedness among the captive individuals through DNA fingerprinting.

Field research, surveys and extension activities
Pygmy Hog Conservation Programme *is a collaborative project of* ***Durrell Wildlife Conservation Trust, IUCN/SSC Pigs Peccaries & Hippos Specialist Group, Forest Department, Govt. of Assam and the Ministry of Environment & Forest, Govt. of India.*** *It is administered in Assam by EcoSystems-India. It currently supported by Durrell Wildlife Conservation Trust and the Darwin Initiative.Other organisations or individuals who have given significant contribution to the project includeZGAP (Zoological Society for the Conservation of Species and Populations) and Mr. Joe Mayo.*

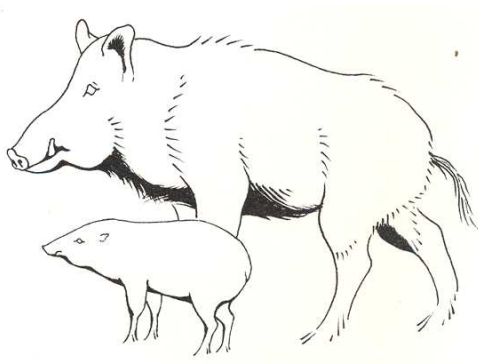


Fig. 2. Pygmy hog is about 10-20 times less bulkier than a wild boar. The tail of even an adult pygmy hog is smaller than a baby wild boar.

In addition to the concluded first phase of radio-tracking studies in Manas, a wide ranging survey of known and suspected sites of pygmy hog distribution has been carried out. Grassland ecology studies have been carried out in collaboration with Gauhati University to provide grassland management guidelines for conservation of natural floral and faunal diversity of the grassland habitats. Under a new Darwin Initiative sponsored project, PHCP is expanding the field research, capacity building, and community conservation initiatives in Manas and selected reintroduction sites. The capacity building and training programmes targeting protection staff in the field have been conducted while the rural communities in the fringe areas of the parks are being encouraged to undertake conservation initiatives. Besides continuing grassland research, the project will help in reintroduction of pygmy hogs and establish a system for regular monitoring of some key grassland animals by protection staff.

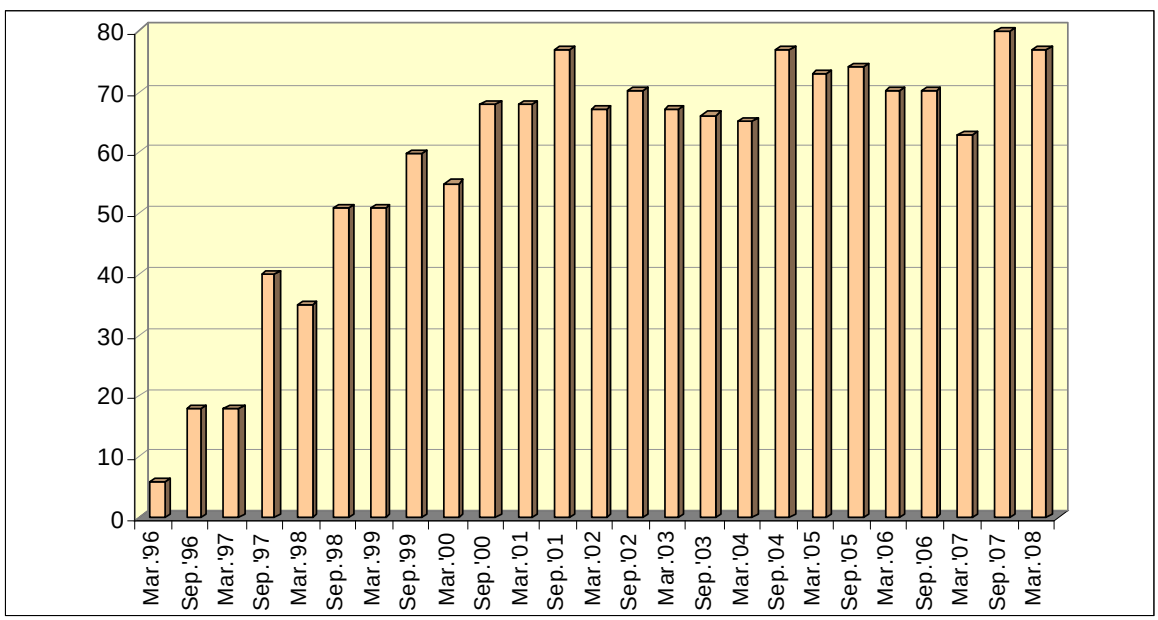


Fig. 3. ***Increase in captive population at Basistha centre***