

CONSERVATION BREEDING & REINTRODUCTION OF
CRITICALLY ENDANGERED
PYGMY HOG (*Porcula salvania*)



Pygmy Hog Conservation Programme

a collaborative project of

Durrell Wildlife Conservation Trust

IUCN/SSC Wild Pig Specialist Group

Forest Department, Govt. of Assam

Ministry of Environment & Forest, Govt. of India

currently sponsored by

IUCN-SOS

implemented by

EcoSystems-India



जहाँ है हरियाली ।
वहाँ है खुशहाली ॥



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Forest Department, Govt. of Assam and the Ministry of Environment & Forest, Govt. of India.**
*It is implemented in Assam by the Rare & Endangered Species Conservation Unit (RESCU) of
EcoSystems-India.*

*The project is currently supported by **IUCN-SOS** (www.sospecies.org)
and Durrell Wildlife Conservation Trust (www.durrell.org).*

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Cover photos

Reintroduced pygmy hogs in Sonai Rupai Wildlife Sanctuary, (inset) juvenile pygmy hog

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CONSERVATION BREEDING & REINTRODUCTION OF CRITICALLY ENDANGERED PYGMY HOG (*Porcula salvania*)

The pygmy hog (*Porcula salvania*) is the smallest and the rarest wild suid in the world. It is at the brink of extinction, as it has been exterminated from most of its original range in India and Nepal. In the past, it was found in a narrow strip of tall and wet grassland plains in the area south of Himalayan foothills from Uttar Pradesh to Assam, through Nepal *terai* and Bengal *duars*. Currently, it is restricted to a single viable population in the wild in Manas Tiger Reserve and couple of reintroduced populations in Sonai Rupai Wildlife Sanctuary and Orang National Park, all in north-western Assam, and nowhere else in the world. The International Union for Conservation of Nature (IUCN), in its Red List of Threatened Species, categorises the species as 'Critically Endangered' putting it among the most threatened of all mammals. It is also listed in the Schedule I of the Indian Wildlife (Protection) Act.

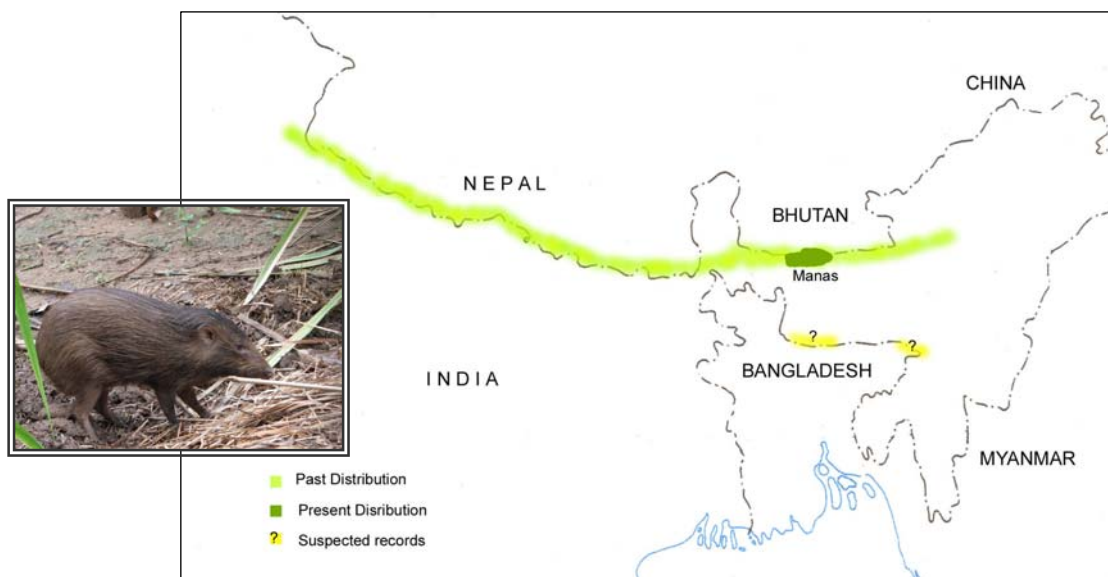


Fig. 1. Past and present distribution of pygmy hog

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 called *Nal Gahori* or *Takuri Borah* in Assamese, *Oma Thakri* in Bodo, and *Sano Banel* in Nepali.

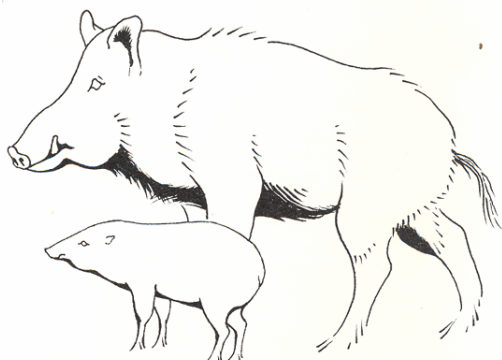


Fig. 2. A wild boar is about 10-15 times bulkier than a pygmy hog. The tail of an adult pygmy hog is smaller than that of even a baby wild boar. (Illustration by William L. R. Oliver)

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 greater one-horned rhinoceros (*Rhinoceros unicornis*), tiger (*Panthera tigris*), eastern barasingha (*Rucervus duvaucelii ranjitsinhi*), water buffalo (*Bubalus arnee*), hispid hare (*Caprolagus hispidus*) and Bengal florican (*Houbaropsis 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. These wet grasslands serve as buffer against floods in rainy season while maintaining high groundwater levels in dry season, indirectly benefiting farming communities living in the fringe areas.

Conservation Action Plan

It was therefore essential to formulate a properly structured action plan to save the species and its habitat. This included:

- conservation breeding of the species with aims to reintroduce them to selected sites from where they have disappeared, and 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;
- reintroduction of viable number of pygmy hogs for their long term survival in the wild, monitoring the reintroduced populations; and
- monitoring and modifying habitat 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 fulfill 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 Memorandum of Understanding (MoU) signed between IUCN/SSC Wild Pig Specialist Group, Durrell Wildlife Conservation Trust (DWCT), the Forest Department, Government of Assam, and the Ministry of Environment and Forests, Government of India.

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 MoU 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 when the captive population rose to 77 in 2001, which constituted a 13-fold increase in the stock in 6 years. A population of around 70 hogs was maintained in captivity till 2007, and since 2008, it was decided to release about 12 hogs every year into the wild by breeding them in adequate numbers. A captive population of 40-50 hogs is maintained and every year up to 20 babies are born at the two breeding facilities of the project.

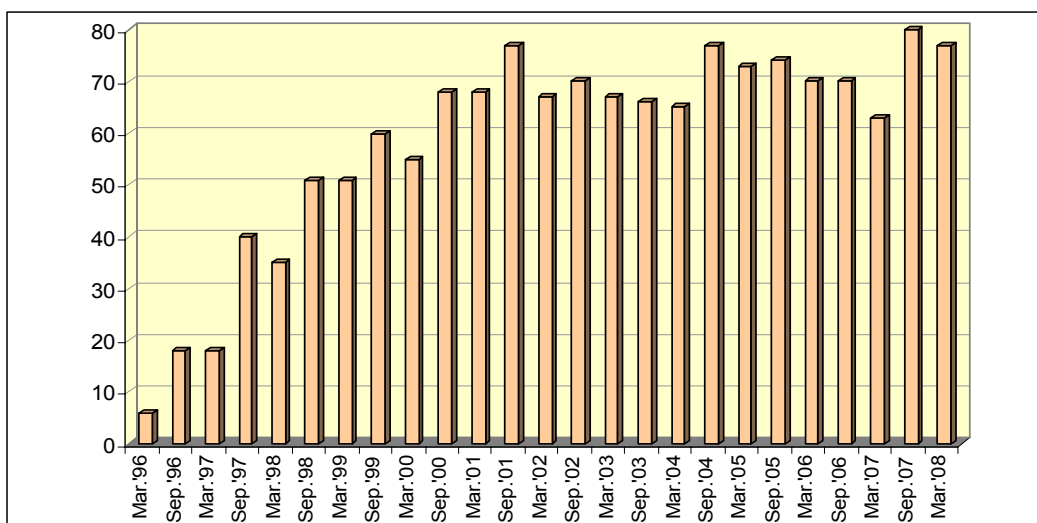


Fig. 3. Increase in captive population at Basistha centre

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 in Nameri Tiger Reserve. This facility includes a holding enclosure and three large (3,200 m²) pre-release enclosures. These pre-release enclosures are a part of the soft release process and consist of near natural simulated grasslands where hogs earmarked for release to the wild are kept under minimal human contact. They are encouraged to forage naturally and their supplementary diet is gradually reduced to less than a fourth of daily requirement. Their behaviour and habitat use are studied and it was encouraging to note that these hogs start behaving like wild animals and learn to survive in the wild within a couple of months. After about five months in the pre-release enclosures the hogs are taken to the reintroduction site where they are kept in a smaller enclosure for 2-3 days before being allowed to escape to the wild.

After extensive surveys to locate possible reintroduction sites, three sites in Assam - Sonai Rupai Wildlife Sanctuary, Nameri and Orang National Parks, were shortlisted. Efforts were initiated in 2006-2007 to restore the grasslands in two of these protected areas through improved management and protection with the help from the PA staff and authorities. In Sonai Rupai the habitat improved rapidly after indiscriminate grass burning and livestock grazing, while the identified grasslands in Dekorai area of Nameri NP did not recover as the livestock grazing did not stop. It was decided to release the first batch of captive-bred hogs in the Gelgeli grasslands of Sonai Rupai and three social groups consisting of 16 (7 males, 9 females) hogs prepared for independent survival in the wild at Potasali pre-release facility were released there in May 2008. It was the first time that captive bred pygmy hogs were released in such numbers in the wild and all efforts were taken to monitor them using field signs (nests, foraging marks, footprints, droppings etc.) and a video camera trap as it is almost impossible to see them in the tall grass. One of the pregnant females had farrowed successfully in the wild in June and it was estimated that about 12 of the 16 released hogs continued to survive even a year after their release. More hogs were released in Sonai Rupai in 2009 (9 hogs) and 2010 (10 hogs) and altogether 35 (18 male, 17 female) hogs were released in the sanctuary and they continue to thrive there.

Similarly, 39 (18 male, 21 female) hogs in 8 social breeding groups were released in better managed grasslands in the northern parts of Orang National Park in 2011, 2012 and 2013. Thus, the project has released 74 captive-bred hogs or over twelve times the number of founders originally captured to start the conservation breeding project. Another social group is being prepared for release in 2014 while habitat restoration work is starting in Barnadi Wildlife Sanctuary for possible release in a year or two.

The released hogs are being monitored with encouraging results and young hoglets born in Sonai and Orang have been spotted several times. Released hogs are also dispersing to adjacent areas in the parks.

Capture of additional wild hogs: Since the size of the initial founder population was very small (6), plans were made to capture some more hogs from Manas in order to improve the heterozygosity and survivability of the captive and future reintroduced populations. After several attempts the project team managed to capture a male and two female wild pygmy hogs in March 2013 from the last remaining original population of the species on earth in Manas National Park.

The capture operations were organised after obtaining necessary permits and 72 drives were conducted using 13-15 elephants and about 30 personnel. Most of these drives were conducted in an area of about 6-7 km² in Bansbari Range of the Park and altogether 15 pygmy hogs were flushed including the 3 that were trapped. The captured hogs were taken to new enclosures constructed at Potasali centre.

Genetic studies: Efforts are being made to initiate genetic studies on pygmy hogs to determine relatedness among the hog sub-populations through DNA fingerprinting. A phylogenetic study using its mitochondrial DNA has already revealed that the pygmy hog belongs to a unique mono-specific genus, *Porcula*, and is not closely related to wild and domestic pig (*Sus*) as was believed earlier.



Release operation in Orang: Project team near release enclosure; a hog being released; radio tracking of released hogs



Capture operations in Manas: Nets are deployed; elephants and beaters line up; captured wild hog in bags



Part of the capture team in Manas

Field research, surveys and extension activities

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 Darwin Initiative award, PHCP expanded its capacity building and community conservation initiatives in Manas and selected reintroduction sites. The capacity building and training programmes targeting frontline 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. The project has established a system for monitoring of released pygmy hogs and their grassland habitat and is exploring potential sites for future reintroductions.



Pygmy hog (Porcula salvania) – a captive female



PHCP Research & Breeding Centre, Basistha



Pygmy hog sow with newborn babies



A 10 days old pygmy hog baby



Female with her young at Basistha



Pre-release area at Potasali, Nameri



Fieldwork in Manas grasslands



Solar power fence at Potasali



Hogs being released at Sonai Rupai



A released hog caught in camera trap



Released hogs and wild elephants



Awareness programme in Manas fringe



Bengal florican



Training programme for Forest Dept. staff