

Status and conservation of the Bawean deer (*Axis kuhlii*) in the wild and in captivity

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Introduction

The Bawean deer (*Axis kuhlii*) belongs to a group of primitive deer species sometimes placed in a separate sub-genus *Hyelaphus*. Three species belonging to this group show somehow anomalous distributions. One species, the hog deer (*Axis porcinus*), is widely distributed over vast areas of Asia from Pakistan through northern India to Myanmar (nominate subspecies), with the much rarer subspecies (*Axis porcinus annamiticus*) living in Eastern Thailand, Laos, Kampuchea and Vietnam. The Calamian deer (*Axis calamianensis*) survives on the Calamian group of islands located in the Philippine Archipelago, close to Palawan. The Bawean deer has the smallest area of distribution of all extant deer species, being restricted to 220 km². Bawean island is lying in the Java Sea, halfway between Java and Borneo.

The Bawean deer is one of the least known deer species, in terms of biology and current conservation status. The last systematic research was performed in 1986. Since then there have only been limited reports, or rather unreliable data coming from official Indonesian sources.

The current paper presents the results of a field survey performed in November 2004 as well as data on a captive population kept in Indonesian zoos.

In the wild

The current distribution of the Bawean deer is restricted to two relict forested areas on the island. On the smaller Pulau Cina island, connected to Bawean during low tide by a swampy pass (overgrown by mangroves in the recent past) the presence of two, or possibly three individuals had been confirmed. According to local informants this low number is a result of a hunt performed during 2002.

On the main island most of the traces are restricted to the surroundings of the Kastroba Lake. That lake is the only freshwater reservoir on the island and the forest-covered slopes facing the lake are to a large degree protected. There is a 4,000 ha reserve proclaimed on the island for the protection of unique island fauna. Unfortunately though there is no real management of the reserve. Local inhabitants are well aware that the deer is unique and protected. This however does not stop the hunting and encroachment on the remaining forest. As the Bawean society is quite rich (a large number of expatriates support families living there) the island attracts immigrants from poorer regions. Within the last ten years at least 15,000 people, mostly from Sumatra and Borneo, settled there. This trend is likely to increase with proposed building of an airfield on the island as well as development of oil- and gas fields around it.

The current total population of the deer in the wild is unlikely to exceed 200 individuals. The main threats are as follows:

- poaching
- immigration and economic development
- predation by feral dogs
- destruction of forests and converting them to fields
- replacement of natural, multi-species forest by yati (Asian teak) (*Tectona grandis*) plantations with undergrowth destroyed annually by fire

In captivity

There might be around 200 Bawean deer kept currently in Indonesian zoos, but the future of this species in captivity is uncertain due to lack of any breeding coordination, high inbreeding (the whole population derives directly from three individuals imported in the early 1970's) and excessive mortality among offspring due to overcrowding in most zoos. Three unrelated (wild-caught pair and a male offspring born in 2003) animals are kept privately on Bawean Island.

Apart from Indonesia Bawean deer groups are kept in a few Malaysian zoos (Melaka, Taping, Negara) but the overall numbers seem to be decreasing over time. Outside Asia, there is a group of 10 (4.6) individuals kept in Poznan Zoo. Efforts to establish additional captive populations in San Diego and Singapore zoos failed.