

Captive Breeding of Milky Storks at Zoo Negara, Malaysia.

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Introduction.

These birds can be found distributed in South East Asia. Their numbers in the wild has declined rapidly due to modern development and military activities. Lost of natural habitat and food source has drastic effect on the bird population. Result of the Asian Waterbird Census collected between 1997 and 2001 by the Wetlands International shows that the numbers of Milky Storks stands at 5500 birds in the whole South-East Asia region (Li and Mundkur,2004)

Being mangroves birds the Milky Storks was more widespread in the past along the west coast of Peninsula Malaysia. In 1935, a breeding colony existed in Pulau Ketam but poaching and human disturbance has resulted in its extinction. Now the only place we can see these birds in their natural habitat is in the Matang Forest Reserve, Perak. The birds are protected by the Department of Wildlife and National Parks. The latest count shows only 7 birds and no nesting is observed. Zoo Negara has taken the first step to ensure the survival of this species. Captive breeding to increase the numbers, research and educating the public about preserving our natural wildlife.

General description.

Milky Stork is a large bird measuring 97 cm in length. The adult has white plumage whereas the juvenile has grayish plumage and both with black flight feathers. The yellowish colour bill is long and tapering, slightly decurved and rounded at the tip. The legs are grayish during the normal period but becomes dark red during breeding season. The pinkish grey facial skin also turns deep red (King et.al.,1978)

There is no difference in appearance between the male and the female and the ways to identify the birds positively is by DNA or surgical sexing. Measurement of the birds legs, wings, head and bill will give a rough estimate on the sexes.

Materials and Method.

Our first 7 Milky Storks were purchased from Singapore in 1987. Age of the birds at that time is less than one year as they are all still in their grey plumage. The young birds were kept in our holding cage measuring 12m x 4m x 5m for observation and medication. After quarantine, they are transferred out to a bigger 30m x 30m x 14m walk-in aviary. Another 3 bird adult birds were acquired from Zoo Johor. The three also join our first 7 birds in their new aviary after quarantine.

The new walk-in aviary has a large pool. We have two pumps running to pull the water through the biological filters and keep the water quality reasonably clean. The pumps are on a timer so that each runs individually after the next one has stop.

The aviary is also furnished with nesting platforms and has natural trees for the birds to choose their nesting site. Mangrove plants are also added into the surrounding and live fish in the water for the birds to behave naturally although they are being fed 2 times a day.

In the later years to come, we obtained another 3 adults from Rotterdam Zoo and 3 females from San Diego Zoo. We have no problem mixing the birds even though they comes from different areas and at different timing.

Feeding.

Our captive birds are being fed 2 times a day during non-breeding season and 3 times a day during breeding season. The fish are given in the shallow water and also in 3 basins by the pool. The basin is used because we mixed the calcium with the fish and also to administrate other medication such as deworming and vitamin supplement. The vitamin would be lost if we were to put the fish in the water.

Types of fish given are:

1. Yellow banded trevally (*Selaroides leptolepis*)
2. Yellow tail scad (*Alepes djedaba*)
3. Herrings (*Dussumieria hasselti*)
4. Sardine (*Clupeaidae supp.*)
5. Barred Spanish Mackerel (*Scomberomorus commersonii*)

Vitamin and Supplement

Vitamin E deficiency occurs in birds fed primarily on fish diets which are of poor quality therefore Vitamin B, E and Thiamine is supplemented into the bird's diet. Fish Eaters Tablets are also given to the birds before their breeding season.

Problems.

1. The only deaths that occurred in our aviary are due to lack of experience of the parent when nesting therefore resulting in neonatal death in chicks.
2. Metabolic bone disease in chicks during our first few years of hand-rearing resulting in many chicks having to be cull due to deformed legs.
3. Malnutrition and unbalance diet. Technique of feeding newly hatched chicks need to be learnt.
4. Unsuitable rearing boxes and handling. The staffs take some time gaining the skill needed to do the job properly as they do not have references to refer . We were the first in the region and we learn and record our findings.
5. Lately we have competition for nest site in our aviary as the area is already over stock.

New aviary would have to be constructed if we are to continue this conservation breeding program.

Result and Discussion.

Our birds started nesting in 1989 at the age of 3 years. They paired up with the birds from Zoo Johor. Since it is their first time, the inexperienced birds make very flimsy nest which resulted in many broken eggs. The bird's nest making improved as they matured and by the third year they can make quite strong nest.

Conclusion.

Milky Stork is chosen for this paper because of their endangered status in the wild and it is our own Malaysian Species. There is not enough information available on their behaviour, breeding and management. We, after 20 years of breeding them from a mere 10 birds to over 224 recorded birds and have also given them out to other zoos and parks on long term breeding loan program, exchange breeding loan and also released some back into the wild working together with PERHILITAN and MNS at Kuala Selangor Nature Park. Zoo Negara under the Malaysian Zoological Society can be proud to say that we have done our part in conservation, research, education and creating awareness among our Malaysian citizen on the importance of preserving our natural heritage on wildlife and fauna.

Appendix references:

1. King B., Dickinson E.C. 1983
A Field Guide to the Birds of South East Asia,
Collins, London. England.
2. David Li and Mundkur. 2004
Annual Waterbirds Census,
Wetlands International.