

Philippines. A possible site for the facility is at Bacolod on the island of Negros to house the seriously endangered Negros Bleeding-heart *G. keayi*, the subspecies identified by Mr. Oliver as the one most urgently needing help.

Combining both aspects of "conservation aviculture" in relation to the Luzon Bleeding-heart, in captivity and in the wild, has given the CCAFA and Australian aviculturists the opportunity to actively participate in securing the

Photo by Charles A. Hibbert



Mature female Luzon Bleeding-heart Pigeon (*Gallocolumba luzonica*). This is the only species of bleeding-heart kept in Australian aviaries but it is doing well there.

future of the beautiful pigeon — an opportunity they have firmly grasped with both hands.

Internet Addresses

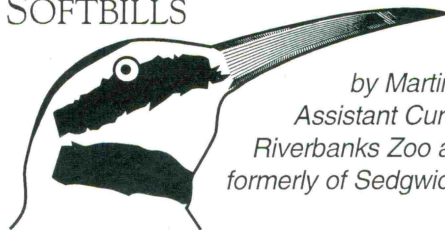
Charles A. Hibbert:
chibbert@ozemail.com.au

Conservation Committee
Australian Federation of Aviculture:
martim@ozemail.co.au

References

- Hibbert C.A., 1996. "Status of the Bleeding-heart Pigeon (*Gallocolumba* sp.) in the Wild." *Australian Aviculture*, pp 163-64.
- Hibbert C.A., 1996. *Bleeding-heart Pigeon Husbandry Manual*, Conservation Committee of the Avicultural Federation of Australia.
- Hibbert C.A., 1997. "The Luzon Bleeding-heart Pigeon." *Australian Aviculture*, pp 25-26.

SOFTBILLS



by Martin Vince
Assistant Curator of Birds
Riverbanks Zoo and Garden, SC
formerly of Sedgwick County Zoo, KS

The White-collared Kingfisher

Halcyon chloris

Ten families make up the order Coraciiformes; most are tropical or sub-tropical birds and all have syndactyl feet, i.e., two of the forward pointing toes are joined for at least half of their length. Motmots, todies, bee eaters, and certain rollers and kingfishers nest in burrows that they usually excavate themselves in earthen banks, and their syndactyl feet are presumably an important adaptation to help in such work. Most of the species in this order are insectivorous or carnivorous, although the Asian hornbills also eat a considerable amount of fruit.

The 92 species of kingfishers (family Alcedinidae) are cosmopolitan, except for the polar regions and some particularly remote islands. Only six species are found in the New World, with most living in South East Asia and Indonesia. They vary in size from 4-18 inches (10-45cm) and are thick-set birds with short necks, large heads and long, heavy bills. Some of the Old World species are very beautifully colored, while the New World kingfishers are green, blue, brown or white.

Alcedinidae, for avicultural purposes, can be divided into two broad groups: the aquatic kingfishers (subfamilies Alcedininae and Cerylinae) that live primarily on fish and crustaceans; and the forest kingfishers (subfamily Daceloninae) that do not rely on water for their living but instead eat insects, rodents, small birds and reptiles. Generally these forest species nest in pre-existing holes such as tree cavities or earthen burrows,

while the aquatic kingfishers tend to excavate their own burrows in earthen banks. Kingfisher eggs are white and almost spherical, and number 2-3 in the tropics and up to 10 at higher latitudes.

The White-collared Kingfisher comprises 47 sub-species which can be found over an enormous range, stretching from the Red Sea, eastwards through India, Burma, Thailand, Malaysia and Indonesia, affecting also the Philippines and many islands in the Pacific Ocean. Indeed, 40 of the sub-species can be found only on islands which are mostly very small and remote: Erromanga, Torres, Pavuvu, Nissan, Duff, Malaita, Utupua, Rota, and many more (Howard and Moore 1991). Each island is the home of a unique form of the White-collared Kingfisher which, because of their relatively small and exposed populations, are vulnerable to any environmental change, whether natural or man-made.

At Sedgwick County Zoo we have a

HAWKEYE PARROTS Queen of Bavaria Conures



- Parent-reared for Cultural Identity
- Microchip Implanted for I.D.
- Health Guaranteed
- Pairs and Individual Queens Available

P.O. Box 802 • Iowa City, IA 52244
phone: (319) 338-2231
website: www.hawkeyeparrots.com

three-quarter acre tropical jungle exhibit which houses about 200 free-flight birds representing 80 species. Most are hardy softbills ranging from Pekin Robins *Leiothrix lutea* to Imperial Pigeons and starlings. But there are also Amazon parrots, partridges, ducks, crakes and guans that live together in the free-flight environment amongst the tropical vegetation, streams, lake and waterfall. Temperatures in the building vary between 85° F. (29° C.) in the summer and 70° F. (21° C.) in the winter.

At the beginning of 1992, we received a six-month old pair of captive bred White-collared Kingfishers. Side-by-side, differences in the sexes can be seen, but they are so slight and variable that surgical or laboratory methods should be used to determine a pair -- these birds had been surgically sexed. Having been quarantined and then "howdied" in an introduction cage, the pair were released into the three-quarter acre exhibit.

They were always exceptionally nervous and, even now, remain as far from people as possible. We have never had any problems with aggression of any kind, although a group of six Blue-grey Tanagers that originally lived in the building, would often chase or displace both kingfishers; and they were such a nuisance that we removed them to off-exhibit breeding aviaries.

Throughout the building there are six food dishes raised six-and-a-half feet (2 m) above the ground on metal poles, as well as dishes on the floor for the ground birds. For the arboreal species, insectivore and frugivore diets are offered in the same dish, but not mixed together. A tiny proprietary pellet called "Tropical Bits" (manufactured by Marion Zoological, P.O. Box 875, Wayzata, MN 55391) provides the essential nutrients for both diets and, because of its size, is eaten by the smallest insectivores and frugivores alike. The insectivorous diet contains chopped hard boiled egg, mealworms, waxworms and large crickets (for recipe see Vince 1994). Most of these foods are eaten by the kingfishers; and pinkie mice and small fish are also mixed in.

Our kingfishers produced two

chicks in 1994 and one in 1995. The sequence of events was identical in each case and I shall describe the breeding of 1995. At the beginning of June 1995, both birds were much more active and vocal than normal, often flying across the jungle exhibit and uttering their sharp shriek of a call three to eight times in rapid succession. Both sexes started entering the nest box they used the previous year. It was a parakeet-type box 6.63 inches square (17cm) and almost 12 inches high (30 cm) with a 2 1/3 inch (6 cm) diameter, round entrance hole. The box overlooked the lake and was filled with almost 5 inches (12 cm) of wood shavings and fixed about 13 feet (4 m) above the ground to a concrete pillar.

In the middle of June one of the birds developed a balding nape, and I could tell by the colored leg band that it was the female. Presumably she had been mated and, when she disappeared from sight one week later, I felt sure that she was in the nest box. Indeed she was, and over the following three weeks, I was able to see both sexes enter the box and spend what seemed to be an entire day incubating. I had not yet inspected the box, but realized there was no need after seeing an Imperial Pigeon chased off a perch that was beside it. One kingfisher flew directly at the pigeon's head, veering off at the last possible moment; the other kingfisher followed closely behind, and both birds made five passes before the intruder finally left. Clearly there were eggs in the nest box.

Three weeks later I started to provide more livefood than usual in the hope that the eggs would start to hatch. They did and, as far as I could tell, the large crickets were the first food items taken to the box. In fact, the rearing food was almost entirely large crickets for the first few days so I was careful to sprinkle a multivitamin and mineral supplement on them.

The adults started to leave the box unattended for very long periods only two days after the first hatch, just as they had the previous year. I took that opportunity to inspect the box and found one healthy chick. No other eggs were present, but they were almost certainly disposed of when they


failed to hatch. Kingfishers do not practice nest sanitation, but these particular birds do carry shells and unhatched eggs away from the nest. By day 5, the chick was receiving small three-quarter-inch (2cm) pinkie mice. The parent carries the mouse lengthwise in its bill having first pounded it against a branch.

Because the nest box overlooked the lake, it was decided to remove the chick for handrearing to protect it from the dangers of fledging. It was removed at 14 days of age: the eyes were half open and the body was covered in pin feathers. Handfeeding was simplicity itself, with the chick eagerly

Photo by Martin Vince



A four-month-old female White-collared Kingfisher hatched August, 1995.

eating whole pinkie mice, large crickets and small fish. The youngster started to feed itself at about four weeks of age, and was fully independent two weeks later, preferring pinkie mice and fish. 

References

- Howard, R. and Moore, A. 1991. *A Complete Checklist of the Birds of the World*. Second edition.
Vince, M. 1994. "Long-tailed Tailor Bird: *AFA Watchbird*, Vol XXI, No.6.