Cochlearius cochlearius (Boat-billed Heron)

Family: Ardeidae (Herons and Egrets)
Order: Ciconiiformes (Storks, Herons and Ibises)
Class: Aves (Birds)

Fig. 1. Boat-billed heron, *Cochlearius cochlearius.*

[http://beautyofbirds.com/boatbilledherons.html, downloaded 11 November 2014]

TRAITS. This heron is known mainly for its large boat-shaped bill from which it derives its name (Fig. 1). The bill is black with yellow on the edge of the lower bill. Its cheek areas and forehead have white feathers and in comparison with other herons its eyes appear to be very large and bulge out of its eye sockets (Dickerman & Juarez, 1971). The upper part of its back and

the feathering on the legs are black but the majority of the bird shows grey feathers. The legs are short and the feet are coloured greenish yellow. It is a medium sized heron with a wingspan of 76cm, an average length of 46-53cm and an average weight of 600g (Dickerman & Juarez, 1971). The boat-billed heron also has a gular (throat) pouch that can only be seen when it is inflated and it can have a variable pale colour, yellow, grey or pink (Biderman & Dickerman, 1978). When breeding the mouth lining and the gular pouch become brownish black in colour and the peak size of the crest feathers is observed just before nesting begins (Juarez & Dickerman, 1972). Males and females are similar but the males have longer plumes (Dickerman & Juarez, 1971). It displays a crest fan of dark feathers when communicating and warding off predators (Mock, 1975). When flying, they use slow and shallow wing beats and keep the weight of the bill at the centre of gravity which forces the neck into an S shape with the back of the head at the base of the neck over shoulders (Sick, 1993).

ECOLOGY. The boat-billed heron tends to live in mangrove fringes or wooded fringes of freshwater systems like lakes, marshes and rivers. They prefer to live in areas where trees or thick bushes overhang on the water since it requires such conditions for nesting and roosting during the daytime (Dickerman et.al, 1971). The diet is broad: insects, fish, shrimp, small mammals and amphibians, and crustaceans are very important to their diet. Recorded foods are shrimp like *Penaeus*, *Macrobrachium* and fish like mullet (*Mugil*), sleeper (*Dormitator*), snook (*Centropomis*), and catfish (Ariidae). Molluscs, crabs and annelids also form part of the diet (Biderman & Dickerman, 1978). It is mostly found in Central and South American regions with some presence in Southern Mexico, areas of Bolivia and Northern Argentina (Dickerman & Juarez, 1971). It is a rare resident of mangrove swamps in Trinidad (not found in Tobago). These herons are preyed upon by snakes, foxes and humans but are not considered to be threatened species and their populations are assumed to be stable (Blake, 1977).

SOCIAL ORGANIZATION. The boat-billed heron lives in pairs in solitary nests or they can live in groups of nests housing up to 12 or more pairs of herons. They can also nest together with green-backed herons (Biderman & Dickerman, 1978). The nests are usually small and made of sticks and leafy branches and appear to be platforms which are 30-35 cm wide and 10-15 cm thick (Fig. 2). The boat-billed herons also reuse older nests from other herons. The main differences in heron nests is that the boat-billed nests tend to be in thick, dense more closed vegetation located on thick branches as support. Both sexes share responsibilities in incubation of eggs and rearing of the helpless chicks (Juarez & Dickerman, 1972). The heron is described as being non migratory since its native habitat falls within a warm equatorial region (Dickerman & Juarez, 1971). They form monogamous pairs. The number of eggs per nests ranges from 1-4 and the incubation time lasts over a range of 25-27 days. The incubation process starts with the first egg and both parents share the responsibility. The young chicks are usually fed nightly at first and the male heron is aggressive in defending the young from intruders which makes it different from other herons (Juarez & Dickerman, 1972).

ACTIVITY. The boat-billed heron is a solitary feeder and it feeds mainly at night (nocturnally), spending time in daylight in its nests or perched in its home trees. It tries to remain concealed from observers and will often retreat to the nest when spotted or disturbed (Biderman & Dickerman, 1978). There is asynchronous egg hatching and altricial chicks are fed by regurgitation by both adults. The youngest chick is allowed to starve to some extent if food is

scarce (Biderman & Dickerman, 1978). Both parents protect the nest from predators and nesting lasts for 6-8 weeks (Juarez & Dickerman, 1972).

FORAGING BEHAVIOUR. These herons are solitary hunters and rely on their sensitive beaks to catch prey on the ground and in water. It forages only at night and leaves its nest at dusk (Biderman & Dickerman, 1978). Both males and females perform foraging in turns since one parent stays with the eggs or chicks. The large boat hull shaped bill produces unique foraging behaviour different from other herons since the bill acts as a scoop and a shovel for digging out insects and annelids and for quick scooping jabs at fish, shrimp and amphibians. The bill also allows it to plough and dig into substrate to catch hiding prey (Biderman & Dickerman, 1978). The bill is so specialized that it can detect very small changes in water movements when hunting. The bird stands still for minutes on end and walks slowly until it spots or detects prey and then it runs in a crouched posture to lunge at prey on the ground. They can also dive at prey from the air. There are neck movements and the head peers over when observing potential food items. The movements and the hopping and wing flapping behaviour suggest that the boat bill feeds visually. However, the probing and ploughing movements of the beak are non-visual (Biderman & Dickerman, 1978).

COMMUNICATION. This heron is very vociferous and gives out variations in calls to other herons in the colony and to warn and ward off predators. Its laughing type call can be heard in mangroves and forests in which it nests (Mock, 1975). The "an" call and its variations are unique to this species. Calls can vary in style and content and different calls have been observed when warning of disturbance like repeated vocalizations of "an, an, an, an," or "oh, oh, an-an," calls (Mock, 1975). Disturbance calls represent foreign presence in the colony or on the feeding grounds. The magnitude of the notes changes the level of agitation of the colony (Mock, 1975). There are short and long chants which can be used as greetings and can elicit calls from other birds in the colony. Calls vary from territorial calls for greetings along with crest feather motions, flight calls to flee attacks during disturbances and antagonistic calls (Mock, 1975). Variations in the flight calls can indicate whether the heron is flying to and from the roosting area, and different choruses in length, magnitude and technique are shown for different purposes (Mock, 1975). The bills also make distinctive "ump" and "pop" sounds when they snap together and they can give out high volume cries when fleeing from other herons. The visual form of communication can involve neck movements and crest feather raising that can show greetings or present defensive behaviour shown in Fig. 3 (Mock, 1975).

SEXUAL BEHAVIOUR. Very little is known about the sexual behaviour of the boat-billed heron since the bird is reclusive and prefers to hide in concealed nests when mating (Juarez & Dickerman, 1972). However, courtship and nesting behaviours are known. In Trinidad the egg laying season occurs in direct correlation with rainy seasons being from July to October. When attracting mates the herons are vocal and the females usually use bill snapping and clattering to attract males, shown in Fig. 4 (Juarez & Dickerman, 1972). Members of a pair show contact and non contact bill clattering motions and the pairs spend time together picking nesting and foraging sites and walk together for the majority of the time (Mock, 1975). A display called the bill duel is seen in pairs where the birds face each other and touch the tips of their bills together. The female bill then enters the male bill and a series of rhythmic movements are seen for several minutes before they separate (Dickerman & Juarez, 1971). In courtship the males also erect and lower the

lower crown feathers that contrast with their foreheads (Juarez & Dickerman, 1972). They are monogamous and copulate away from the nest (Mock, 1975). The eggs are of a pale blue to a green colour and may appear spotted on the larger end with red dots. In Trinidad the egg sizes can be estimated to measure 47.9 x 35.9mm and sizes may differ from country to country (Juarez & Dickerman, 1972).

JUVENILE BEHAVIOUR. Boat-billed heron chicks are unique in the way they peck through their shells since they are born with two specialized teeth used for such purposes (Carpenter, 1971). The chicks develop quickly and can move along branches with great agility, where they prefer to live. The juveniles appear to be of a reddish brown colour and behave similarly to adults in being reclusive (Juarez & Dickerman, 1972).

ANTI-PREDATOR BEHAVIOUR. When threatened the herons show defensive behaviour by raising their crest feathers that appear as a large fan of dark feathers that extend over the head as seen in Fig. 5. This behaviour is also used in communication with other herons. Neck raising and bill snapping is also done to defend territory and the degree of these behaviours varies based on the type and magnitude of the threat (Mock, 1975).

REFERENCES

Biderman J.O and Dickerman R.W. 1978. Feeding Behavior and Food Habits of the Boat-billed Heron (*Cochlearius cochlearius*). *Biotropica Vol. 10*, No. 1, pp. 33-37

Blake E.R. 1977. Manual of Neotropical Birds, Volume 1. Herons. University of Chicago Press. Pages 171-180.

Carpenter, J. W. 1971. Notes on the biology and behavior of captive Boat-billed Herons, *Cochlearius cochlearius*. *Southwestern Naturalist 16*: 31–41.

Dickerman, R.W. and Juárez, L. C. 1971. Nesting studies of the boat-billed heron *Cochlearius cochlearius* at San Blas, Nayarit, Mexico. *Ardea 59*: 1-16.

Juarez C.L. and. Dickerman R.W. 1972. Nestling Development of Boat-Billed Herons (*Cochlearius cochlearius*) at San Blas, Nayarit, Mexico. *The Wilson Bulletin. Vol. 84*, 456-468.

Mock, D. W. 1975. Social behavior of the Boat-billed Heron. *Living Bird 14*: 185–214.

Sick, H. 1993. Birds in Brazil. Princeton Univ.Press, Princeton, New Jersey.

Author: Shervan Bridglal
Posted online: 2014

Fig. 2. A nesting pair of boat-billed herons.

[https://www.flickr.com/photos/levfrid/3422099576/in/1029425@N20/, downloaded 12 November 2014]

Fig. 3. Visual communication by raising crest.

[http://www.jacksonvillezoo.org/images/uploads/boat-billed_heron.JPG, downloaded 12 November 2014]

Fig. 4. Beak-clattering display.

[http://what-when-how.com/birds/boat-billed-heron-birds/, downloaded 12 November 2014]

Fig. 5. A boat-billed heron providing a warning.

[http://birdingblogs.com/2011/Gunnar/stunning-agami-heron, downloaded 12 November 2014]