FORAGING BEHAVIOUR, DISPERSION AND MOVEMENT OF OPENBILL STORK *ANASTOMUS OSCITANS* (BODDAERT)

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Introduction

Openbill Stork *Anastomus oscitans* (Boddaert) is a local migrant widely distributed along the Coromandal Coast (Ali & Ripley, 1987) and has been noted in wide range of habitat types, mostly near small tanks and adjacent paddy fields in the northern districts of Andhra Pradesh. This bird mostly breeds along the coastline, Kolleru and Nelapattu being the two major breeding grounds. Observations on foraging behaviour of *A. oscitans* have been carried out in detail earlier by Root (1963), Kahl (1971), Mukhophadyay (1980) and Johnson (1992).

Methods

The present observation was carried out from 1993 to 1996 on a flock that started visiting Dhulapally Tank, situated on the northeastern border of Dhulapally village (17°32' N & 78°27' E) which is about 19 km from Hyderabad in northern suburban Secunderabad, Andhra Pradesh. These birds were observed to feed in the paddy fields next to the tank. Earlier survey of other tanks in the region revealed the presence of Openbill Stork elsewhere (Srinivasulu *et al.*, 1996), though occasionally in small numbers. All observations were aided with 7X50 and 8X40 binoculars and were carried out throughout the day, whenever the birds visited the tank and the paddy fields.

Results and Discussion

The flock observed for the present study consisted individuals ranging from 18-32. These birds arrive at the Dhulapally tank latest by 0930 hrs. though the earliest arrival was recorded to be around 0650 hrs. These birds first fed along the tank bed choosing the area that was undisturbed, took rest on *Acacia arabica* trees on the tank bed and by late afternoon started to disperse to the adjoining paddy fields. Once there, they spend about an hour or two (sometimes the whole day is spent in the fields when the anthropogenic-induced disturbances are more on the fringes of the tank). After feeding these birds returned to the tank alighting either on the tank fringe or on trees. By late evening around 1800 they took to wings to return to their night roosts.

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Foraging Behaviour

Hancock *et al.* (1993) indicated that food preferences and feeding techniques are basically related to the individual species particularly the size and shape of the bill used for food gathering, the length of neck and leg that govern reach and depth of water in which the bird can wade. Factors determining technique choices include prey availability, habitat, water, wind and sun conditions, proximity to other birds and the individual's particular skill and experience.

Like other storks, Openbill Stork forages, by probing in water or in floating vegetation with fairly rapid vertical jabs of the beak, while walking. These are principally molluscivorous and favour snails belonging to genus *Pila* (Johnson, 1992). Occasionally, they feed on freshwater mussel, fish, crab and frogs (Bingham, 1876; Kahl, 1971; Mukhophadyay, 1980). They wander over open shallow swamps and paddy fields searching for food.

The prey is generally seized with the forward thrust of the beak but at times are also picked up form underwater with sideways beak movement. Once the prey is seized the shell is rolled up and down in the beak several time to loosen the operculum (Bingham, 1876). If the captured snail is large, then the shell is held against any substrate with distal end of the upper mandible, while the tip of the lower mandible is forced under the operculum, severing it from the body, after several biting movements with the tip of the lower mandible inside the shell. Then the stork grips the shell in the tip of its beak, shakes its head rapidly from side to side to free the body from the shell and swallow the mass with backward toss of the head. If the shell seized is small, then it is crushed after rolling in the beak between the mandibles and then the whole mass in swallowed. Huxley (1960, 1962) has outlined the advantages of the peculiarity of the shape of the bill of Openbill Storks.

Foraging, Dispersion and Movement

Openbill Storks are gregarious in habit and tend to feed in flocks. These generally do not interfere with each other while feeding barring a few agnostic interactions between individuals when food resources are limited. About 6-18 birds were recorded to feed in loose flocks. While feeding in paddy fields, they were observed to maintain inter individual space ranging between 1-

4 m. The dispersion of Openbill Storks from the roosting sites to feeding sites in adjacent paddy fields was of non-divergent type (Fig. 1), that is, they tend to forage closely.

But it was not a common pattern as observed at Kolleru earlier (Johnson, 1992). The whole flock first lands on the bunds of the paddies and then selects a feeding patch to forage. However, about nine per cent instances involved selection of different patches by individual birds. This happened only when farmers were working close by.

When feeding in flocks, Openbill Storks forage parallel to each other (Fig. 2a), while feeding in different patches, individual birds follow erratic foraging path (Fig. 2b). It was observed that when the feeding patch was smaller in size, a distinct social hierarchy in foraging was evident. In these cases, the adult birds of the flock first take on the foraging activity and then allow the juveniles to forage. It is then, when hostile interactions between birds are observed.

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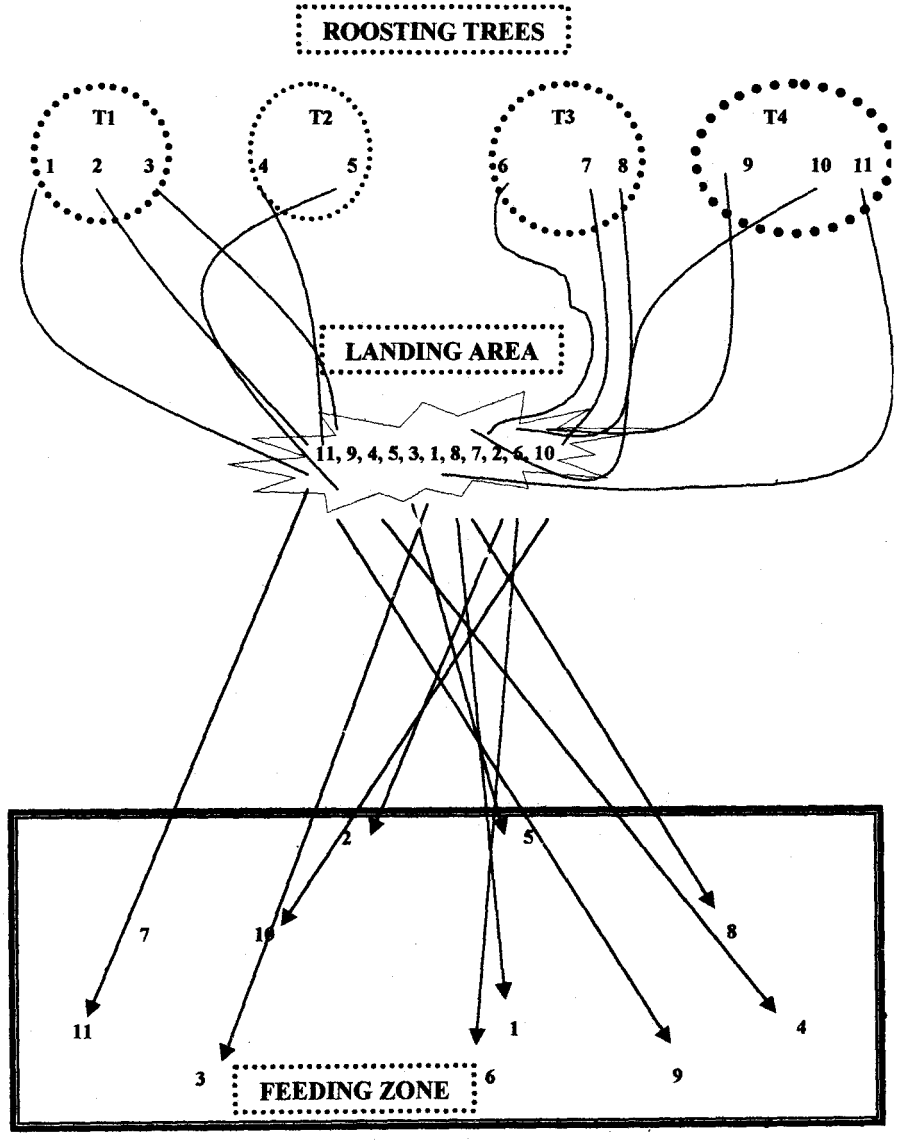

Figure 1. Feeding dispersion of Openbill Stork
A non-divergent type of dispersion showing all individuals feeding in the same zone.

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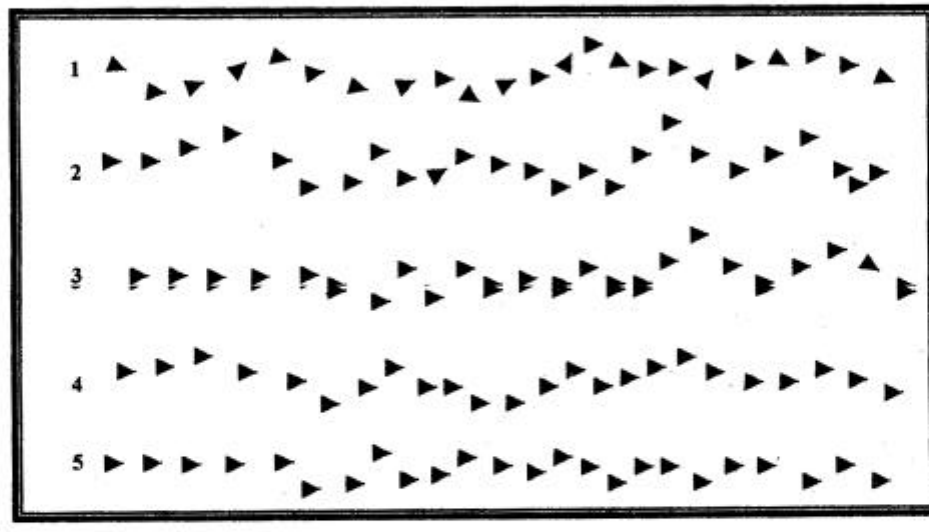

a. During foraging in group

Figure 2. Foraging movements of Openbill Stork

b. During individual foraging