



Behavior

CHAPTER 5

BEHAVIOR

Flamingos are gregarious birds. Like any other animal, the flamingos also exhibit different behavior patterns. However, unlike many species of birds, which are highly territorial, defending small or large areas around themselves, flamingos are far more tolerant. They indulge in few quite mild threat displays and exhibit a variety of behavior. Various behaviors displayed by both the species were recorded and they are described in this chapter.

Materials and Methods:

Observations were made during the field trips. Individual Flamingo was observed using a spotting scope and various postures were noted using line drawing. As the flamingos are gregarious birds, small groups were selected for observing social behavior. Various behavioral patterns were documented by steel photography as well as videography and described later on. The terminology of Ogilvie and Ogilvie (1986) and Brown and Root (1971) are used to describe the behavior.

Various behavioral patterns are classified into two groups:

- A. **Egocentric behavior**, which is directed towards the individual itself and
- B. **Social behavior**, which deals with the interaction between the individuals.
 - a) Social behavior with direct interaction: Two or more interact directly with each other, showing specific behavior.
 - b) Social behavior without direct interaction: This does not involve the direct interaction between individuals, but are performed in groups, have some impact on other individuals of the group and some time, followed by other individuals after performed by one.

Results:

Being gregarious, most of their behaviors were social and however, a few behaviors such as resting, wing and leg stretching, preening, taking bath and drinking

fresh water were egocentric. In the case of flamingos, allelomemetic behavior was also recorded, *i.e* individuals perform same thing, with some degree of mutual stimulation and co-ordination. For example group display behavior.

5A Egocentric Behaviors of the Flamingos:

(1) Wing-Leg Stretching:

The flamingo stretches its one wing and the leg on the same side (Plate 5A-2). This behavior is performed to relax the body.

Both Greater and Lesser Flamingos were observed performing this behavior. In the foraging group, the individual stopped feeding, performed wing-leg stretch, walked or stood for a few seconds and again started feeding. It was performed in different habitats inhabited by flamingos.

(2) Resting:

While resting, the flamingos generally stand on one leg and the other leg is tucked up into the feathers. The head is laid along the back and the bill is tucked under the loose feathers of the wings (Plate 5A-3). The curl of neck varied amongst the individual flamingos, some curled the neck on left while others on right side of the body.

The flamingos were observed resting in different habitats. The resting was a very common activity in the afternoon hours.

In low intensity resting or 'intermittent resting', the head is not laid on the back but maintained parallel to the body but the bird stands quietly for a few seconds/minutes. It may stand on both the legs or one. The leg which is lifted is folded at various degrees and stretched back.

(3) Bathing:

Both the Greater and Lesser Flamingos were recorded taking bath. Among the large number of flamingos at Chhaya Rann of Porbandar, a few flamingos were recorded in small channels behind the Rann. The channels had polluted effluent water coming from the nearby industry. Both Greater and Lesser flamingos were observed taking bath in this water (Plate 5A-4). Flamingos take bath in “Stand-in-bathing” method (Simmons, 1985). They first crouch into the water, dipping their heads and necks first into the water. Then suddenly take the head out of water with jerky movement pushing it backwards, so as to shower water on the back region. This was repeated for several times. After taking bath, the flamingos stand up, ruffle their feathers, shake their heads and bodies and flap their wings to remove water (Plate 5A-5). Often they keep their wings open in “wing salute” for a few seconds. Large number of Lesser Flamingos were observed taking bath in the water of village pond of Shiranivandh, during October 2003, just before the night roosting.

The bathing behavior of flamingos might be performed to keep the body clean, to cool the body or for relaxation. Different species of birds are known to take bath, however this behavior is interesting in flamingos.

(4) Drinking Water:

The flamingos are known to drink fresh water. The flamingos were recorded drinking fresh water from a village pond in the Shiranivandh, in the Great Rann of Kachchh in October 2003 (Plate 5A-6). In the evening of October 23, 2003, huge flocks of Lesser Flamingos started gathering in a village pond of Shiranivandh. The pond had shallow water at one side. A large number of Lesser Flamingos entered into the water. Some of them started taking bath and others were drinking water. The movement of beak and neck was peculiar. They inserted their head into the water keeping the beak in the inverted position, filled water in it, took out the beak in the same position, brought the head up and then turned the beak in its normal posture, and raised it at the same time drinking water. The continuous falling of the water drops from the bills indicated that they were attempting to drink the water. This was repeated several times.

5B Social Behaviors:

(a) Social Behaviors without Direct Interaction:

(1) Alert Posture:

This behavior is most frequently seen when a group of flamingos is suddenly disturbed. In normal pasture, the flamingos stand or walk by keeping their necks up in an S-shape, with their head parallel to the beak and their abdominal regions remaining almost horizontal to the surface and the tail bent slightly downward. In this position, the head remains above the level of the rest of the body (Plate 5A-1). On being disturbed, flamingos shoot their necks straight up, their heads held as high as possible, though with their bills normally not above the horizontal. They may turn their heads from one side to another, presumably searching for or keeping an eye on the cause of the disturbance (Plate 5A- 7).

Both the Lesser and Greater Flamingos were observed performing this behavior. The group of flamingos feeding, was seen performing this behavior at intervals. The flamingos in all different habitats were recorded performing this behavior.

(2) Wing Salute:

Wing salute is the most spectacular display and observed frequently. The flamingo stands with its head held up and its neck stretched, spreads its brightly colored scapulars, the long feathers drooping over its back, cocks its tail and flicks its wings open, holding them out to the side. This position is maintained for a few seconds and then the bird again abruptly snaps its wings shut again and do other activities (Plate 5A-8).

The effect of the wing-salute is dramatic. Random flashes of black and red appears suddenly against the overall pink background. The opening and closing of the wings show off to maximum advantage, both the jet black of the main wing feathers, and the brilliant coloring of the under-wing coverts and axillary feathers which are normally almost completely hidden.

Both the Lesser and Greater Flamingos were observed performing this behavior in all different types of habitats. It was very common behavior and performed frequently. However all the birds did not perform it simultaneously, but once it was performed by one bird, the other adjacent birds also performed it. On October 23, 2003, large number of Lesser Flamingos were seen performing wing salute after taking bath in fresh water, at Shiranivandh, in the Great Rann of Kachchh.

(3) Inverted Wing Salute (Bowling):

In this behavior, the flamingo brings its neck down to the horizontal, cocks its tail high in the air, and then partly opens its wings over its back, with the tips pointing upwards. This gives a similar black and red flash lasting just one to two seconds before the birds close their wings again (Plate 5B-1).

Both Lesser and Greater Flamingos are known to perform this behavior. A few Lesser Flamingos were seen performing this behavior, at Purabcheria, near Cherwari, in the Little Rann of Kachchh, during the breeding season. This behavior was performed faster as compared to wing salute.

(4) Twist-Preen:

In this behavior, the flamingo lifts its one wing above the back a little and then slightly open it, allowing the primaries to droop down, exposing them as black patch against the bird's side. At the same time the bird twists its head and neck round and gives the appearance of preening briefly behind the partly opened wing. It is not actually preening there, but, as performed quite frequently is incorporated into display. In preening, the flamingo keeps its head behind its wing for just so long as it takes to rearrange the feathers there, and its movements are smooth and slow. In the twist-preen, the head is never held behind the wing for more than a couple of seconds, and the whole action is jerky and quick.

Both the Lesser and Greater Flamingo are known to perform this behavior. The Lesser Flamingo performs this behavior by lifting its wing slightly, without lowering the

black primaries. The Lesser Flamingo gathered at Purabcheria, near Cherwari, during breeding season were observed performing this behavior.

(5) Broken Neck Posture:

In this, the bill is suddenly snapped to the lower neck, allowing the head to drop down so that the tip of the bill rests on the feathers at the base of the neck. During this posture, it seems that if the neck is dislocated about 2-3 vertebrae below the head. This posture is maintained for some time (Plate 5B-2).

Broken Neck posture was seen in the Lesser Flamingos gathered and displaying at Purabcheria, near Cherwari, during the breeding season. This behavior was common and performed frequently by several displaying individuals at a time.

(6) Head Bobbing:

The beak is smartly lowered to the upper neck and raised again (Plate 5B-3). At Purabcheria, the Lesser Flamingos performed head bobbing while walking slowly. This position was maintained for few seconds. Scapular feathers are raised partially as a part of this display.

(b) Social Behavior with Direct Interaction:

(1) Threat Behavior:

The threat behavior performed by flamingos can be classified into three categories depending on the intensity of aggressiveness of the performing bird. (i) Chrysanthemum-low intensity (ii) Hooking- comparatively higher intensity and (iii) Ritual bickering-highest intensity of aggressiveness of both the birds involved.

(i) Chrysanthemum/Threatening

The flamingo raises its scapular feathers, which gives fluffy, look to it (Plate 5A - 9). This display is performed to express the aggressiveness to push off an encroaching bird.

Both Lesser and Greater Flamingos were observed frequently performing this behavior while feeding as well as nest building. Greater Flamingos performed this behavior while incubating and repairing nest also, at Flamingo City. The Lesser Flamingos were constantly raising their scapulars and back feathers, defending a small territory, while nest building, at Purabcheria.

Ogilvie and Ogilvie (1986) used “neck swaying and threat” to describe ritual bickering (*i.e* swaying the necks) and chrysanthemum (raising scapular feathers to threat) together.

(ii) Hooking:

This is an aggressive or threat display, carried out by both the species of flamingos. The bird extends its neck forward, at an angle of about 45^0 . The head is so held that the bird appears to be staring at the ground, its bill strongly hooked backwards, pointing towards the chest (Plate 5B-4). Some time scapulars and back feathers are raised up (Chrysanthemum) and the bird walks towards the object of its threat.

Few Lesser Flamingos, were seen performing this display while building the nests at Purabcheria, near Cherwari, and trying to keep its conspecific away from its own nest. The display is often accompanied by nasal honk. The Greater Flamingos were seen performing this behavior on the nesting colony at the Flamingo city.

(iii) Ritual Bickering:

Two adjacent birds with their heads close together rapidly waggle their bills against one another in a movement which resembles bill fighting (Plate 5A-10).

Both the species of flamingos, while feeding together or building nests side by side were observed performing this behavior. During this behavior, they kept their beaks slightly opened. Individuals of one sex or opposite sex were involved in this behavior.

At Purabcheria, near Cherwari, a Greater Flamingo was observed performing ritual bickering with a Lesser Flamingo.

At Purabcheria, ritual bickering was observed between two pairs of Lesser Flamingos during breeding season. In this, one member of a pair was moving its beak against the other of opposite pair and involved in actual ritual bickering. The partners of these two individuals kept their bills opened, tried to chase, but did not show actual bickering. They stood close to their partners bickering the bills.

At the nest site, all the Lesser Flamingos raised their scapulars, while doing ritual bickering *i.e.* threatening the other birds involved.

(2) Sexual Behavior/Display of Flamingos

(i) Gathering and Compact Group Forming:

The display begins with gathering of a large number of birds at a site and followed by compact mass formation. In the case of the Lesser Flamingos, the flock is so tightly packed that birds must stand more upright than usual, so that the breast of one bird lies over the back of the one in front of it. The necks of all flamingos are stretched upwards with feathers partly erected. Confused roaring murmur comes from the flock (Brown and Root, 1971).

Greater Flamingos get together and form compact mass but they do not march in a manner as the Lesser Flamingos do (Ogilvie and Ogilvie, 1986).

(ii) Marching:

The compact flock-formation is followed by the mass movement or marching. The flock walks fast in one direction and then abruptly reverses the direction. They murmur simultaneously. This occurs synchronously.

(iii) Head Wagging or Head Flagging:

While marching, the flamingos keep their neck upright and wag their heads. *i.e.* moving their heads side by side synchronously. The flamingo lift their heads into alert posture but usually, with their bills pointing more upwards. They then turn their heads from one side to another in a quite rhythmic and jerky fashion, at the same time calling loudly and continuously.

(iv) Tail Wagging:

The tail wagging behavior was observed in the case of Lesser Flamingos. While marching and head wagging, the flamingos also wag their tails intermittently. The tail wagging in flamingos is not described before.

Display of Lesser Flamingo:

The Lesser Flamingos were recorded gathered in large numbers at Little Rann and Great Rann of Kachchh. About 3,00,000 Lesser Flamingos in the bright pink breeding plumage, were recorded on the mudflats of Purabcheria (23° 11'N; 70° 46'E), near Cherwari, in the Little Rann of Kachchh, on July 2, 2004. Of the total Lesser Flamingos gathered, 50-100 individuals formed tightly packed compacted mass. Initially, the distance between two individuals, was half a meter or more, but about 50-100 Lesser Flamingos of the group came very close to each other and formed a compact mass. 3 such compact masses of Lesser Flamingos were seen displaying simultaneously, at Purabcheria. These individuals formed a compact mass, performed group display behavior and then dissolved. After some time again the compact mass formation started. During marching, the birds first in the marching group slowed and were pushed by the following birds. This was repeated several times. The marching group included both males and females. The atmosphere was rainy, cloudy and cool.

In the inundated Rann of Shiranivandh, a total of 6,00,000 Lesser Flamingos were recorded during October 2003. A compact mass of about 2,00,000 Lesser Flamingos was seen at the bridge site (Plate 5A-11), where fresh water channel was mixing with the inundated Rann. The displaying flock dissolved only when disturbed by some animals.

The gathering and compact mass formation was followed by marching and head wagging at both the sites (Plate 5A-12). The murmur sound of the displaying flamingos was more pronounced at the Shiranivandh than at Purabcheria. The flamingos also wagged their tails simultaneously. The birds marching in front of the group, made attempts to 'feed' when they approached shallow water. This may be a 'false feeding attempt' as they quickly returning back.

Display of Greater Flamingo:

About 14,000 Greater Flamingos were recorded around the Flamingo City, during the breeding season *i.e* February 2004. Most of them were engaged in nesting and many were standing in the water along with chicks. However a few adult Greater Flamingos were observed displaying, near the nest site. They formed a compact mass in water and started head wagging. The displaying Greater Flamingos did march, but stood at a point and performed display.

(5) Pair Forming:

The formation of a pair seems to take place very discreetly, probably by male coming and standing close to a female while she is feeding. Then when he moves away, she will tend to follow him. Later they stand side by side, stretch their necks up and call softly (Plate 5B-5,6).

Many pairs of Lesser Flamingos were observed at Purabcheria roaming or feeding together during the breeding season. The male and female could be identified by their uneven body size. The male being slightly larger than the female. The pair remained away from the main flock. In some cases, one Lesser Flamingo was walking and the other was following it. Some pairs were feeding in isolation, away from the main group.

At the nest sites, a pair of Lesser Flamingos was identified as they remained close to each other, while building the nests. At the Flamingo City, the pair of Greater Flamingo could be identified as one remained on the nest incubating the egg while the other stood close to it.

Plate 5A : Behavioral Patterns in Flamingos



1. Normal Posture



2. Wing Leg Stretching



3. Greater Flamingo Resting



4. Lesser Flamingos Taking Bath



5. Wing Flapping after Bath



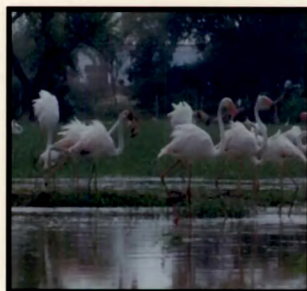
6. Lesser Flamingos Drinking Fresh Water



7. Alert Greater Flamingo



8. Wing Salute



9. Chrysanthemum



10. Ritual Bickering

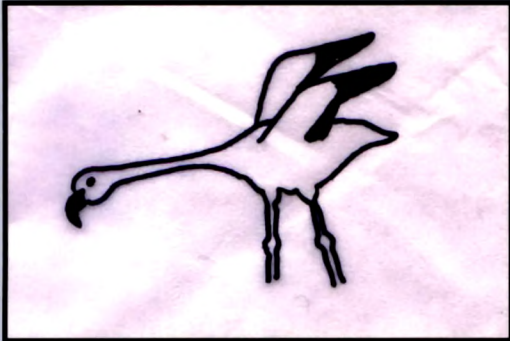


11. Compact Group



12. Lesser Flamingo Marching

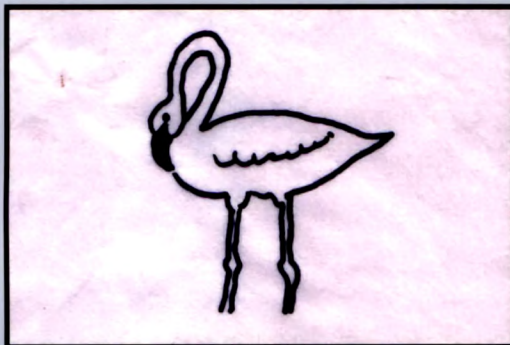
Plate 5B : Behavioral Patterns in Flamingos



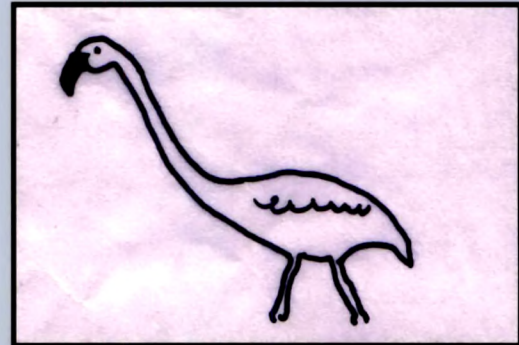
1. Inverted Wing Salute



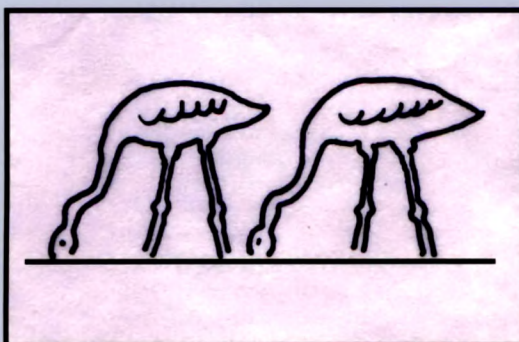
2. Broken Neck



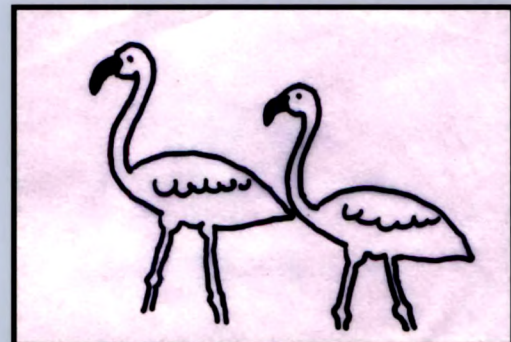
3. Head Bobbing



4. Hooking



5. Feeding Together



6. Standing Together