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7. GANGETIC DOLPHIN, *PLATANISTA GANGETICA*:
OBSERVATIONS ON HABITS AND DISTRIBUTION PATTERN
IN NATIONAL CHAMBAL SANCTUARY

(With two text-figures)

Based on a preliminary survey conducted for two seasons in 1983-1985 along 570 km of River Chambal a total of about 45 dolphins are estimated to be occurring between Batesura (305 km upstream Yamuna-Chambal confluence) and Pachhnada (total 320 km). The observed density of one adult per about 6.5 km of inhabited stretch is suspected to be an under estimation because of the strict methods adopted to avoid any possible double counts. Observations made on the feeding behaviour indicated sweeping movement of head through a fish-shoal. Smallest dolphin were sighted during the first week of January. During March-April the adults 'disappeared' from certain stretches perhaps to avoid shallow depth and participate in breeding. On 27-4-84 two dolphins were seen side by side at Tigri Rithaura and believed to be in a courting act. On corroboration it is believed that the gestation period is nine months (April-January) in Chambal. The immediate danger for the resident population of *P. gangeticus* in National Chambal Sanctuary is the decrease in river depth and appearance of sand bars dividing the river course into smaller segments.

Annandale (1912) mentioned that the gharial (*Gavialis gangeticus*, Reptilia, Crocodilia), the soft-shelled turtle (*Trionyx gangeticus*) and the gangetic dolphin (*Platanista gangetica*, Mammalia, Cetacea) had the same range of distribution. Writing of the dolphin, Prater (1965) stated that the species was found in the Ganges, the Brahmaputra, the Indus, and their larger tributaries to the base of hills, and they were also seen in the tidal limits but not in the sea. As has been observed with the accounts on detailed distribution of the gharial, dolphins too have not been studied in river Chambal, a good south-western tributary of the Ganges, almost entirely under the management of the National Chambal Sanctuary since 1978. The occurrence of dolphins in Chambal have not been dealt even by Jones (1982) in his account on the species' present status.

During the course of an ecological study on

the gharial commenced in June 1983 dolphins were met almost all along the northern stretch of the river in the sanctuary. Earlier to that, from 1978 both authors while remaining associated with the activities of the sanctuary had taken note of the frequent and easy dolphin sightings. Data collected during 1983-1985 have been analysed in the following to give a preliminary account on the distribution pattern, breeding season, local movements and feeding by dolphins in Chambal.

METHODS

On Field-Map sheets the river is marked every five km apart from Pali (Parbati-Chambal confluence) upstream to Bharreh (Chambal-Yamuna confluence), 425 km downstream (Fig. 1). Periods during which different lengths of the river were surveyed are as follows:

MISCELLANEOUS NOTES

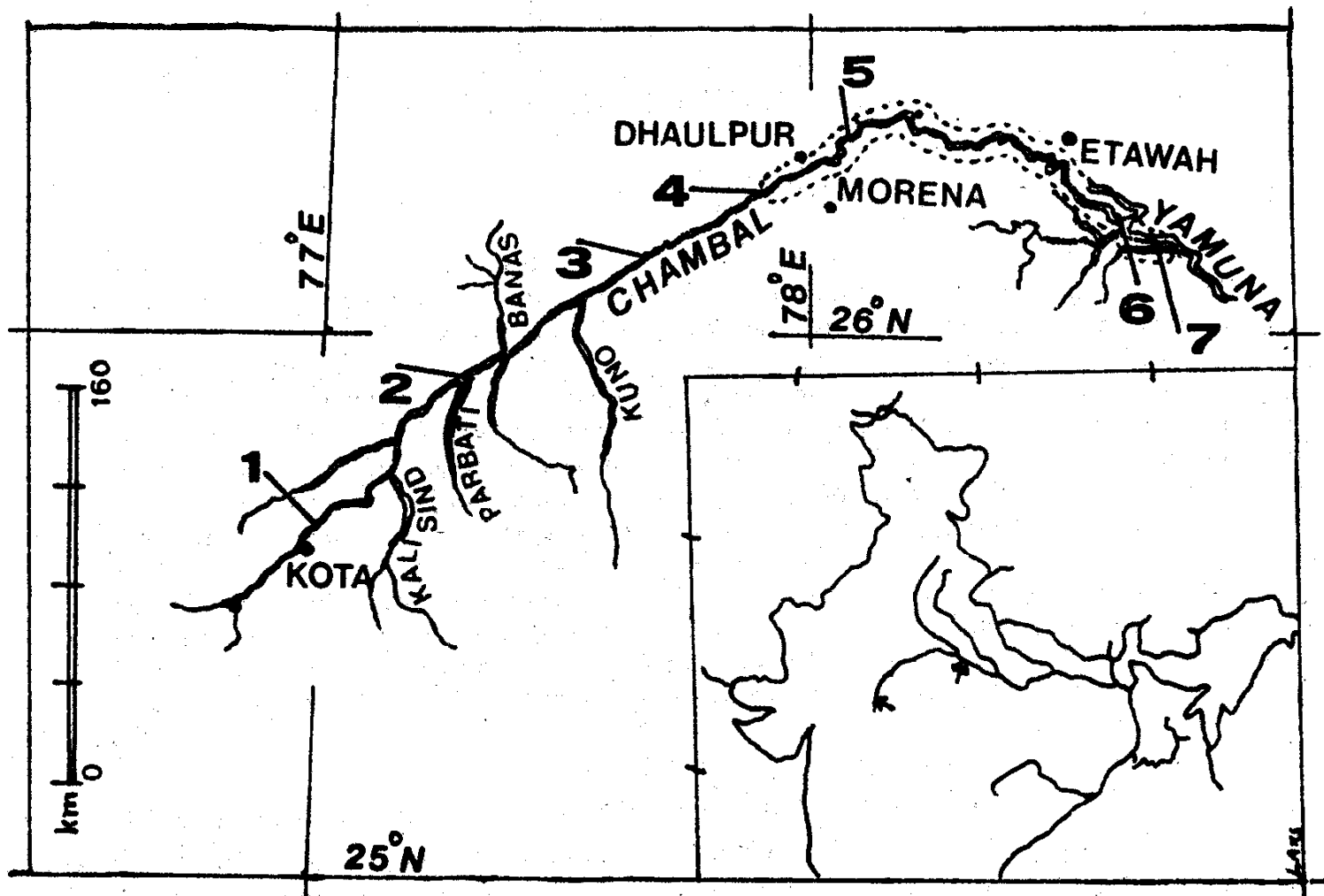


Fig. 1: National Chambal Sanctuary with locations referred to in the text (1, Keshoraipatan; 2, Pali; 3, Rahu ka Gaon; 4, Basai Dang; 5, Pureini; 6, Bharreh; 7, Pachhnada) and occurrence zone (dotted) for *Platanista gangetica*.

- Zone — 1: Keshoraipatan (Kota)-Pali: 142 km: Feb./Mar. 1984.
- Zone — 2: Pali-Rahu ka gaon: 110 km (0-110 km): Visits to different points from road during 1983-1985 and along the river in Feb.-June 1985.
- Zone — 3: Rahu ka gaon—Basai Dang: 60 km (110-170 km): November 1983/March 1984, February 1985.
- Zone — 4: Basai Dang-Pureini: 60 km (170-230 km): October 1983, June 1985.
- Zone — 5: Pureini-Bharreh: 195 km (230-425 km): January 84, December 84.
- Zone — 6: Bharreh-Pachhnada: (15 km): January 84/December 84.

All survey work, except when otherwise mentioned were conducted from boat or on foot. Zone 1, 2, 3 and 4 are separated from each other by rapids and shallow water for which, in this stretch the river appears continuous only during a high flood (above 20 m). During rest of the period, October through July, Zones 1, 2, 3 and (4-6) are not suitable for cross-zone movements by large deep-dwelling animals like the gharial and dolphins. Therefore, inspite of different dates of survey any overlap in counts between the zones 1/2, 2/3 and 3/4 is ruled out. Zone 4 was the main study area for the original gharial work, therefore, information from this was collected almost daily or at very short intervals.

Dolphin sightings were recorded against the

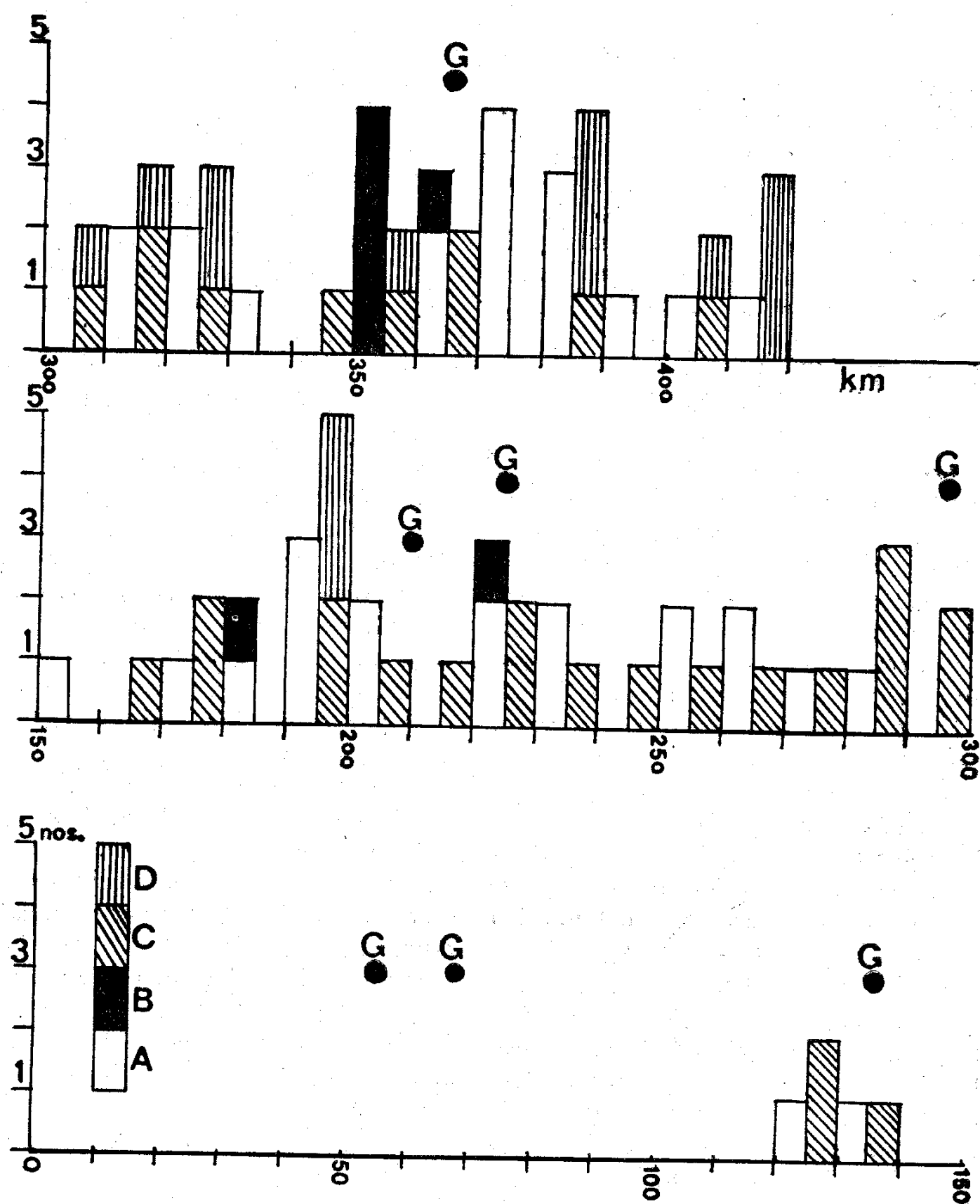


Fig. 2: Comparative data for the 1st year (A & B) and 2nd year (C & D) on the occurrence of dolphin in National Chambal Sanctuary with respect to the gharial nesting sites (G). A and C: sight's for dolphins over 1 m size and B, D: smaller dolphins. 'Zero' point in the scale refers to Pali (Chambal-Parbati confluence).

MISCELLANEOUS NOTES

date on Field-Map sheets. The number of field days for any zone was from a minimum of one during annual surveys to over fifty per year for zone 4. Sightings are presented on the basis of 10-km stretches in Fig. 2. When a dolphin was suspected of having resurfaced ahead of the boat it is shown against the stretch where first sighted. Judged from girth and length, those below a metre length have been considered as young dolphin (Fig. 2, B & D).

OBSERVATIONS

1. *Distribution*

Upstream the point 120 km neither any dolphin was sighted nor a confirmed report received. In downstream, except the stretches 140-150 km and beyond 420 km in all other stretches dolphins were recorded. The river from 170 km downstream is fairly continuous during all seasons of the year. Although dolphins are known to occur downstream 425 km, in Yamuna, extensive fishing activities may be posing a situation of harassment for free movement of the animals. The mean minimum density in the river between Batesura (120 km) and Bharreh (425 km) is one dolphin per every 6.9 km (1st year data) and 6.4 km (2nd year data), with an average of one dolphin per about 6.5 km.

During the first year 7 small (less than 1 m length) and 37 large dolphins were recorded while in the second year 15 small and 32 large were recorded. As the total numbers are closely similar, 44 and 47, error may have developed in the breakups into size groups.

2. *Habit*

There was no definite clue that the dolphins were abundant near important gharial zones (G-gharial nesting site in Fig. 2). Any long

stretch of deep water appeared to be most favoured. Based on observations made in Zone-4 (170-230 km), during dry season, particularly March-June, dolphins had disappeared from certain regular places. Two such stretches were near 185 and 200 km.

On 27.4.84 at 1100 hours at 210 km two adults were sighted performing surface-leaps almost touching each other's body. On no other occasion two dolphins were sighted moving so close to each other.

Dolphins in the smallest size groups were sighted at 350-355 km during the first week of January. From a distance these young ones appeared like small fish around 50 cm in length. During mid-March a little larger young one was seen at 180/185 km.

On three occasions dolphins have been seen in shallow water while making sidewise sweeps of the head as shoals of fish appeared greatly disturbed. These observations, considered to be 'feeding' were all recorded between 900-1200 hrs at 210 km, 213 km and 295 km points in respect to Pali.

When we moved by boat fitted with an outboard motor, very seldom does a dolphin surface by the side of the boat. Once (26.1.84) an adult was as close to the boat as 4-5 m, near 225/230 km. During our observations we could not be convinced that a dolphin should surface for breathing after every minute or so of immersion (as stated by Prater 1965). The immersion duration may be well over five minutes.

DISCUSSION

Status:

1. The most recent publication on the status of *P. gangeticus* is by Jones (1982) where he estimates the total population at 4000-5000 including 500-750 in the Ganges proper and

its tributaries. Jones has further mentioned that reliable information was available to him only for rivers in Bangladesh, and he perhaps may have had only a surmise that during summer when Ganges is at its lowest, the species enters "Yamuna as far as Delhi and also enters for a short way all the larger affluents of the main stream".

2. Our study indicates that River Chambal has a resident population of about 45 dolphins in the stretch between Batesura and Bharreh, respectively 120 km and 425 km downstream Chambal-Parbati confluence or upto 325 km upstream Yamuna-Chambal confluence. Although we confirm seasonal local migrations, we do not have any evidence if the dolphins sighted near Delhi (Jones 1982) are population of Yamuna itself or migrants from the Ganges. Yamuna at its confluence with Chambal is very shallow and is reportedly shallower at places in the upstream to hardly permit any movement of dolphins from the Ganges into Yamuna up to Delhi. Instead, the chances of dolphins entering Chambal from Yamuna are greater.

3. Gangetic dolphin is without doubt a rarer species now than it was some years back. LAKS, who worked along the River Mahanadi of Orissa for several years had never sighted a dolphin (called *Susumár* in Oriya) although definite evidences were collected that the mammal was very common during 1950s in the lower Mahanadi upstream of the tidal limits.

4. In all probability, the number of dolphins recorded in the present study are underestimated figures because too much restraint seems to have been adopted in order to avoid double counts. In such a situation since the areas of occurrence are clearly identified the density of one dolphin for every 6.5 km will be improved upon only if they are occurring in groups. There is no clue to check the trend

in the population that exists in Chambal which is over a thousand km upstream the tidal limits of Bay of Bengal. Talking to fishermen near Chambal-Yamuna confluence it was ascertained that they cannot remember if a dolphin was anytime caught in fishing net although restraint in movement may have been imposed due to netting activities. The information is probably true dolphins are known to have an extra-sensory mode of locating obstacles through echo-location (Singh & Behura 1977). Net capture of dolphins in the plains and deltas may be dependent on number and types of nets, density of the dolphin population and other aquatic conditions that confuse echo-location. As the subject warrants a detailed scrutiny, it may be mentioned that Bilgrami (1983) states from his study along Patna-Farakka, a stretch of 350 km of the Ganges, that the dolphin "is being indiscriminately killed for extraction of oil". Jones (1982) on the other hand stated that the species was in no immediate danger of extermination and emphasised the need for more study. We feel that the shrinkage of inhabitable stretches of the river could be the immediate danger for the species. The danger of shallowing down of the rivers and silting of dams and river beds have already been realised. Therefore, expressing their cause of concern, dolphin biologists should give support to afforestation programmes in the catchment areas, and measures for control and prevention of chemical pollution of the rivers.

Breeding:

The 'disappearance' of dolphins from certain stretches may be in order to avoid shallow depth and/or to move and join some other dolphin or group for breeding. Prater (1965) mentioned that "one or rarely two young are born between April and July after a period

of gestation of about eight to nine months". If our observation of side-by-side leaping of two adults is related to courting in April and that the young ones are born during or before January then the gestation period for dolphins in Chambal appear to be the same as stated by Prater, i.e., nine months (April-January). The disagreement over the exact months of the birth of young could be due to a difference in the area from where births have been reported. Prater's account seem to be on populations down in the plains just above the tidal limits. It is also to be expected with a population like that of Chambal, that the reproductive cycle has to be precisely seasonal because of the limitations by the changes in the river

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conditions and perhaps a simultaneous structural change in the food resource too. These features are less restraining in the lower limits of a river close to tidal limits.

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