

Feeding behaviour of the Great Kiskadee, *Pitangus sulphuratus*, on fish in 'Trinidad, West Indies.

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The Derby Flycatcher, "kiskadee", *Pitangus sulphuratus*, is distributed from southern USA through Central and South America to Bolivia and Argentina, including Trinidad (Quesnel 1956, French 1980). In Trinidad, this species is frequently found in semi-open areas in both rural and urban areas, cultivated estates, ecotone of forest and at elevations up to and well above 455 meters. Interest in the kiskadee was stimulated when it was observed that large numbers of the fish *Poecilia reticulata* (Peter) (guppies) were being consumed from rearing containers located at Insect Vector Control Division, Head Office, St. Joseph, Trinidad. This paper reports, some observations in Trinidad on the fish feeding behaviour of the kiskadee, *P. sulphuratus*.

During July 1988 it was decided that the potential of guppies as a biological control agent against *Aedes aegypti* Linn. should be assessed. Consequently, guppies were reared in six 208 litre drums located at the back of the IVCD office, St. Joseph. After a few days had elapsed, it was observed that kiskadees were frequently visiting the rearing containers and consuming large quantities of the fish. The kiskadees were observed to plunge headfirst into the water and fish were often seen in their beaks when they perched on the rim of the drum after the dive. As a result, observations on the feeding behaviour of the kiskadee were conducted in order to determine when containers should be covered.

Kiskadee feeding was monitored for 12 days from 2 to 28 July, 1988 at the fish tanks. The time of every feeding trip was noted and the number of trips in every two hour period was then determined from the records. Workers started at 0600 hr each day and actually sat up all night watching the tanks. The unit of exposure for purpose of analysis was the "feeding day": a 24-hour period during which observations at the fish containers were made to the schedule described above. Records for numbers of birds feeding are given both as the arithmetic and Williams's mean (Haddow 1960).

During this study feeding occurred on all 12 days of observations. The pattern of feeding derived from the small number of birds observed (Table 1) corresponds closely when based both on arithmetic and Williams's mean (Fig. 1). Feeding was diurnal, with observations recorded only between 0600 and 1600 hr and showed a well-defined peak between 1000 and 1200 hr (46% of birds feeding). No birds were observed feeding on fish between 1600 and 0600 hr.

Although the total number of *P. sulphuratus* observed in this study was small, the feeding pattern is clearly discernible. It is noteworthy, that the diel maximum in the feeding kiskadee

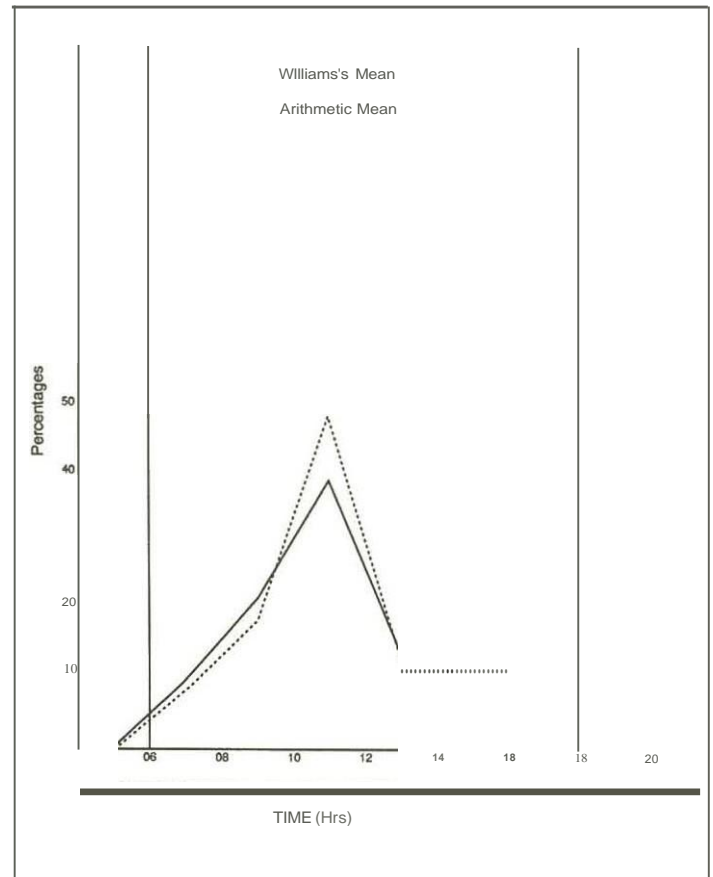


Fig. 1. Feeding patterns of *Pitangus sulphuratus* at St. Joseph, Trinidad shown by the number of visits to fish containers. No birds were observed between 1600 and 0600 hours.

Table 1

Feeding behaviour of *Pitangus sulphuratus* on 12 days at St. Joseph, Trinidad, July, 1988.

Time (hr)	No. feeding visits observed	%
0600-0800	7	8.4
0800-1000	15	18.1
1000-1200	39	46.9
1200-1400	11	13.3
1400-1600	11	13.3
1600-1800	0	0.0
1800-0600	0	0.0
Total	83	100.0

populations fell mainly between 0800 hr and noon and generally follows another type of behaviour. French (1980) reported that the kiskadee calls at dawn, well before sunrise with its characteristic 3 or 4 syllables, "Qu'est-ce qu'il dit". Therefore, *P. sulphuratus* calls before dawn, but starts feeding after 0600 hr (local time). However it is possible that the behaviour of the fish (eg. by swimming to the surface) may have influenced the behaviour of the kiskadees but this aspect has not been investigated.

In Trinidad, *P. sulphuratus* is an omnivorous feeder, with insects (e.g. beetles, mole crickets), fruits (e.g. palms, peppers), lizards, fledgling birds and fish (collected from a seine) forming components of its diet (French 1980). However, it was previously felt that fish was not a common food item although since this study kiskadees have been observed at the San Fernando Wharves catching and feeding on fish (Chadee, unpublished data) and Stiles and Skutch (1989) report feeding on small fish in the way described above. Further studies on this interesting feeding behaviour should be conducted.

From this study in St. Joseph, it can be concluded that an effective way to observe feeding by *P. sulphuratus* in the field is to expose food or seek out appropriate feeding sites between

0600 and 1200 hr, and especially between 1000 - 1200 hr, after sunrise. Indeed, such information will be useful also to investigators or ornithologists wishing to witness feeding in nature.

Acknowledgments

The authors thank Dr. R. Paul, Specialist Medical Officer, Insect Vector Control Division, Ministry of Health for valued help and Messrs. N. Boodoosingh, A. Lakhan, L. Fernando and N. Andalcio for field assistance. In addition, we thank Dr. E.S. Tikasingh (Honorary Consultant in Entomology and Parasitology at the Caribbean Epidemiology Centre) for critically reviewing a draft of the manuscript.

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