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Food Sharing Behavior in Primates: Another Species Added

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ABSTRACT

Observations of food sharing behavior in golden lion marmosets are reported and three categories of food sharing behavior are proposed for primates: passive, active, and overt.

INTRODUCTION

Food sharing generally is assumed to be voluntary; involuntary food sharing perhaps is categorized better in terms of aggression. Capuchin monkeys in food deprivation experiments have been observed to "hand" food through the bars to one another, and Markowitz (1973) reported gibbons and diana monkeys sharing food tokens and cooperating in bar press situations. However intriguing these sharing situations may be, they cannot be categorized as normal even within the realms of captive behavior studies.

Although chimpanzees (Goodall 1965; Reynolds and Reynolds 1965; Van Lawick-Goodall 1971; Teleki 1973), spider monkeys (Dare 1974), and olive baboons (Harding and Strum 1976) have been observed in the wild to share food, most observations of food sharing have been made in captive species: chimpanzee (Nissen and Crawford 1936; Mason 1970), gorilla (Schaller 1963), douc langur (Kavanaugh 1972), gibbon (Berkson and Schusterman 1964), and tree shrew (Hasler and Sorenson 1974). To this relatively short list of "normal situation" food sharers may be added the golden lion marmoset (*Leontopithecus rosalia*).

The importance of food sharing behavior in marmosets is understood better with a brief description of their social organization.

The typical marmoset social structure can be described as a parental family unit consisting of an adult bonded pair and their immature offspring of perhaps more than one litter. This parental family unit is rare in nonhuman primates and is known only in gibbons and marmosets. What comprises the pair bond in parental family units is not completely understood. Eisenberg et al. (1972) describe a pair bond as grooming, huddling, and other nonsexual behaviors performed on a daily basis. The father in a marmoset family typically takes the offspring from the female two to seven days after parturition (carries them about four weeks), returning them to the mother only for nursing. This type of nonhuman primate parental care in which the male is actively involved is unique to marmosets (Eisenberg et al. 1972).

The diet of marmosets in the wild consists mostly of insects, smaller vertebrates, eggs, foliage, fruits, and nuts (Izawa 1975). The agility required to secure proper amounts of food is obvious. A pregnant female would be at a distinct disadvantage.

During a study on the social and reproductive behavior of golden lion marmosets at the Oklahoma City Zoo, marmosets were observed to not feed continuously at the feeding dish, but instead to take a piece of food in their mouth or one hand and carry it a short distance before eating. Consequently feeding time is very active with frequent trips to the feeding station because small pieces of food are either taken by other marmosets, eaten, or dropped to the ground.

The writer proposes that food sharing behavior in primates can be divided into three categories.

1. *Passive food sharing* is when one animal allows another to take (share) food without resistance even though the sharing is not solicited.
2. *Active food sharing* has the added facet of the sharer apparently actively seeking association with another individual ("sharee") although the food is not actively offered or presented (given or handed) to the individual.
3. *Overt food sharing* involves active sharing with the overt or active donation or carrying of the food to another

individual. This is the highest level of food sharing behavior, correlating with at least the beginnings of advanced social contact systems similar to those of early man.

PASSIVE FOOD SHARING

Passive food sharing was observed on nearly a daily basis in all adult pairs. The same food item frequently was transferred or shared between the pair several times before being completely consumed or discarded.

A single female offspring born to a pair on 25 March 1974 was 34 days old when first observed to eat solid food. In 17 hours of observation during the next 26 days, the offspring was observed to take food from the father 32 times and from the mother only 6 times. In view of the high degree of male interaction in the rearing of offspring, this disproportionate difference is not surprising, although on one occasion the mother was observed to take food from her offspring. Additional observations of another adult pair and their twin female offspring indicated similar food sharing patterns with occasional passive food sharing between the offspring.

ACTIVE FOOD SHARING

During the introduction of a new male and female, by use of a 10-ft-cage divided by a wire partition (one animal in each half), the male was observed to retrieve a food item from the floor and carry it to the wire divider. The female reached through the wire divider and took the food item. No resistance on the male's part was noted, nor assistance other than carrying the food item to the female. This behavior would clearly be a case of "active food sharing" and adds further support to the importance of food sharing behavior in the establishment and maintenance of the pair bond in marmosets.

OVERT FOOD SHARING

Behavior changes were noted in an adult pair of wild-born marmosets during the course of the female's pregnancy. As parturition approached, the female became less active, spending much time resting in the nest box entrance or basking under an ultraviolet light. The female went to the food dish with decreasing regularity. The male was observed on several occasions to put food directly in front of the female as she rested at the nest box entrance, a gesture the writer interprets as overt food sharing. After giving birth, the mother resumed normal feeding activities. Adult pairs with offspring passively shared food more frequently than adult pairs without offspring.

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