
PARENTAL CARE OF STRAY DOGS IN SOUTH PART OF ASANSOL CITY UNDER PASCHIM BARDHAMAN DISTRICT OF WEST BENGAL

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Abstract

Parental care assumes an essential part in the advancement of the youthful in mammals. Indeed, even in species where mothers don't give care as lairs and security, mothers suckle their posterity, from birth to weaning. Stray dogs in India have a dynamic social framework and, not at all like their agreeably rearing progenitors, the dim wolves, have all grown-ups in a dog bunch had parallel mating openings. This on occasion prompts the introduction of different litters inside the stray dog gatherings. In this paper, we report the primary field perceptions of parental care made on a stray dog bunches where in the south part of Asansol city of West Bengal. The parental care went about as a supplement to the care gave by the mother, and was along these lines gainful to the pups. This study reaffirms the fact that quality of time spent in active parental care goes in south direction as the pups grew between 8 to 12 weeks and started supporting themselves.

Keywords:

Asansol;

Stray Dog;

Parental care;

Suckling;

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1. Introduction

Parental care is an essential component in the life history of mammals. Even in species where mothers do not provide care in the form of dens and protection, mothers suckle their offspring, from birth to weaning. Parental care in mammals begins from gestation, and often continues beyond the weaning stage, especially in

social species (Gubernick 1981; Clutton-Brock 1991). Though care is most often provided by the mother alone (Kleiman and Malcolm 1981), paternal care is also known to exist in some species including humans (Kleiman and Malcolm 1981; Woodroffe and Vincent 1994), and care by other adults, especially in group-living species, is also known (Riedman 1982; Jennions and Macdonald 1994). Social canids like wolves (*Canis lupus lupus*), coyotes (*Canis latrans*), Arctic foxes (*Vulpes lagopus*), African wild dogs (*Lycaon pictus*), etc. live in packs which hunt together, and cooperative breeding is a common feature in such packs (Estes and Goddard 1967; Mech 1970; Ewer 1973; Fox et al. 1975; Jennions and Macdonald 1994; Clutton-Brock 2006). However, in non-pack dwelling canids, such cooperative breeding is unknown (Sandell 1989; Kleiman 2011).

Domestic dogs (*Canis lupus familiaris*) are generally thought to have evolved from grey wolves thousands of years ago (Scott and Fuller 1965; Beck 1975; Clutton-Brock 1995). Dogs display a wide range of social organization, from solitary living in human homes to living in small mixed groups as farm animals, to living in packs as free-ranging and feral dogs (Macdonald 1979; Berman and Dunbar 1983; Serpell 1995; Sillero-Zubiri et al. 2004). Parental care has been reported in both domestic dogs (Scott and Marston 1950; Welker 1959; Rheingold 1963; Kleiman and Malcolm 1981) and stray dogs (Pal 2005), but there are no reports of cooperative breeding in dog groups. Stray dogs are known to live in stable social groups in which all adults have mating opportunities (Pal 2011), and grouping patterns are often influenced by mating interests (SenMajumder et al. 2013). Pups stay with the natal group until sexual maturity, and dispersals are common, though not compulsory, in the sub-adult and adult phases of life (Pal et al. 1998). Hence, the free-ranging dogs are a good model system for understanding social dynamics in canids, but have so far rarely been studied.

We have embarked on a long-term study of the ecology of stray dogs in India where natural populations of dogs exist on the streets, co-habiting with humans (Vanak et al. 2009). These dogs are scavengers, living off human excesses in all habitations, from cities to forest fringes (Vanak and Gompper 2009; Vanak et al. 2009). Though the dogs defend territories as groups, most often they tend to forage alone, which no doubt is a good strategy for a scavenging lifestyle. However, when juveniles are present in the population, larger foraging units are seen, and, in the mating season, male–female pairs often forage together. Hence, there is a lot of plasticity in the social behaviour of the dogs, and social interests may override the tendency to at times compete over food (SenMajumder et al. 2013). Though the dogs are chiefly scavengers, reports of free-ranging dogs hunting as a pack are sometimes encountered (Kaushik 2008; Achappa 2012; Oppili 2013).

The dogs attacked and killed rats and juvenile goats and pigs in a coordinated fashion, highly reminiscent of cooperative hunting, where two or three dogs surrounded the prey from different directions, barking loudly, and chased it, closing in the circle to finally kill it (Kruuk 1975; Peterson and Ciucci 2003). Hence the dogs seem to have retained the ability for cooperative hunting from their ancestral condition (Macdonald 1979, 1983; Sillero-Zubiri et al. 2004), though they do not usually hunt, perhaps because such attempts are typically thwarted by people. Even when they do kill, they are rarely seen to eat their kill as they are immediately chased off by people (personal observations). Though cooperative hunting is reported in dogs, cooperative breeding has never been reported in these canids. We are presently providing a report by carrying out a long-

term field-based population-level study on parental care in the stray dogs in Asansol city, under Paschim Bardhaman district of West Bengal.

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2. Research Method

Study site:

This work was carried out in the Asansol city, under Paschim Bardhaman district of West Bengal, India. The exact places and their ward number, then the density of stray dogs at the corresponding ward details are listed below,

| Places of Asansol city | Their corresponding Ward Number | Stray Dog density per square kilometer |
|------------------------|---------------------------------|--|
| JAMURIA | 9 | 20 |
| RAILPAR | 31 | 40 |
| BURNPUR | 53 | 24 |
| NARSAMUDA | 57 | 39 |
| ISMILE | 84 | 27 |
| TALKURI | 86 | 22 |
| DAMRA | 87 | 30 |

Meteorology:

The climate of these sites at Paschim Bardhaman district of West Bengal, mainly shows three distinct seasons: a short summer (March to May), a typical monsoon (June to September) and a rather chilly winter (October to February), General weather patterns prevailing in the study sites are more or less same. The maximum and minimum temperature ranges from 35.1° C to 35.8° C during April - May and 7.2°C to 7.8°C during December - January respectively. The extreme high and low temperature ranges from 39.4° C to 40° C and 2.2° C to 5° C respectively. Monthly total rainfall varies from 2.7 mm, to 9.2 mm. (minimum) in the months of December to January and 710 mm, to 776 mm, in the months of June to July (maximum). The humidity ranges from 43 % to 69 % in April and 81 % to 88 % in August. The general weather condition is hot and humid in the summer and moderately cold and dry in the winter.

Study period:

Observations were conducted from July 2016 to December 2017, Except short breaks of 3-5 days every month for library consultation, consultation with the supervisor at the Department and collection of various records from different public and private offices the author mostly engaged himself in the study over the whole period of study,

Daily observation schedule:

For convenience of study daily observations (routine) were divided into three shifts i. a, in the morning (6,00 a.m. to 9.00 a. m.) , in the noon (12,00 p.m. to 2,00 p.m.) and in the afternoon (4.00 to 6,00). In some cases observations were taken from 6, 00 a.m. to 12, 00 p, m and from 2, 00p.m, to 6, 00 p, m. In actual practice, however, the hours as scheduled above could not be followed exactly. But the deviations from the schedule observation hours were never more than 30 minutes. Thus observations were made throughout the day encompassing all the three shifts. Besides, observations were also made at any hour of the day whenever feasible.

3. Results and Analysis

We obtained data on parental care for stray dog (A) in the first season and for B, her daughter, in the second season. In the first week of observations, A spent 18.05 % of her time with her pups, of which 5.55 % was devoted to active parental care.

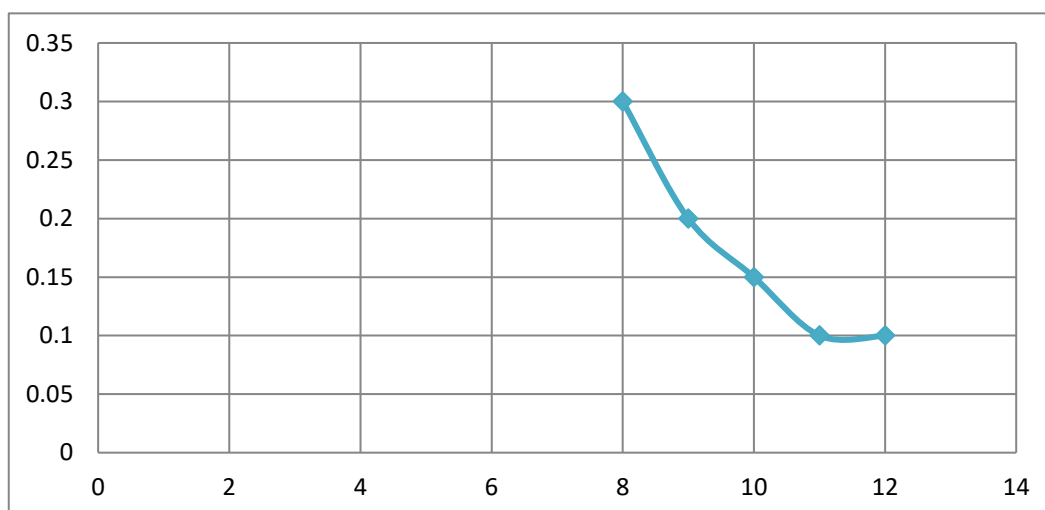


Figure 1: The proportion of time spent in parental care by the mothers A at different ages (in weeks) of the pups. The regression lines are shown in the figure (X axis: age of pups in weeks and Y axis: proportion of time spent in parental care)

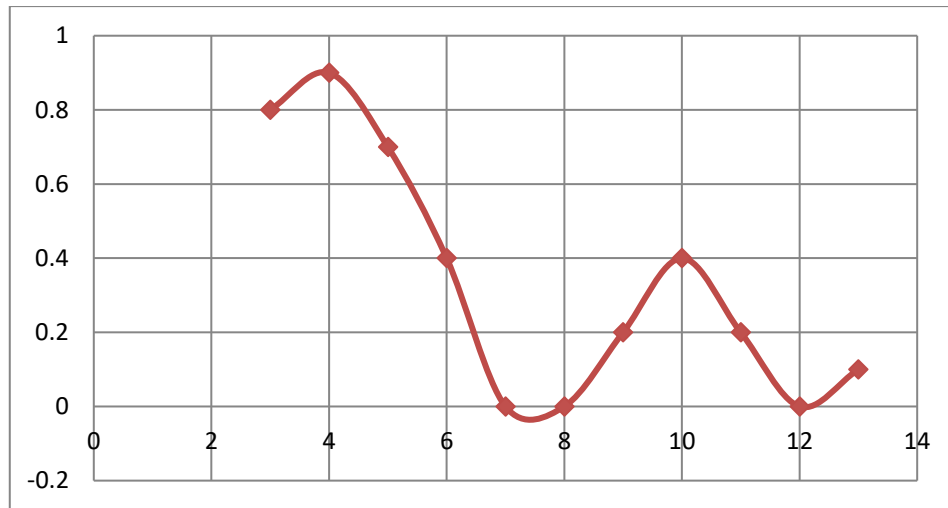


Figure 2: The proportion of time spent in parental care by the mother B at different ages (in weeks) of the pups. The regression lines are shown in the figure.

The time spent in active parental care decreased significantly as the pups grew from 8 to 12 weeks (linear regression: $R^2 = 0.922$, $b = -0.960$, $p = 0.009$) (Fig. 1 and 2), though the total proportion of time that the mother spent with them did not (linear regression: $R^2 = 0.202$, $b = 0.449$, $p = 0.448$). PW and her pups were observed for a longer period, and, in the first week of observations, when the pups were in their 3rd week, she spent 65 % of her time with them, of which 84.6 % was spent in active parental care. Considering the entire period of observations from the 3rd to the 13th weeks of pup age, the time spent with pups did not vary significantly ($R^2 = 0.039$, $b = 0.197$, $p = 0.561$), though the proportion of time spent in active parental care out of the time spent with pups reduced significantly with pup age (linear regression: $R^2 = 0.618$, $b = -0.786$, $p = 0.004$). The time spent in active parental care by A and B in the weaning period, from the 8th to 12th weeks of pup age, was comparable (Mann–Whitney U test: $U = 13.0$, $df = 5, 5$, $p = 1.00$).

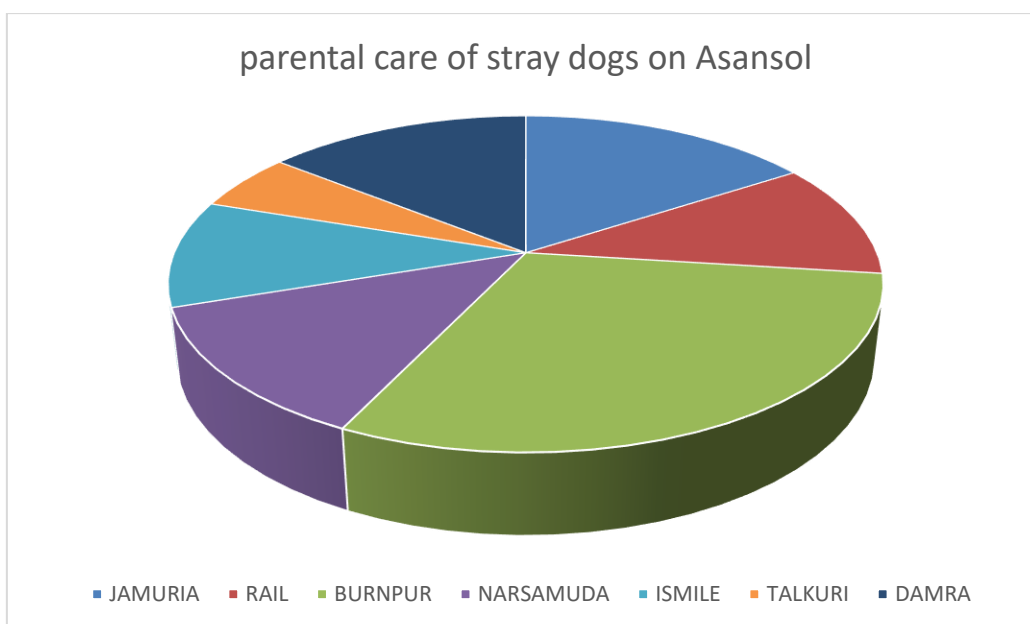


Figure 3: Parental care of stray dogs on the corresponding above areas in Asansol city.

In the first couple of weeks of life, pups do not have the faculty of vision or hearing, and they are completely dependent on their mothers for survival. At this stage, the mother spends most of her time with the pups, only venturing out for short foraging trips (Pal 2008). We did not conduct observations at this stage as the mother and pups are mostly huddled together inside the den, and are difficult to observe. The most energy-consuming and important behaviour included under the category of parental care is suckling. Mothers typically lose weight when they suckle, due to the high energy demands of milk production (Rogowitz 1996; Dewey 1997; Dewey 1998). As the pups grew, suckling decreased significantly for both A (linear regression: $R^2 = 0.934$, $b = -0.967$, $p = 0.007$) and B (linear regression: $R^2 = 0.559$, $b = -0.748$, $p = 0.008$). In the case of A, we began our observations in the 8th week of pup age, and suckling dropped down to 0 in the 11th week. In case of B, suckling dropped to 0 in the 7th and 8th weeks, but increased again in the 9th week, only to stop completely in the 10th week. Thus, the period of 7–11 weeks of age can be considered to be the weaning period. In this period, all the events of suckling were initiated by the pups, and the mother refused several suckling attempts (0.30 ± 0.24 refusals/h). There was no bias in the rate at which active parental care was provided to the pups by both the mothers (Mann Whitney U test: A: $U = 21.00$, $df = 5, 5$, $p = 0.095$; B: $U = 19.50$, $df = 6, 6$, $p = 0.937$). Fig 3, represents the percentage value of that parental care of stray dogs on Asansol city, And that

4. Conclusion

finally we provide a quality report of the primary field perceptions of parental care made on a stray dog bunches where in the south piece of Asansol city of West Bengal. The parental care went about as a supplement to the care gave by the mother, and was along these.

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