DISCUSSION

Feeding habits of carnivores in various habitats have been studied in India and around the world. All the studies indicated that the type and number of prey consumed by carnivores depended upon the availability and accessibility of the prey within each environment.

Carnivores :-

Three years study of Choudhary (2004) during 2001 to 2004 indicated that the prey biomass density in Melghat Sanctuary is about 400 kg/sq.km. This data considered only four major preys of tiger in Melghat (Gaur, Sambar, Wild boar and barking deer). The present study of scat analysis revealed that Sambar contributed the major prey base in terms of number and biomass. It was the principle and preferred prey by tigers.

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The preference on the basis of biomass was sambar > wild pig > domestic animals > chital > four horned antelope. However, the order of predation on the basis of prey occurrence in scats was sambar > Indian hare > four horned antelope > chital. The data of current study indicated that tigers were heavily dependent on sambar in greater population to their availability and the survival of tigers in Melghat is largely dependent on protecting the habitat of the large and median sized cervids which preferred 46 species of plants. (Table - 4.22).

The results of the tiger scat analysis are also analyzed in terms of percent occurrence and percent biomass consumed. All together undigested remains of 12 prey species were recorded in 98 tiger scat samples. Scat analysis data showed a high preponderance of small and large sized prey species in the diet of the tiger (Table - 4.1). Member of deer family and wild pig constituted 89.72% of the prey by tiger. Out of this, sambar constituted 70.72% followed by chital and four horned antelope with 5.42% and 2.05% respectively in terms of biomass. Together the four species of deers constituted to 79.24% of tiger prey biomass (Table - 4.5).

Sambar densities (2.7 sambar/Km²) are lower in Melghat. (Karanth, 2005). when compared to other areas like Chitwan (2.9 Sambar/Km²) (Seidensticker, 1976); Nagarhole (4.2 Sambar/Km²) (Karanth and Sunquist, 1995), Gir (2.0 Sambar/Km²) (Khan et al., 1996), Bandipur (8-9 Sambar/Km²) (Johnsingh, 1983); Mudumalai (6.61/Sambar/Km²) (Varman and Sukumar, 1995) and Pench (6.09 Sambar/Km²) (Biswas, 1999). Sambar is the largest deer of Asia (Eisenberg and Seidensticker, 1976) and is...
distributed over a wide range of forest, rainfall and altitudinal conditions (Eisenberg and Lockhart, 1972). The difference in the sambar density in similar dry deciduous habitats like Gir and Pench might be explained by annual rainfall pattern in these two areas and Melghat. The annual rainfall in all these three areas varies from 1000mm and 1400mm. Eisenberg and Seidensticker (1976) proposed that with other factors remaining similar, ungulate biomass increases with an increase in rainfall regime due to higher plant productivity. In Melghat the annual rainfall ranges from 1000mm to 2250mm. Further, Melghat has several live streams and five major rivers like Sipna, Khapra, Khandu, Dolar and Gadga. Sambar is predominantly a browser and has evolved in forest environment (Eisenberg and Lockhart, 1972). Its abundance in any particular area probably is limited by the dispersion of the shrub species in the forest, and the phenophase they are undergoing at any particular time.

In Melghat most of the teak associated forest had reasonably good understory shrubs and availability of other tree species. Melghat also has miscellaneous forests with a much opener canopy and has higher shrub productivity. These might be habitat related factors leading to good prey densities of Sambar and hares. Another factor, which have influenced the high abundance of grazer such as Sambars in the study area, was the availability of the grass *Heteropogon contortus* and *Sorghum* (Table - 4.22) a nutritious forage during late winter and early. Summer months along the banks of all the five rivers and their tributories flowing through Melghat.

Results from the scat analysis showed that selective preadition by tigers in Melghat is directed towards prey species (Sambar) with a large
body mass. It appears that other members of deer family are less preferred (Table - 4.1,4.5) by tigers in Melghat. Earlier studies (Johnsingh, 1983; Karanth and Sunquist, 1995; Stoen and Wegge, 1996) have also reported underuse of the medium sized prey species by tigers when compared to their availability. In Melghat, Sambar population might be in higher densities, which might have increased their encounter rate with the predators, eventually increasing the chance of predation. When compared to studies from other areas like Pench (Biswas and Sankar,2002) the predation rate on this species (Sambar) by tigers was relatively higher in Melghat with the present data given in (Table - 4.1). Karanth (2005) studied the sambar density in Melghat, however the results need to be confirmed by other methods in the light of the present tiger scat analysis.

I am unable to comment on the observed low predation of chital by tiger in Melghat. In earlier reports during 1980 to 1990, chitals were preyed by tigers in Melghat after Sambar, however in the present investigation they are least preferred among deers. On the contrary it is found that biomass wise, tigers preferred to prey on wild pigs (Table - 4.5 ) in the study area. This might be because of high overlap of habitat use between tigers and wild pigs. However, information on habitat use of wild pig is needed from other protected areas of Indian subcontinent to conclude whether a similar overlap in habitat use is influencing tiger predation on this species. There is one report from Sikhote - Alin mountain area of Russia, where high overlap of habitat use between tigers and wild pigs with high level of tiger predation on the wild pig (Miquelle et al., 1991).
There was no indication that tigers killed Nilgai and gaur during the study period as evident from the scat analysis. Similar observations are reported by Biswas and Sankar (2002) in Pench National Park. This may be due to different habitat use. Both these herbivores are observed grazing on the road sides in Melghat mostly during morning and evening hours, a habitat and time span highly unsuitable for tigers to hunt. This type of habitat of gaurs in Melghat has also resulted into high frequency of parasite load in gaurs as the domestic cattles also graze in the same habitats and cattles are the preferred host for many parasites.

Tigers in Melghat also exhibited selective predation on four horned antelope and barking deer (Table - 4.1, 4.5). This is an observation on which one has to think as these species are too small to be a profitable prey for tigers and leopards. The low occurrence of hairs of these two herbivores in tiger and leopard scats is probably a result of the infrequent predation of them by tigers and leopards. This may also be due to extremely low abundance of these two species in the study area, However, high predation on *Lepus* (hare) (with only 2 kg biomass) by these two major carnivores in Melghat, is an observation to which much thought has to be given. It appears to be a rare observation as there are no reports parallel to this. There is a very high frequency of occurrence of hairs of *Lepus* in scats of tigers (20.22 %) and Leopards (32.63%) from the study area (Table 4.5 and 4.10). The only reason which can be explained is the similar natural feeding habitat of the major carnivores and *Lepus*. Hence the hares may have become more vulnerable to predation by tigers and leopards. This indicates that the hare population must also be high in

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MTR. But this needs confirmation by undertaking population density studies of this small mammal.

The very low incidence of hairs of langur in the scats may be due to the arboreal nature of them. This observation corroborates with that of Karanth and Sunquist (1995). The observed occurrence of hairs of domestic animals in the scats of tigers and leopards from the study area may be due to occasional aberrant predation by tigers and leopards on the boundaries of Melghat mostly outside PA (Raipur and Somthana range) where the cattle encroachment to graze to a high level. But these incidences are very less with a occurrence frequency as low as 4% and biomass frequency just 8.90% (Table - 4.5; 4.10) for tiger predation.

73 (74.49 %) scats of tigers were found to contain remains undigested of two prey species. No scat was multiple remains of 3 or 4 prey species simultaneously. This habit of prey selection by tigers indicates that tigers in MTR have balanced feeding habits with respect to their prey and it must be because they are getting enough prey to feed on. Similar observations are reported regarding the feeding habits of leopard in MTR. In Pench, tigers and leopards generally prefer to prey on three to four preys (Biswas and Sankar 2002) simultaneously.

In two scat samples of tiger, tiger claws were noted. These observations do not indicate that tigers preyed on cubs or old tiger. However, from the other undigested remains in these scats, it shows that during encounter the predator had lost its claws to kill the prey (Sambar).
and during feeding the same claws might have consumed which appeared in their scats.

In the present study the major diet of leopard in Melghat comprises of Indian hare (62 samples out of 135) and Sambar (45 samples out of 135). Most of the studies on food habits in Africa and Asia have represented ungulates to be the main prey species of the leopard (Bailey, 1993). One study (Edgaonkar and Chellam, 1998) in Sanjay Gandhi National Park, Maharashtra) indicated that the bulk of the diet of leopards SGNP is domestic dogs. However, the present study seems to be the exception as reasonable number of hares are preyed by the leopards in Melghat, though biomass wise it is very less. Many studies have documented the opportunistic nature of the leopards’ hunting pattern (Bothma and Le Riche, 1984; Eisenberg, 1986; Bailey, 1993). Because of the occurrence of a good population of Indian hare in Melghat and declining population trend of medium sized ungulates, the leopard seems to be largely surviving on small prey (Less than 20Kg in weight) and big ungulates like Sambar and wild pig. Schaller (1972) found that the leopard was mostly taking prey in the 20-70 Kg class. Thirty six percent of leopard prey in Chitwan was less than 25 Kg (Seidensticker et al., 1990) while 60% of scats analysed in the present study contained prey species, Langur, Hare, Macaca and Bats, that could be considered as small (<20 Kg). However, Seidensticker (1983) found that an abundant and diverse prey base in Chitwan meant that leopards took macaques, while Schaller (1967) observed leopards feeding on langurs frequently in Kanha Tiger Reserve, M.P.
Shrivastava et al. (1994) studied food habits of mammalian predators in Periyar Tiger Reserve, Thekkady (Kerala). The leopards in the Periyar Reserve preyed mostly on the Nilgiri Langur (81.44%). Other prey species of Leopards consisted of the Sambar (14.43%) the large flying squirrel and rodents. However, in Mundanthurai plateau, Tamilnadu Sambar formed the major prey (50%) of the leopards followed by Lepus (16.2%) and Chital (9.3%) (Sathyakumar, 1989).

Studies on the large carnivore predation ecology indicate that they take prey either of their own size and weight or less than their size and weight. Johnsingh (1983) reported 69% of leopard kills were < 50 Kg, while tiger kills prey of > 100Kg, accounted for 42% in Bandipur National Park, Karnataka, where tiger, leopard and wild dogs coexist like that in Melghat. Similarly Schaller (1967) has stated that leopards rarely prey on larger herbivores such as gaur and Sambar. In Wilpattu National Park, Sri Lanka, chital and wild pig contributed 60% of leopard’s diet. Sambar was not preyed upon, though present and despite leopard being the largest predator in that area.

From the present results and the observations of other investigators mentioned above, it appears that leopards easily switch on their prey. If there is one or more abundant ungulate species in the 20 - 50 Kg size range, present in a habitat, the leopard focusses its hunting preferably on small animals. Where divergent prey of any kind occurs at very low density, leopards feed on about any size animal they encounter. There is distinct division of terrestrial and arboreal habitats for prey selection (Seidensticker,
In the present study 50.37% of leopard scats contained single prey species and 49.62% contained two prey species. No scat was found to contain 3 or 4 prey species simultaneously. This habit of prey selection by leopard indicates that leopards in Melghat have balanced feeding habits with respect to their prey and it must be because they are getting enough prey to feed on, particularly the large mammals. However, it is observed that leopards often kill more than one prey in a day (Table - 4.2).

From the results given in table 4.5, 4.10 and 4.15, it is evident that wild dog coexists as a competitor of big cats in Melghat. The feeding habits and the habitat in which they live overlaps. Coprological survey of these three carnivores also indicated that all the twelve species of parasites recorded from scats of wild dog were also recorded from the scats of either tigers or leopards. All these observations indicated that for better survival of the big cats, it is suggested that measures to control the wild dog density be undertaken and before that a detail study of wild dog population, their feeding habitats, life cycle and distribution pattern is essential.

According to Schaller (1967), the biomass consumption by tigers in Kanha was 6.69 Kg/day and Sabnis (2004) the biomass consumption by tigers in Melghat (10 years data from 1977 to 1989) was 4.05 Kg/day.

From the present biomass estimation studies (Table - 4.8, 4.13 and 4.18) it appears that the carnivores in Melghat are underfed when compared with the earlier reports from Melghat (Sabnis, 2004) and Kanha.
(Schaller, 1962) as the biomass consumption by tigers was just 2.28 Kg/day.

This may be because of declining herbivore population trends. However, in Melghat, Bison (Gaur) population is good (Choudhary, 2004) still the carnivores are not found to prefer them. This itself indicates that the present biomass consumption by the carnivores is enough for them to survive and is not an underfed condition. On the contrary it can be said that the carnivore feeding habits and predator prey relationship is balanced showing conservative trends. Wild dogs in Melghat are seen feeding on caracases left by the big cats (Frequent direct observation), indicating complete conservative utilization of biomass once preyed by any carnivore.

**Herbivores :-**

Dung pats of bison contained almost entirely grasses. Bison elsewhere also found to select grasses and sedges almost exclusively (Van Vuen, 1982; Van Vuven and Bray 1983). Feeding on teak bark may be for fulfilling calcium needs and water content in it. Sanker and Qureshi (2001) have reported debarking in summer by Bisons in Pench Tiger Reserve. Bison is also known to feed on bark of *Adina cordifolia* (Brander, 1923; Schaller, 1967); *Holarrhena antidysenterica* (Ogilive, 1990); *Tectona grandis* (Ranjitsinh, 1997) and *Wendlandia natoniana* (Ogilive, 1930). During the summer season, teak debarking by gaur is a well known phenomenon in Central Indian Highlands (Pasha et al., 2000). Bison may debark in response to the shortage of food resource in an area (MacKinnon, 1976) or for mineral and trace elements required to meet the nutritional
demand (Allen, 1943; Bax and Sheldrik, 1963; Croze, 1974; Vancuylenberg, 1977; and Sankar and Qureshi, 2001). In dry seasons high fibrous diet (bark of teak) increases the digestive efficiency by increasing the retention time of the food in the gut (Owen-Smith, 1988) and also by decreasing the turn over rate of rumen content (Bell, 1971). These may be the additional advantages of feeding on bark by bison in addition to the calcium content.

During the dry season, because of the availability, chital consumed comparatively more fruits. This may also satisfied their water need to some extent as fruits contain large amount of water. After the rains, fruits in the diet of chital were found to be decreased and this may be due to their scarcity and also due to the availability of green grasses.

The food plants of Hanuman Langur are studied, as this animal is very important as a prey for tigers in Melghat. Hanuman Langurs are to be conserved by managing the plantation of food plants of this animal. Earlier workers like Rahaman (1973) and Kankane (1978) have enlisted food plants of Hanuman Langur mostly from dry and moist deciduous forests. Rahman (1973) had listed 41 food plants while Kankane (1978) had listed 35 food plants. Punekar (2002) recognised 126 food plants of Hanuman Langurs in Maharashtra. They were recorded from different forest types such as dry deciduous, moist deciduous, semi evergreen, evergreen and scrub forests. In the present study 48 food plants are recognised on the basis of direct observations and faecal analysis. It is also observed that deers gather under trees utilized by Hanuman Langurs to eat the fruits and leaves dropped by the langurs and in turn it became easy for the predators to capture their prey (deers).
The study showed the ability of the sloth bear to exploit successfully both animal and plant resources with regard to their availability. Ripe fruits of *Ficus*, *Zizyphus* and *Lantana* and seeds of *Grewia* are preferred by sloth bear in MTR (Table - 4.35). From these observations, it is very clear that the higher proportion of animal matter in the diet may be related to the nonavailability of fruits for the sloth bear. Earlier studies by Laurie and Seidensticker (1977) and Baskaran (1990) have reported the importance of fleshy fruits to the sloth bear in the Royal Chitwan National Park, Nepal and in the Madumalai Wildlife Sanctuary, Tamilnadu. However, occurrence of more animal matter in the droppings during the spring was also reported by Laurie and Seidensticker (1977). The present study clearly indicated the omnivorous habit of the sloth bear. Previous studies on sloth bear indicated that the sloth bear is predominantly vegetarian (Prater, 1965; Johnsingh, 1986). However, evidence of the presence of more animal matter especially insects, in the diet of the bear are also available (Laurie and Seidensticker, 1977) as given above.

In Chitwan, 83% of the year round sloth bear droppings were composed of insect remains (Joshi et al., 1997). During the non-fruiting season, insects composed 95% of droppings and during the fruiting season 58% of droppings contain undigested insect remains. Termites were the principal insect prey during all seasons in Chitwan and fruit comprised a main portion (38%) of their diet during the fruiting seasons (Joshi et al., 1997). However, in Panna, fruits (51% of the consumed biomass) and ants (30%) of consumed biomass were the main food items annually. Termites constituted only about 10% of the consumed biomass annually.
In Panna, during the dry season (main fruiting season), fruits contributed about 70% of the consumed biomass and ants about 16%. During the monsoon, fruits contributed 36% and ants 52% of the consumed biomass.

The fauna that Joshi et al., (1997) used to represent diet, overestimated the contribution of insects in the diet of sloth bear and underestimated fruits to a considerable extent. The studies prior to Joshi et al., (1997) indicated a higher occurrence of fruits than insects in the diet. This could be attributed to the higher abundance and diversity of fruiting plants and longer fruiting season in the habitats south of Chitwan. However, the methods used for analyses of droppings in the past studies had a tendency to underestimate the proportion of insects in the diet. On the whole, the diet of the sloth bear appears to vary across its range, depending on the availability and abundance of various insects and fruits.

The present investigation indicated that not a single scat record from carnivores is available showing hair remains of jackal. Though these small mammals are seen frequently during field visits. These animals may not get easily preyed in Melghat due to an intensive protection given naturally to them by the very good shrub habitat developed. *Lantana camara* bushes in Melghat have given a good cover to these small mammals and they are also providing fruits to eat for sloth bears.

**Parasitic infections :-**

Helminthic infections have greater ramification and significant impact in wild animals, when present in sufficient number and can cause high
morbidity and mortality. These may be expressed as deaths in all age groups especially in young ones and weakness and unthriftness in survivors who may as a result have lowered body resistance and reproduction capacity.

The domestic and wild animals play a great role as reservoirs and transmitters of many parasitic diseases to man. These intestinal parasites are unique in their transmission patterns.

In the present invetsigation 4 tigers are found to be having infection of a trematode *Paragonimus westermani*. The eggs of *P. westermani* were found in scat samples. The egg shells are thick and operculated measuring approximately 100 μm by 60 μm (Plate- 4.3 b). The infection of *Paragonimus westermani* causes Paragonimiasis. This disease is widely distributed in Indian wild animals and has been reported earlier in tiger (*P. tigris*), leopard (*P. pardus*), Jungle cat (*Felis chaus*) and also in Rusty spotted cat, leopard cat, fishing cat, golden cat, palm civet, small Indian civet, large Indian civet etc. (Mudhliyar and Alwar, 1947; Hiregoudar and Pethkar, 1970; Singh and Somawanshi, 1978; Dutt and Gupta, 1978; Arora and Das, 1988; Parihar and Shrivastava, 1988; Rao and Acharjyo, 1991; Rao et al., 1991; Pythal et al., 1993; Arora 1994; Arora et al., 1998; Varandharajan and Pythal, 1999; Chowdhury, 2001; Nashiruddullah and Chakraborty, 2001). Most of the diagnosis of above reported cases are based on post mortem findings and in few instances through faecal sample examination. The life cycle of *Paragonimus westermani* includes snails as the first intermediate host and crabs as the second. The carnivores become
infected by eating raw crabs containing the encysted cercariae. The presence of this parasite was also reported in two tigers of Nandankanan zoo by Rao and Acharjyo (1991) and in one leopard from Maharajbag zoo, Nagpur by Upadhey and Dhoot (2002).

In the present investigation coprological survey for parasitic remains showed that in tigers, leopards and wild dogs, the percent parasitic infection was 56.12, 65.18 and 59.39 respectively. Out of the 98 scat samples of tiger analysis 55 were positive for parasitic infections indicating the parasitic prevalence and abundance in tigers of Melghat were high but substantially less as compared to two other published studies from Tadoba (Marathe et al., 2002) and Mudumalai (Watve, 1992). Host species that are free of predatory pressures appear to have higher parasitic loads (Watve, 1995) and therefore the high prevalence and abundance in tigers, leopards and wild dogs in the present investigation is not surprising. There was considerable variation in the parasitic loads of individuals and this could be one of the determinants in the competitive success of individuals. Tiger in the present study were found to get infected with about 18 different species of parasites (Table - 4.44). The parasite diversity therefore should be an essential part of any comprehensive study of tiger ecology. Marathe et al., (2002) could detect parasites from 8 genera in the 57 positive samples. The parasitic stages of *Ascaris, Ancylostoma duodenale, Fasciola hepatica, Trichuris trichuria* were observed in the scats of tigers in Melghat during the study period. These parasitic stages are also recorded in Sambars (Table - 4.43) of the same habitat indicating that the tigers get

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these infections from infected Sambars on which they have fed. Some of these parasitic stages are also reported in rest of the herbivores on which tiger preys (Table - 4.43). Parasites in such a large number and diversity can certainly have considerable impact on the health behaviour and reproductive success of individuals. Parasites may be responsible for cub mortality and this mortality is perhaps the most important factor in the population viability of tiger (Karanth and Stith (1999). Parasites with a predator prey life cycle constitute a substantial proportion of the parasite community of carnivores and therefore these might have a more significant role in the ecology of predators. Most of the infections recorded in scat samples of carnivores like tigers and leopards are related to eating infected herbivores, fish/crustaceans or through contaminated water. Parasitic species observed in wild carnivores, commonly have herbivores as intermediate hosts. The scats of tigers containing eggs of Diphyllobothrium were also containing the remains of fish scales and also of hairs of Sambar. This indicates that tigers get these infections either through secondary host fish or through the definitive host Sambar.

Coprological analyses of the samples in the present study indicated that parasitism was highly prevalent among many of the herbivores and carnivores in Melghat. The occurrence of various species of parasites are given in tables 4.41 and 4.42. Of the 545 scat samples examined, 42.38 % were observed positive for parasites (Table - 4.40). The langur are arboreal and infected langurs can contaminate all feeding material in the process of their defecation from the tree tops. The consumption of food contaminated
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with eggs of the parasites and their third stage larvae causes infection (Soulsby, 1982). The same parasites were identified in the faecal samples of _Lepus_ which feed on the grass below the trees in the same habitat. Out of nine parasites recorded in Langur, six are found in the faecal samples of hares (Table - 4.43).

Nematodes of _Ancylostoma_ species and trematodes of _Paragonimus_ species were identified from faecal samples of leopards. These parasites have been commonly reported from wild felids (Patton _et al._, 1994). _Ancylostomes_ are reported to infect a host through different ways viz. oral, dermal, transcolostrural and prenatal routes (Georgi and Georgi, 1990). The carnivores feeding habit of the leopards make them susceptible to these parasites.

In Melghat there are large number of water holes, however, they are comparatively of small sizes and they are used by herbivores as well as carnivores. The nearby areas of these waterholes have dung heaps of the herbivores which are the potential sites of infections transmission.

The parasitic fauna of the sambar deer population in Melghat appears to have been derived mainly via cross transmission from Indian hare and langur. Although data on parasitism are not available for Melghat herbivores or herbivores from any of the protected areas in India, reviews of parasitism in Sambar deer in South East Asia and Australia include several species from Melghat including _Fasciola hepatica, Trichuris, Ancylostoma, Ascaris_ (Presidenta, 1984).
The incidence of remains of parasite eggs/ova/adults stages etc in the coprological survey of carnivores in Melghat was 59.39% (Table 4.40). The highest of 65.18% in leopards, followed by 59.39% in wild dogs and lowest (56.12%) in tigers (Table 4.39). In the present investigation, the nematode parasites with direct life cycles are more frequent when compared to digenetic trematodes and cestodes which have indirect life cycle and intermediate hosts are involved in their transmission. Similarly in herbivores incidence of infection is found to depend on the grazing areas in Melghat. Those who were grazing on the road side and outside PA are infected more as scat samples of herbivores collected from these areas were mostly positive for the infections. Under natural condition (i.e. absence of domestic cattle grazing) there is a balance between host and parasite (Gordon, 1948) and in general, worm burdens do not become intolerable. Additionally, factors that contribute to poor nutrition of the host, like low moisture and vegetation cover, adversely affect survivability of infective helminth larvae (Stromberg, 1997). In such an unfavourable macro environment, larvae survival is greater in dung pats compared to pellets, because pellets are generally dry and dung pats contain high amount of moisture for number of days. Additionally, due to the formation of a hard, dry outer layer, the interior of dung pats retain moisture for long periods of time. Thus, larvae in domestic cattle dung pats are likely to have improved survival as compared to those in Sambar and Chital pellets. This in turn could adversely affect other deers, because the deers under nutrient stress (Particularly during summer in dry deciduous forest) are likely to be susceptible to parasites in domestic herbivores. The observed parasite load in the large and medium
sized herbivores in the present investigation may be due to the above reason. Dharmarajan et al., (2003) have studied the helminth loads in wild herbivores in Madumalai wildlife Sanctuary and reported the similar observations stating that the cattle grazing is the main cause of helminth infections in Chital.

From the extensive review there appears to be only one report available on the occurrence of a parasite from Acanthocephala group (Onciola sp.) from jungle cat in Nandankanan Zoo (Patnaik and Acharjyo, 1970). However, in the present study I have reported one acanthocephala parasite (Fig 4.12) from tiger with heavy infection. A single pellet of scat of tiger from Raipur range (near - Chikhalam water hole) was containing about 400 acanthocephalans. After studying its microscopic characters, it was seen that it had spiny sipunculate. In addition to this, the parasite exhibited segmented lobed appendages (Fig 4.12) with spines at the tips, a character not of acanthocephalan. It is still unidentified at species level. But it is surprising to have a species with both acanthocephalan and annelidian characters. Similar parasite was seen in analyses of tiger scats from C.No. 215 from Raipur range and C.No. 233 from the same range. Few of these parasites (dead) were also recorded in water samples of Chikhalam waterhole. This indicates that the infection is through water. In my opinion it might have come in the water of Chikhalam waterhole through faecal dropping of birds which are the primary host of most of the acanthocephalans. Further investigation and continuous scat analyses of tigers from this area and faecal droppings of birds is needed to draw the proper conclusion.
Thus not only the domestic animals but also the wild herbivores play a great role as reservoirs and transmitters of many parasites of carnivores (Predators). In the present investigation it is found that parasite load in predators is strongly related with the types of preys on which they have preyed. Tigers from Melghat, preyed on 13 species of preys and had shown parasitic stages of 18 species in their scats (Table 4.5 & 4.44). The complexity of food web increases the chance of getting more infection. During the present study relatively few species may have reported in the scat analysis than actually present in the ecosystem and a continuous survey is needed to get the real picture of host-parasite and predator-prey relationships.

Food webs assumes a central place in the overall health of the ecosystem. The present results also indicate that feeding hierarchy which is existing in Melghat is not dependent on body size (biomass) alone but also on the population dispersal of prey species of the predators. The results also indicate that Melghat still possesses a good prey density with tigers mostly depending on wild prey species like sambar, wild pigs and hares. Conservation of these prey species is advocated by taking care of their food plants and grasses.
Plate 5.1. The Predator-Prey relationship in Melghat Tiger Reserve.