

Nature Watch

The Dhole or the Asiatic Wild Dog

Arun Venkataraman



Arun Venkataraman has used the finest techniques of modern behavioural ecology to investigate the ecology and sociobiology of social wasps on the one hand and wild dogs on the other. He enjoys combining these basic research programmes with his responsibility as Conservation Biologist at the Asian Elephant Conservation Centre.

The dhole (*Cuon alpinus*) is a social hunter and a cooperative breeder. Dholes live in packs with rigid hierarchies. Their social behaviour, hunting strategies and breeding patterns are described in this article.

On the Dhole Trail

It was a hot sultry morning, punctuated by the incessant calls of cicadas. I was deeply engrossed in following our study pack of dholes travelling in single file up a forest road in Kargudi, a prime dhole habitat in the Mudumalai sanctuary, Tamil Nadu, South India. The sanctuary forms a part of the Nilgiri biosphere reserve, straddling an area of approximately 5000 sq km in the three southern states of Kerala, Karnataka and Tamil Nadu. The pack consisting of 10 dholes had not killed any prey that morning. It was unusual that they were still moving as they usually give up hunting by this time, preferring to spend the hottest portion of the day resting and eagerly anticipating the evening hunt. A small, sudden burst of activity ensued and three dholes lagging behind the rest of the pack dived into bushes on the roadside. Two of them reappeared almost immediately. The third one eventually emerged holding a quivering mouse deer (*Tragulus memmina*), Asia's smallest deer, in its mouth. Casting what I imagined to be furtive glances towards the pack, it disappeared into the bushes and with loud crunching sounds, ate the entire animal in seclusion. After this solitary meal it proceeded to join the pack. The pack individuals on sensing its arrival bounded towards the errant animal, probably aroused by the smell of flesh and blood emanating from the recent meal. Mild aggression was displayed towards this animal and the pack proceeded along its way as if nothing had happened.

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Dhole Habitats

The above incident relates what constitutes rather contrasting selfish behaviour in an otherwise highly social animal. Dholes display a high level of sociality. This is in stark contrast to the solitary leopard (*Panthera pardus*) and tiger (*Panthera tigris*), the two other large carnivores that often share habitats with dholes. The dhole or the Asiatic wild dog (*Cuon alpinus*) is a social canid (animals which belong to the dog family) that inhabits most forested areas of south, south-east and continental Asia. Once distributed as far as eastern Europe, its range has been drastically diminished due to direct persecution by man and loss of habitat. In India, dholes were once widespread throughout the country. The Terai region (foothills of the Himalayas) of North India, which still retains excellent dhole habitats once contained a high population of dholes. Dholes are as good as extinct in this area today. They exist only in small pockets of forest in the north-east Indian hills, in the states of Assam and Meghalaya. The best populations exist in Myanmar and central and southern India. Ample prey in the dry deciduous tracts of forest are partially responsible for their relative security in these areas. Human pressures on habitat and wanton hunting of prey species have virtually exterminated dholes from most parts of south-east Asia. In many areas it has traditionally and erroneously been classified as vermin, thought to deplete natural populations of wild ungulates as well as kill domestic cattle. Systematic bounty hunting and poisoning has caused its extinction over much of its range, especially in Central Asia.

Social Behaviour

The dhole is a rufous coloured animal with a beautiful plume-like black tail which is effectively used for signalling the status of an animal in the dominance hierarchy. Dominance hierarchies are rigid with an alpha male and female at the top of the hierarchy. Dominant animals participate in much of the breeding and

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possibly also social decision-making. Rather stockily built, males and females weigh around 15 and 13 kgs respectively. It is a compact, lethal hunter well adapted for coursing at high speeds in pursuit of prey. It differs from the genus *Canis* (wolves, jackals, domestic dogs and coyotes) by having two molars instead of three, and many more teats.

Dholes often live in aggregations of individuals called packs. Such packs are highly structured and individuals within them coordinate activities such as hunting and breeding. Pack members coordinate while pulling down and killing large prey such as adult sambar (*Cervus unicolor*) and chital (*Axis axis*). Individuals may grab the ear, tail and other parts of the body, eventually weighing down the animal before actually killing it. Although the meat is generally shared, there is some squabbling among individuals with dominant individuals cornering the choicest bits of meat. Young pups within the packs are allowed to have precedence over others while feeding. Dhole packs, however, usually kill smaller animals such as sambar and chital fawns. Most pack members help in surrounding small prey and block their escape while the older males move in for the kill. Older females and younger animals usually tend to lag behind and join in for the feeding. Dholes usually kill once a day, but on many a day hunting proves unsuccessful or the animal killed is too small to ensure a full belly to all pack members.



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Figure 1 At the den: A helper with 6 pups visible. A total of 8 pups were born in this pack during December 1990.

Following mating in October, pups are born in December within an earthen den, which is usually a complex of inter-connected tunnels in a dry river bank (see *Figure 1*). They spend around 3-4 weeks in such dens and the pack eventually moves them to another type of den, usually a hole or a cave under an out-crop of rocks. In front of such dens is a play area, where the pups play, spar with each other, begin establishing dominance hierarchies and through such behaviour hone their deadly hunting skills. I have seen three pups stand flank to flank and pick up a stick together with perfect coordination. Does this kind of behaviour ensure the high degree of coordination necessary for hunting? In addition to

milk from their mother, they also receive regurgitated food from other pack members. Pack members play with pups, groom and guard them and keep a watch over their early forays from the den. When the pups are two months old they start receiving solid food. It is around this time that they begin getting restless and make longer trips away from the den, rushing back at the slightest hint of danger. The packs also change dens quite frequently and have been seen to change as many as five dens in an area of one square kilometre. It is possible that they do this to deter predators such as leopards and hyenas who may find the den and lift the pups. Smell from uneaten food, pup and adult odours and faeces make the den easy to detect, forcing packs to change them regularly.

Mating Practices

On most occasions only a single female litters, despite the presence of other sexually mature females. We have even noticed subordinate females disappearing during the mating season possibly as a result of behavioural antagonism from the dominant female. It would be interesting to determine what happens to these breeding females. Do they actually team up with solitary males from other packs, litter and form new packs or do they join already established packs? Similarly, we do not know what happens to males who leave packs. Some lone males leave their natal pack for short periods and later rejoin the pack. During their absence from their natal pack, they may be assessing their chances of gaining access to lone females and forming other new packs. There is evidence to suggest that males tend to leave packs along with other males who are possibly their brothers and join packs where the dominant male has just died or left. Even though only one of the males assumes the role of dominant male of the pack, all other males including those who are unrelated to the pack members, display a great deal of helping behaviour, towards the pack's young. We have noticed solitary males following established packs during the mating season. Are these males actually trying to gain access to pack females or are they anticipating the

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departure of subordinate sexually mature females from the pack? Many of the above questions, though extremely important, remain unanswered. Intense and painstaking monitoring of pack members, spanning many years, may shed some light on these fascinating issues.

Hunting Strategies

The main prey of dhole packs in the Mudumalai sanctuary are chital, which live in herds. Some forested areas contain many herds while others don't contain any. This kind of distribution is called a patchy one. At least one dhole pack hunts within a single patch for a few days and when their hunting stops yielding adequate gains, they switch to a fresh patch and repeat the process. This strategic hunting may ensure steady long-term gains in terms of chital killed. In addition to strategic use of their home ranges, dholes may have extremely elaborate methods for hunting prey. I have often seen some dhole pack members jumping in and out of bushes surrounding open areas. The intention is to drive smaller prey hiding within bushes into the waiting jaws of other pack members waiting in the open area. A frequent manoeuvre involves cutting corners while chasing prey. A single dhole chasing a prey animal is aided by others who run at the animal from other angles, reducing the distance between the lead dhole and the prey. This behaviour is often mistaken to be more than one dhole running relays. Sometimes, on being confronted with a dhole in front of it, the prey animal turns back into the rest of the pack. Such chases, though gruesome to watch, are exciting and ripe with scientific information (see *Figure 2*).

An Endangered Species

It is disheartening that a scientifically valuable species such as the dhole faces a severe threat to its survival. As mentioned earlier, the hunting strategy requires a very specific distribution of prey which in turn requires a unique habitat. One can envisage that such a delicate system is constantly under threat due to human



Figure 2 A dhole defending its kill from vultures. A total of 5 dholes killed this chital stag in the Kanha National Park, Madhya Pradesh.

population pressures on valuable forest land. Cattle grazing, firewood extraction and increased real estate development are just some of the threats facing dholes today. The African hunting dog (*Lycaonpictus*) was an animal classified as vermin just sixty years ago. Today the species is highly endangered and has disappeared from much of its former range in Africa. Will the remarkable dhole follow in its footsteps? Very likely, unless immediate action is taken.

Suggested Reading

A J T Johnsingh. Ecology and Behaviour of the Dhole (*Cuon alpinus*), *J. Zool. (Lond.)* 198: 443-463. 1982.

M W Fox. The Whistling Hunters: Field Studies of the Asiatic Wild Dog (*Cuon alpinus*). State University of New York Press. New York. 1984.

R C Morris. The Indian Wild Dog (*Cuon dukhanensis*) *J. Bombay. Nat. Hist. Soc.* 30(1): 218-219. 1931.

A Venkataraman, R Arumugam and R Sukumar. Foraging Ecology of Dhole (*Cuon alpinus*) in Mudumalai Sanctuary, South India. *J. Zool. (Lond.)* in press. 1995.

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Meanwhile,
high in the heavens,
unseen by humans, the battle rages on ...



THAT'S PROF. CHARLIE CHASING WEISELKRACK. CHARLIE IS STILL FURIOUS HE WASN'T AWARDED THE NOBEL WHEN WEISELKRACK WAS MEMBER OF THE NOBEL ACADEMY.