

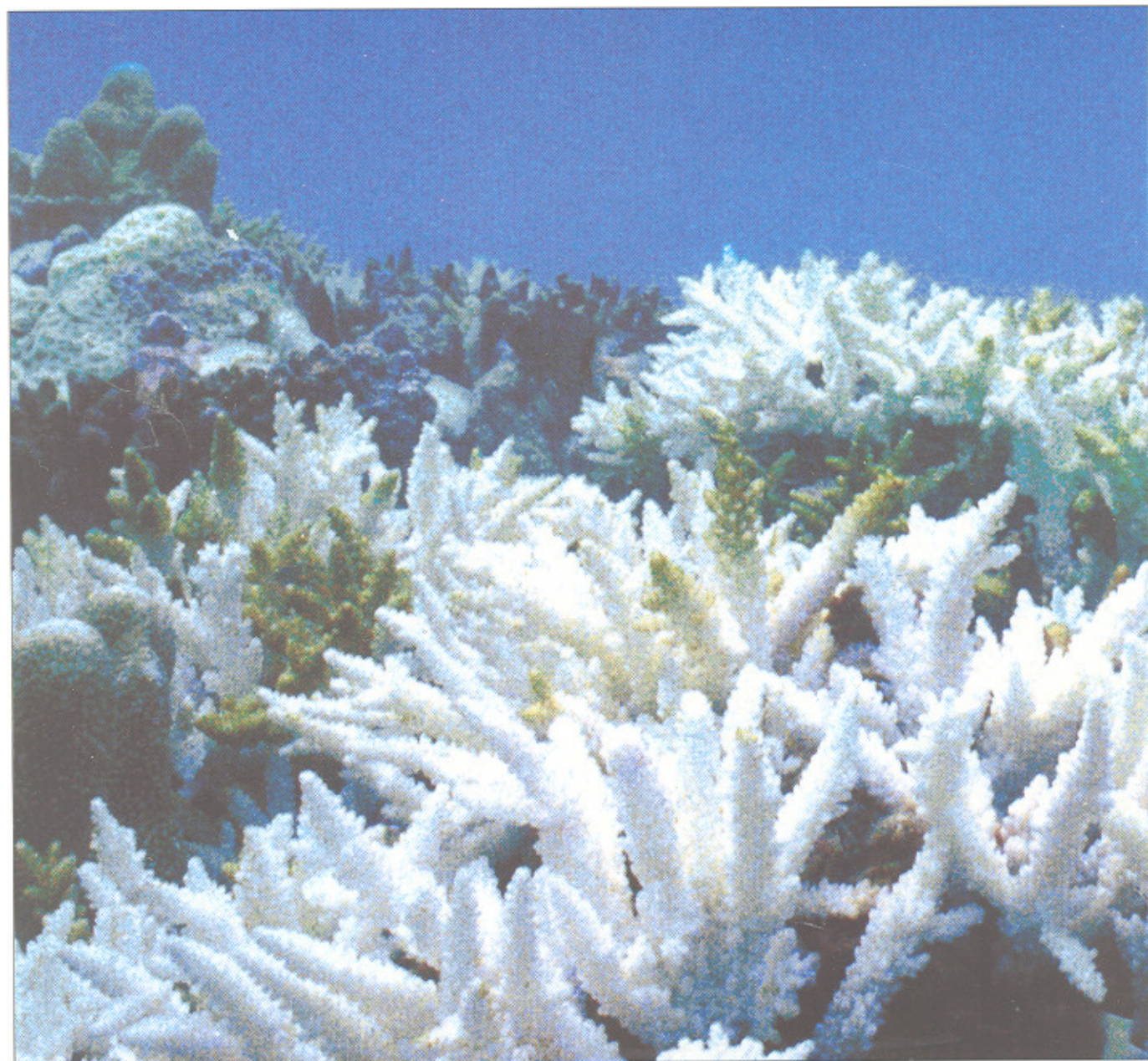
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Child Lifting: Wolves in Hazaribagh, India

Tunnels carved by running water in stream courses, these tunnels remain dry for the most of the year and form ideal dens for wolves.
Photo: K.S. Rajpurohit.



The problem of child-lifting by wolves in Hazaribagh West, Koderma and Latehar forest divisions of Bihar State, India, has been evaluated, based on records of the Forest Department, interviews, and a survey. Five wolf packs have created problems in 63 villages. 80 child casualties occurred from April 1993 to April 1995 and only 20 victims were rescued. All the children were taken from settlements primarily during March to August between 17.00 and 19.00 hrs. There were more female victims (58%) than males and 89% were 3–11-yrs old. Recommendations for the mitigation of human-wolf conflicts, and a conservation strategy for wolves might include: surveying wolf habitats for identification of dens and rendezvous sites, and estimating wolf populations; capture of problem wolves; improving compensation to victims' families; research on wolf behavior, rabies, wolf/dog hybrids, and the prey-base; possibilities for introducing natural prey, and regulation of wolf populations.

INTRODUCTION

Wolves (*Canis lupus pallipes*) in the Indian plains, range from the arid lands of the Thar Desert to the wet deciduous sal forests of the Chotanagpur Plateau of south Bihar. Between 1000 and 2000 have survived on the Indian peninsula (1). The wolf is

placed on Schedule I of the Indian Wildlife (Protection) Act, 1972 (2). The main reason for the decrease in numbers of wolves is the limiting of their natural habitat due to human pressures, especially from extensive land use. Wolves are known to prey on blackbuck (*Antelope cervicapra*) and gazelle (*Gazella gazella*) (3, 4), hare (*Lepus nigricollis*), foxes (*Vulpus* spp.), and other smaller animals (3). Near human settlements, they are known to prey on cattle (3), sheep, and goats (5). Wolves rarely attack human beings, but have occasionally taken small children when driven by extreme hunger (3, 6, 7).

Child-lifting by wolves has become a serious problem in some areas of Hazaribagh and a few other districts in Bihar over the past several years. To counteract the problem attempts were made to destroy den sites and to trap and shoot wolves (7). For several years the problem was under control, but it has now emerged in adjacent areas. This paper attempts to evaluate child-lifting by wolves and suggest solutions to this problem.

BACKGROUND

Reports show that wolves have a history of child-lifting, and were previously considered a threat to human beings in India. In United Provinces (Uttar Pradesh) in 1878, 624 persons were killed by wolves and 2589 wolves were exterminated. During the same period in Bengal, 14 persons were killed and 1120 wolves were exterminated. In Hazaribagh, Bihar, 115 children

were killed in 1910–1915 (8, 9); and 122 children were killed and 100 injured in the same area in 1980–1986 (6, 7, 10). Other areas where wolves are a menace are Ananapur, Andhra Pradesh (6, 11); Pavagadha, Karnataka (11); and more recently Jaunpur, Pratapgarh, and Sultanpur in Uttar Pradesh, where from March 27, 1996 to July 1, 1996, 21 children were killed and 16 mauled (12–14). A whole wolf pack comprising two adults, two sub-adults and a pup were killed between 3 July and 5 July 1996, after which the problem of child lifting was eliminated in the area.

STUDY AREA

The area studied is located between 84°45' and 85°52' E and between 23°45' and 24°30' N, and spread over 3 forest divisions, i.e. Hazaribagh West, Koderma, and Latehar in Bihar State. The area is classified as wet deciduous sal forest, receiving over 110 cm of rainfall per year (15). The forest areas impacted by the wolves include Itkthori, Koderma, and Jainagar in Koderma forest division; Barhi, Ichak, Keredari, Kankamchandi, and Barkatha in Hazaribagh West forest division; and Balumath in Latehar forest division (Fig. 1). In these areas, the wolf habitats are located in undulating low hillocks covered by scrub forest, in secondary sal forest, and in plantations of *Acacia falciformis*, *Eucalyptus* spp., etc. Long narrow tunnels have been carved in the area by running water. These tunnels remain dry for most of the year and form ideal dens for wolves. The area of wolf impact (i.e. Jainagar, Barhi, and Barkatha), is 40-km wide and 50-km long on both sides of the Barakar river, which forms the boundary between Hazaribagh West and Koderma forest divisions.

METHODS

To collect information on the nature and extent of child-lifting by wolves 3 survey tours were conducted during October and December 1994, and January and June, 1995. These surveys in-

cluded: *i*) meetings with the Chief Wildlife Warden of Bihar state, and forest officers of Hazaribagh West, Koderma and Latehar divisions; *ii*) collection of information from the records of the Forest Department, regarding wolf-problem areas, dates and times of child-lifting incidences; ages and sexes of children taken and number of wolves and wolf packs; *iii*) visiting 5 representative villages (out of 63 impacted) to collect information from eye witnesses and parents of the children. Rescued wolf victims were also interviewed and information on the attacking wolf, its *modus operandi*, time of attack, and distance to which the child was carried were collected. Information on numbers of wolf packs, their size and location were also collected from rescued wolf victims, individual villagers who took part in the rescue, and from graziers and forest personnel responsible for investigating the child-lifting cases; *iv*) rapid surveys of wolf habitat to assess the quality of the habitat, availability of natural prey, and the presence of wolves.

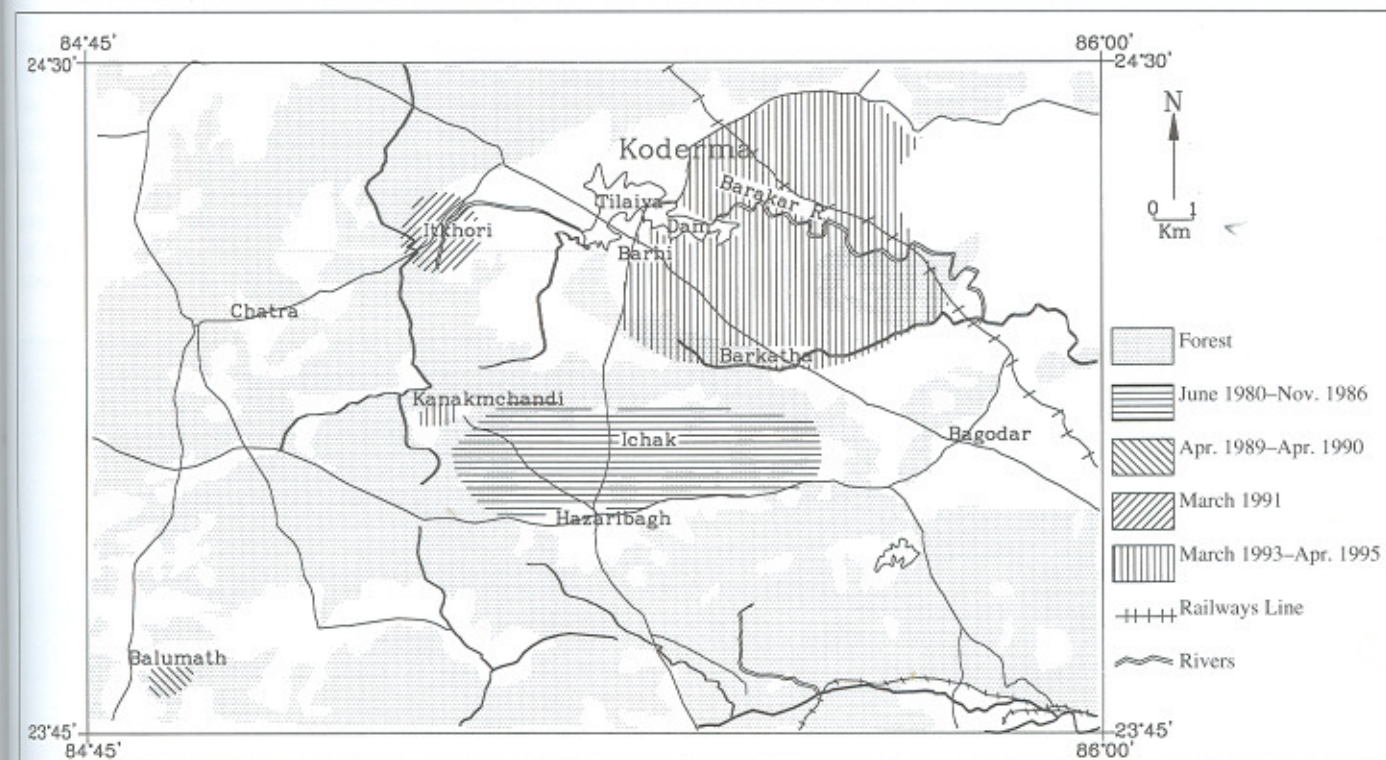
RESULTS

During the 6 years, April 1989 to March 1995, wolves accounted for 90 (23%) of the 390 human casualties caused by large wild mammals in south Bihar (Table 1). Of these 90 incidences, 78 casualties occurred during the 2 years, April 1993 to March 1995, in 2 forest divisions, i.e. Hazaribagh West and Koderma (Table 2). There are 5 wolf packs in the region, comprising 25 individuals, which are creating problems in 63 villages located in 9 forest blocks of 3 forest divisions.

All the 92 children taken between April 1989 and April 1995 were lifted from human settlements, usually while they were playing on village commons or in front of their houses. In a few cases, wolves lifted the child from the mother's lap or from a courtyard. Most incidences occurred in March to August; i.e. summer and rainy seasons (Fig. 2).

From January 1980 to April 1995, the time of lifting in 195 child-lifting cases indicates that wolves are active at dusk (Fig. 3).

Figure 1. Wolf menace areas of Hazaribagh West, Latehar and Koderma.



Interviews with victims and witnesses reveal that the wolves generally hunt in groups of 2–4 individuals. Pack members hide behind shrubs or other structures in the vicinity of the village boundary and the attack is made by one individual. The child, sometimes equal to the wolf's own body weight, is grabbed by the neck, waist, head, chest, or thigh. Feeding takes place in remote areas as far as 1–2.5 km away from the village, as seen from the location of remnants and or clothes of the victim. Of the 78 cases of child-lifting which occurred in Hazaribagh West and Koderma forest divisions from April 1993 to March 1995, only 20 (25%) of the children taken could be rescued by chasing the wolves, and making the rescue before dark and before the wolves caused fatal mortality.

All the 20 surviving wolf victims in Hazaribagh West and Koderma forest divisions from April 1993 to March 1995, were taken to the Hazaribagh district hospital and given 14 antirabies injections. Among the 81 children lifted between March 1993 and April 1995, 47 (58%) were females. Of the 122 children lifted by wolves in Hazaribagh West forest division during 1980–1986, 68 (56%) were females. The statistics show that a larger percentage of female children are lifted. Age figures are available for 80 wolf victims for 1993, 1994, and 1995; 71 (89%) of these were 3 to 11 years old, whereas, among the remaining 9 victims, 6 were 12–14 years old and 3 were above 14 years (Table 3).

DISCUSSION

The wolf has a wide range of prey. It preys on rodents (*Tatera indica* and *Meriones hurriane*), hare (*Lepus nigricollis*), black-buck (*Antelope cervicapra*), chinkara (*Gazella gazella*), nilgai (*Boselophus tragocamelus*), birds, grasshoppers, other insects, pods of *Prosopis juliflora* and fruits of *Zizyphus* sp. (3, 4, 6, 16, 17). This indicates that the wolf has in fact a wide variety of prey choices available in nature.

Wolves do not appear to be restricted in their movements and will approach very close to human dwellings and villages (4), and in the areas where wolves live in the vicinity of human settlements, the damage to the domestic animals is great, espe-

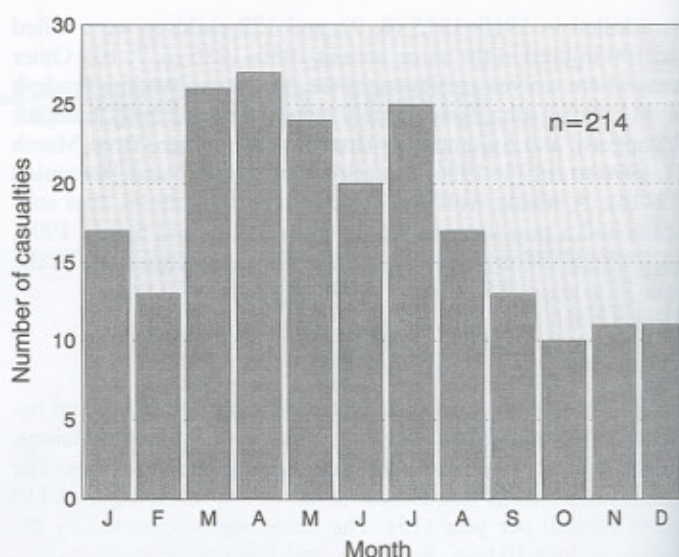


Figure 2. Monthly pattern of child-lifting by wolves in Bihar from January 1980 to April 1995.

cially in cattle (3, 18), horses, pigs, sheep, and goats (6, 16, 18). One pack of wolves in Mahuadanr Valley, Bihar, was responsible for lifting about 200 goats and 300 pigs each year from the villages located in their home range of about 50 km². In the former USSR, wolves are known to kill up to 50 000 cattle, horses, sheep, domestic deer and other animals annually, not counting poultry, causing an economic loss of USD 45 million (19). Historically, the wolf, in India and elsewhere in the world, has always been considered as a threat by rural people (5).

Wolves have become an increasing threat to human life in India, as well as in other parts of the world. Cases of wolf attacks on human beings have been reported from Siberia, Kazakhstan, Uzbekistan, the Ukraine, and Georgia (18); in European Russia 36 human beings were attacked by wolves in the period 1975

Table 1. Human casualties caused by large wild mammals in and around protected areas and managed forests in south Bihar.

Wild animals	Casualties per year						Total (%)
	April 1989–March 1990	April 1990–March 1991	April 1991–March 1992	April 1992–March 1993	April 1993–March 1994	April 1994–March 1995	
Elephant	67	32	46	43	40	14 (till Dec. 95)	242 (62.0%)
Sloth Bear	08	08	08	10	13	03	50 (13.0%)
Tiger	–	–	–	–	–	02 (till Dec. 95)	02 (0.5%)
Leopard	01	–	01	–	01	01 (till Dec. 95)	04 (1.0%)
Wolf	05	06	–	01	53	25	90 (23.0%)
Hyena	–	–	01	–	–	01	02 (0.5%)
Total	81	46	56	54	107	46	390

Table 2. Wolf menace areas of Hazaribagh West, Latehar and Koderma Forest Divisions in south Bihar.

Impacted forest blocks	Impacted forest divisions	Damage causing wolf packs	No. of damage causing wolves	No. of impacted villages	No. of lifted children	Period of wolf menace
Balumath	Latehar	1 Pack	06	04	06	April 1989–April 1990
Itkhor	Koderma	1 Pack	04	05	05	March 1991
Jainagar	Koderma	3 Packs	15	17	18	March 1993–Sept. 1994
Barkatha	Hazaribagh West			22	39	July 1993–April 1995
Kanakmchandi	Hazaribagh West			01	01	August 1993
Barhi	Hazaribagh West			11	20	Sept. 1993–April 1995
Ichak	Hazaribagh West			01	01	November 1993
Koderma	Koderma			01	01	July 1994
Keredari	Hazaribagh West			01	01	November 1994
Total	3	5	25	63	92	April 1989–April 1995

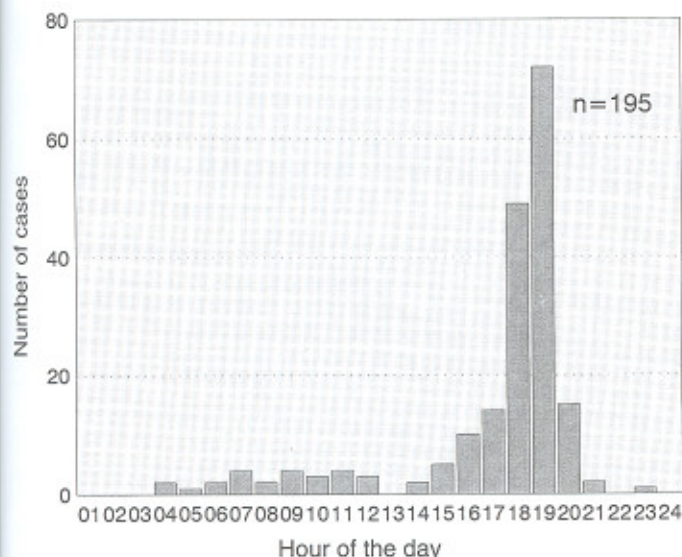


Figure 3. Diurnal pattern of child-lifting by wolves in Bihar from January 1980 to April 1995.

to 1978 (18); 98 persons were attacked by wolves in Iran in 1981; and 7 incidents occurred in Poland in 1982–1983 (20).

In India, wolves interact with feral pariah dogs at kills and feeding sites (21). A dog has also been observed playing with wolf pups at a rendezvous site (21). The potential of wolf-dog hybrids exists, but it is not known whether these occur in India (11). Unlike many other hybrids, wolf-dog hybrids live both with the wolf pack and independently (18). Like wolves they can pursue their prey for long distances. During the daytime hybrids often hide in dilapidated houses on the outskirts of villages (18). It is difficult to ascertain that child-lifting wolves in the study area are hybrids or pure wolves, even if they are wolves, like hybrids, they do hide in the vicinity of villages during the day and when given the opportunity will swiftly attack children. A study of nuclear and mitochondrial DNA of the wolves has been proposed (11), to determine the exact species.

In India, the dog is the principal carrier of rabies, and as many as 96% of the persons treated for rabies have been bitten by dogs (22). A report shows that nearly 99% of the people reporting for treatment after animal bites have been bitten by dogs (23). Cats, monkeys, mongoose, jackals, and cattle are also responsible for the spread of rabies in India (24). There are some 25 000 deaths every year, and more than 500 000 persons have now been vaccinated against rabies (22, 24).

Dogs are known to transmit diseases to wolves (21). However, so far, no evidence exists on the role of the wolf as a source of rabies in India. The role of wolves in the spread of rabies, however, is important in the epizootiology and epidemiology of

rabies. Rabid wolves do not avoid people, but can attack settlements and people in the fields during the daytime (18). There have been reports of wolf bite and rabies as a cause of human rabies cases in Georgia, Uzbekistan, Kazakhstan, the European Russian Federation, several other Russian Federal regions (18, 25), the Eastern Baikal Region (26, 27), and the Ukraine (28).

Wolves prefer to attack children less than 12 years old, presumably, making the attack easy and the escape fast, (Table 3). All the wolf victims killed (9) or injured (12) in Anantpur, Andhra Pradesh, between October 1980 and March 1981 were in the age group 8–12 years (6,11). In the Sultanpur, Jaunpur and Pratapgarh districts of Uttar Pradesh between 27 March 1996 and 5 July 1996, of 37 the children attacked by wolves (12–14), all but two were under 11 years old.

Wolves are often active during the night, but seem to prefer to hunt before dark (6). The peak of livestock attacks by wolves occurs during the early morning and late evening hours (18). In Russia, most wolf attacks occur in the evening (18). Wolves killing children in Anantpur, Andhra Pradesh, attacked at dusk or dawn (6). In the present study, it has been observed that among the wolf-lifted children during April 1993 and March 1995, 60 (84%) and during 1980–1986, 92 (76%) were taken during the evening; i.e. between 17.00 and 19.00 hrs.

Attacks on human beings are particularly frequent during the wolf's winter migrations, when hungry animals hunt around settlements (18). In contrast, in this study, most children were attacked and taken during March to August; i.e. in summer and the rainy seasons. This pattern could be due to *i*) the availability of natural prey; *ii*) evening fires during winter frightening wolves, or fewer children venturing out to play in the open during winter.

In India, a farmer would never leave his sheep or goats unattended outside the village because loss of domestic animals can be economically disastrous for the family. Neither are small children sent alone away from the home. All the recorded cases of wolf attacks on small children show that these attacks were carried out either on the outskirts of the village or even within the village itself. These attacks were carried out on children who had been left temporarily unattended when the father was away from home working in the fields or grazing his animals, and the mother was attending to domestic chores such as collecting firewood or drawing water from the village well. It is unthinkable that parents of small children would purposely leave them in the forest to be killed by wolves.

In the same context the statement "a loss of domestic animals could be disastrous for the family, while the loss of a child is economically compensated", is not true. Though no firm policy for compensating the loss of domestic animals attacked by wild animals exists in Bihar State, on the recommendation of the State Forest Department such losses are reasonably compensated for by the District Administration. In most other states of India, there exists a comprehensive policy under which loss of domestic ani-

Table 3. Age classes of the children lifted by wolves in Hazaribagh West and Koderma Forest Divisions.

Age class	Children killed/mauled by wolves			January 1980 to November 1986 (n = 118)
	March 1993 to April 1995 (n = 80)			
	Hazaribagh West	Koderma	Total	
< 3	–	–	–	14 (11.86%)
3–5	19	04	23 (28.75%)	54 (45.76%)
6–8	27	07	34 (42.50%)	35 (29.66%)
9–11	06	08	14 (17.50%)	11 (09.32%)
12–14	05	01	06 (07.60%)	01 (00.85%)
> 14	03	–	03 (03.75%)	03 (02.55%)

imals to wildlife receives suitable compensation. The loss of a domestic animal would, thus, not be a total disaster as has been suggested by the above statement.

RECOMMENDATIONS FOR RESOLVING HUMAN-WOLF CONFLICT

Although, in India, the wolf is protected under Schedule I, which is meant for the protection of highly endangered animals, there is an urgent need to develop management strategies which could help control child-lifting by wolves. In Hazaribagh West forest division, and other parts of south Bihar, an ordinance has been promulgated which provides the successful wolf hunter with a Rs 5000 bounty (29). This measure has not helped much in containing the wolf menace in the absence of a broader Forest Department management strategy.

The following measures could help to contain the wolf menace in the problem areas of Hazaribagh West and Koderma forest divisions:

Forest staff of the affected areas should be trained to identify wild animals, to survey wolf habitats, and to monitor problem wolves. Wolf menace areas in Barhi, Barkatha, and Jainagar forest blocks should be combed thoroughly, to identify wolf dens and rendezvous sites, and to estimate the total wolf population. This effort must be organized to involve local people, officials of the State Forest Department, wildlife experts, and the administration machinery with sufficient vehicular support.

Next, a systematic plan to eliminate problem wolves should be developed, in which a fixed number of wolves from each pack should be targeted for capture. In addition, public awareness and education about the behavior of problem wolves, their current range, and how to take care of children in vulnerable age groups is also required.

Wolf-dog hybrids exist in the study area. To ascertain their numbers a study of nuclear and mitochondrial DNA of wolves is required.

In future, as is the cases today, all the surviving wolf victims should undergo antirabies immunization. Though no report exists on the role of wolf as a source of rabies in humans, in order to ascertain whether wolves are a source of rabies, wolf victims as well as problem wolves should both be examined for rabies and a report compiled.

Paying compensation for wolf-related losses of human life is a way of assuaging the feelings of affected families. From April 1993 to March 1995, Rs 1 160 000 (29) have been paid as compensation for the death of 58 children. At present, compensation of Rs 20 000 per child is paid, which appears to be very small amount for the loss of a human life. This amount should be raised to Rs 50 000 per death. Currently, compensation is paid in a reasonably short period of time, i.e. 2–3 months. Unfortunately, the situation is worst for those children who are rescued from wolves. In the absence of compensation for medical treatment, the affected families have to spend huge amounts of money. There is an urgent need to ensure compensation for medical expenses in such cases. Apart from this, a provision should be made to compensate for the loss of domestic animals such as sheep, goats, pigs, etc. killed by wolves.

Better information is required on the circumstances that lead to child-lifting by wolves, i.e. human activities, exposure of children to threat, etc. A detailed study on the changed behavior of wolves, availability of natural prey or livestock, habitat quality and its use by wolf needs to be carried out. Such a study could lead to a plan for the proper management of the remaining wolves, and also help to control child-lifting in the future. Effective control of wolf populations in the future, means eliminating some of the problem animals. If there is a scarcity of natural prey in the habitat area, species such as chinkara, blackbuck, hare, etc. could be introduced to make natural prey available.

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