LARGE CARNIVORES IN S.W. BULGARIA

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A. SPECIES DESCRIPTION

1. Food habits

Wolf

The wolf has a very diverse diet and is a true generalist that feeds opportunistically on what is most available in its habitat. A wolf typically requires 3-5 kg of meat per day, although it can fast for several days when food is not readily available.

Its primary prey species in Bulgaria is roe deer (*Capreolus capreolus*) and wild boar (*Sus scrofa*). This opinion is based on the percentage of the carcasses found in the territories inhabited by wolves from forestry workers. Comparably high percentage of wild boar hair appears in the wolf excrement collected in the study area of the Wolf Study and Conservation Program (BALKANI Wildlife Society, 2000).

In the Intensive Game Breeding Stations where mouflon (*Ovis amon musimon*) have been introduced wolves often feed on them. This is due to the fact that mouflon are indigenous to areas where wolf as a natural predator does not exist.

Wolves also hunt red deer, chamois, other introduced ungulates, attacks livestock - mostly sheep and goat (see Conflict with humans). In some regions we found a high percentage of domestic dog (Canis familiaris) present in the wolf's diet – 31.25% - the Wolf Study and Conservation Program (BALKANI Wildlife Society, 2000).

Bear

The omnivorous diet of brown bears is reflected in their dentition and digestive tract adaptations. The diet

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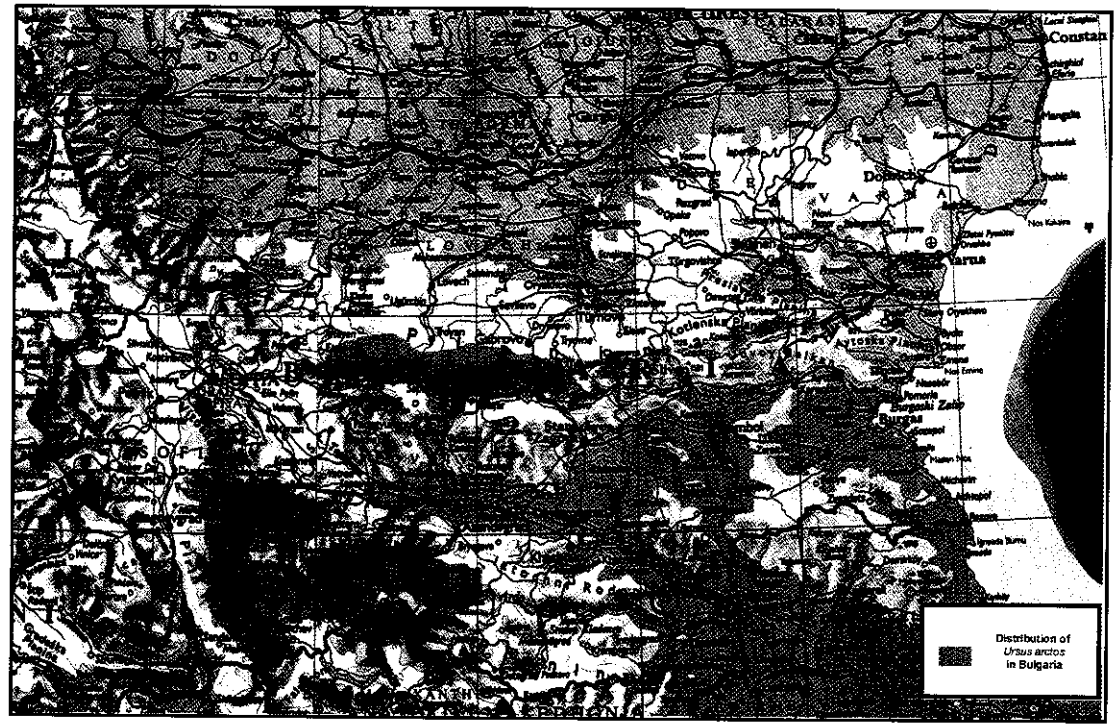
consists largely of vegetarian foods and invertebrates. Brown bears pass through three biochemical and physiological stages in their active period from spring to autumn, changing from low food intake in spring, a stage of normal activity in summer, to a high food intake in autumn. The importance of high-energy foods during late summer and autumn must be underlined, as this is the period of accumulation of the adipose fat tissue that is essential for "winter sleep". Green vegetation, such as graminoids and forbs, are preferred in their most nutritious pre-flowering stages in spring and early summer. Bears switch to berries and fruits when they ripen. Later in autumn, and also during winter and spring, bears may consume large amounts of hard masts such as acorns, beechnuts, chestnuts and hazelnuts where available. Due to its high digestibility and high nutritional value, meat, obtained either as prey, as carcasses or as baits, seems to be selected when available. Insects, especially the order Hymenoptera (ants, bees and wasps), may be seasonally important foods.

The food habits of the brown bear in Bulgaria (Raichev, 1988) consists 25% remains of livestock and wild animals, 28% fruits, 13% herbs, 23% forage (set for feeding game), 5% berries and 6% insects. The percentage of the meat ingredients was the highest in the spring (between March and June) – 40%. In most cases these were carcasses or injured and sick mammals.

Brown bear distribution in Bulgaria



Map created by Avraam Mavridis (ARCTUROS) using original map provided by "BALKANI"

2. Reproduction

Wolf

A wolf is sexually active when it is two years old. Oestrus lasts five to seven days once a year, generally in January – March. Parturition occurs after 60-62 days and litters vary from one to eleven pups.

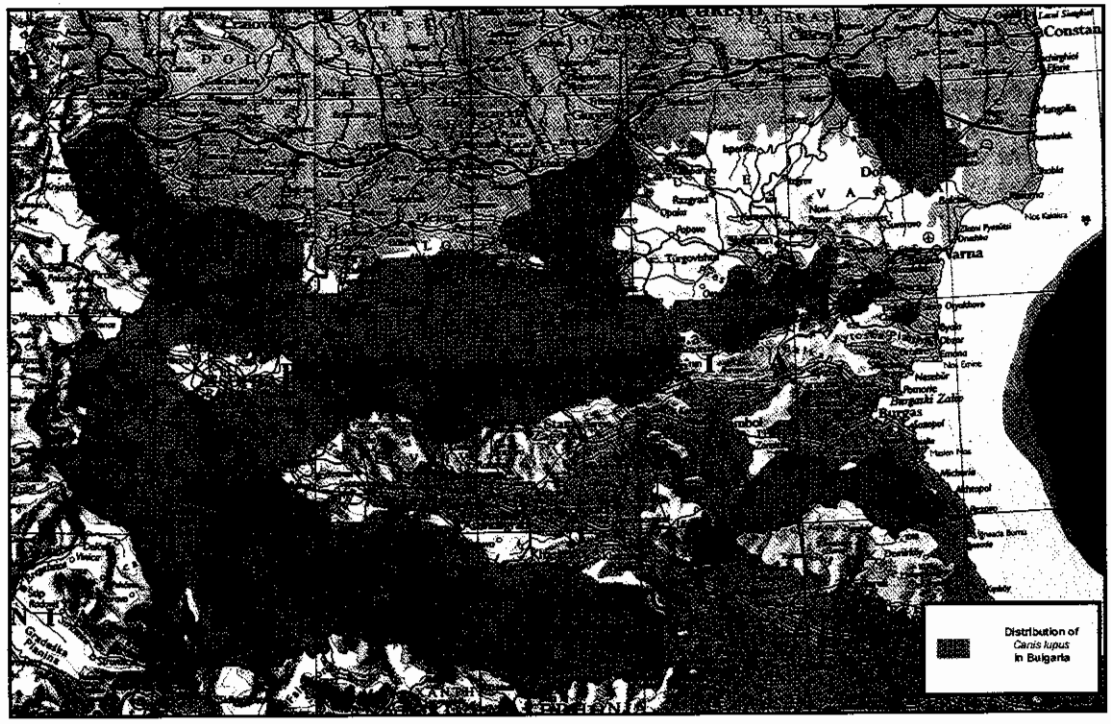
During the last two years, 75% of the people who have seen wolves with pups reported that there were 2 pups, 25% answered between 3 and 6. The low reproduction rate could be due to the lack of natural prey, disease etc.

Bear

The brown bear is a polygamous species. Mating season is from mid-May to early July. Females give birth to 1-4 small (0.5 kg) helpless cubs in their dens in January-February. Young reach independence at the age of 1.4 or 2.4 years in Europe (Swenson J., B. Dahle, Action Plan for The Conservation of Brown Bear in Europe).

From all reported observations of bears in the investigated area, 22.62% had one cub, 20.24% had 2 cubs and 2.38% had 3 cubs. The observations were obtained over the last two years, and were confirmed by more than two observers. In the cases of adjacent settlements, information was compared to avoid counting the same individual twice.

Wolf distribution in Bulgaria



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3. Social structure

Wolf
Wolves live in social units (packs) that co-operate in hunting, reproducing and defending their territories. A pack is fundamentally a family unit that originates when a pair establishes a territory and reproduces. Strong social bonds among the pack components regulate internal stability and the dynamics of behaviour.

Bear
Little is known about the social organisation of brown bears, but the relationship among individuals, especially adults, depends largely on spacing and mutual avoidance except during the mating season. Brown bears are not territorial and their home ranges overlap. They exhibit male-biased dispersal, and females generally establish home ranges in or adjacent to their mothers' home range (Swenson J., B. Dahle, Action Plan for The Conservation of Brown Bear in Europe).

4. Distribution

Wolf
The wolf is regularly present in most of the mountain forests and some lowland forests in Bulgaria.

Bear
In Bulgaria bears are found in mountains of Slavianka, Pirin, Rila, West Rhodope, Central Balkan, Vitosha and Plana.
Some migrations have been detected.

Lynx
Lynx in Bulgaria has been considered as extinct species since 1940. There are some rumours of lynx observed by hunters in West Stara Planina Mountain. It is logical that lynx exists there, as the Serbian population on the other side of the border is quite good. Reliable scientific proof is needed to confirm the existence of this species in Bulgaria. Appropriate measures should be taken to ensure the lynx existence in Bulgaria.

5. Population status

Wolf
Very little research has been conducted on the Bulgarian wolf population. The National Forestry Board conducts a census of wild game every spring. The information for wolf population in Bulgaria for the last 3 years is as follows:

Table 1

Year	1999	2000	2001
Wolf numbers	1678	1796	2160

Wolf Population Number by Regions

Table 2: West Rhodope Mountains

Source of information	Territory sq. km	Wolf numbers
Smolian RFA	2661.28	94
Pazardgik RFA	2306.6	116
Plovdiv RFA	790.7	36
Blagoevgrad RFA	782.62	47
Total:	**6541.2**	**293**

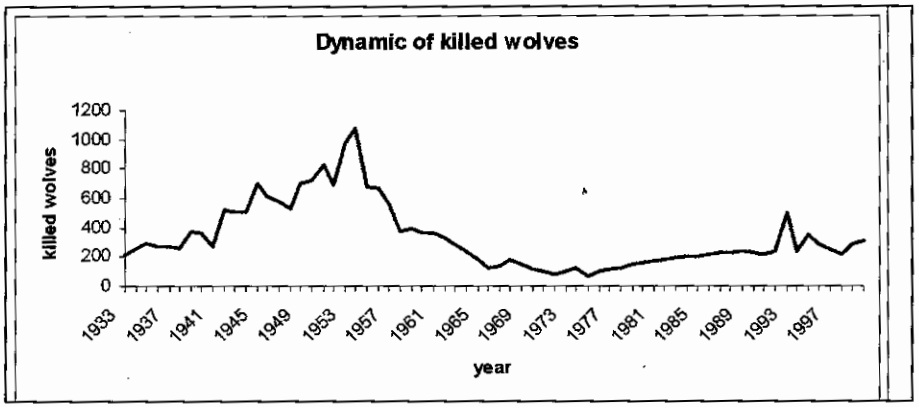
Table 3: Pirin and Slavianka Mountain

Source of information	Territory sq. km	Wolf numbers
Blagoevgrad RFA	2336.63	183
Pirin Npark	403.32	32
Total:	2739.95	215

We do not fully accept the presented official information and we consider it to be an overestimation. The foresters count the number of wolves only in the territory of their Forestry units, but some packs move through the territory of two or more Forestry units. Therefore, often one pack is counted at least twice. We suspect that the overestimation of wolf number is part of a campaign for legalising use of poison in predator control. Our team's personal estimation is about 1000 - 1200 wolves inhabiting the forests in Bulgaria.

The dynamic of the wolf's population is similar to the dynamic of animals reported killed. During the first 6 months of 2001 there were 42 wolves killed (the active hunting season starts at the beginning of October), for the year of 2000 - 304 shot wolves were reported, for 1999 the number were 284 killed. This proves the fact that the wolf numbers in Bulgaria is more or less stable.

Fig. 1



Source: National Forestry Board

According to the Wolf Study and Conservation Program (BALKANI Wildlife Society, 1998; 1999) the average wolf pack home range is about 100 km². Considering the fact that natural wolf food base is insufficient and the general livestock number in the country has sharply decreased during the last 10 years, we suppose that the average wolf home range in the country has been increased.

For the last 3 years the National Forestry Administration reported the number of wild ungulates for the whole country as follows:

The data from 1989 is presented to show the general tendencies in wild ungulate populations.

Table 4

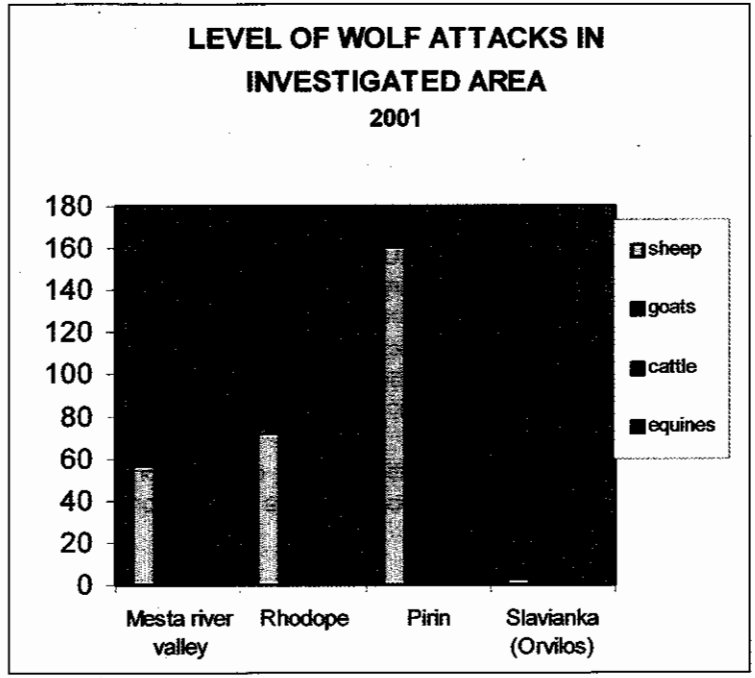
Species \ year	1989*	1999	2000	2001
Red deer	24 426	18974	18262	17585
Roe deer	137 643	69795	71572	69114
Dama deer	6 782	4200	4306	3731
Wild boar	46 683	41536	44994	49073

6. Conflict with humans

Wolf

In most of the places inhabited by wolf the local population suffers from wolf attacks on their livestock. The data in the figure shows the general tendency for wolf attacks without pretending to be fully representative. The reason for this is that we did not visit all the villages in the investigated area. We have data only from 136 settlements. The other reason is that the information received by interviewing local people (mainly hunters and shepherds) does not fully represent the real situation.

Fig. 2



For the year 2000, 67.2% of the villages we visited and questioned reported attacks on the livestock from wolves. During the first half of 2001 the percentage of the villages sustaining wolf attacks was 64.75%. It is apparent that damages caused by wolves on livestock breeding are comparatively frequent.

In response to the question: What is your attitude towards wolves? - 80% of those interviewed answered that the wolf should be exterminated using all available methods.

Bear

There have been cases of bears causing damages to agricultural practice in Bulgaria.
In the study area of the present project, information for damages caused by bears was collected. Forty-nine villages (36% of the settlements visited) reported bear attacks in the last two years.

The human attitude toward the bear is not so negative as it is toward the wolf. In response to the question: What is your attitude towards bears? Most people answered that only bloodthirsty bears should be killed. Only 5% of the people interviewed had totally negative attitude.

7. Legislation

Wolf

The wolf lacks any form of legal protection in Bulgaria. Bulgaria ratified the Bern Convention with objections for wolf, bear and wildcat. The wolves are subject to persecution all year round. Bounties are paid for every wolf killed.

Bear

The brown bear is listed in Annex II of Bern Convention on the Conservation of European Wildlife and Natural Habitats, which was implemented in May 1,1991. Bulgaria ratified it with objection for wolf, brown bear and wildcat.

With Ministry of Environment and Waters Order No 1023 from December 31, 1992 the bear is totally protected. Only "blood-thirsty" bears may be killed with special permission from the Ministry of Agriculture and Forestry, and approved by the Ministry of Environment and Waters.

Problematic is the very new Act for Hunting and Game protection issued in September 26, 2000 and scheduled for implementation from June 29, 2001. There are listed possibilities for killing not genetically pure bears, and for regulation of bear, population density.

There is little hope for conservation of the large carnivores in Bulgaria with the upcoming Biodiversity Conservation Act. There are some promises that wolf hunt will be regulated and the bear will be under total protection.

8. Threats

Habitat degradation is one the main treats to the large carnivores population. Old forests are regularly logged for timber material and heating.

The wolf is persecuted everywhere in the country. The National Forestry Administration pays bounties for every shot wolf - 20 BGL (equivalent of 20 DM) and 2 cubic meters of first class timber material.

Picking of wild berries and mushrooms in big quantities is the other problem. The mushroom pickers are every day in the bear habitats and disturb them.

Although it is illegal in some places, poison bait is used and there is no effective way to control this. There are some known cases of poisoned wolves and bears. The judicial authorities do not take appropriate measures.

All Local Forestry Units report presence of feral dogs on their territory. It is very possible that part of the attacks on the livestock have been made by feral dogs.

There is some evidence of wolf hybrids.

There are some cases of bears trapped in illegally set snares. In one of the cases the poacher have been fined.

B. RECOMMENDATIONS

- Since the main reason for the negative attitude towards the large carnivore species is the damages they cause to the agriculture economy, more should be done for developing and applying proper methods for damage prevention. A traditional method with livestock guarding dogs is working quite well, where it exists.

- Developing of a compensation system could help a lot, but the economical stability in the country is something necessary for the proper application of the above-mentioned system.

- Wide-spread education and public awareness campaign is needed to popularise the natural role of the large carnivores and to decrease the negative attitude.

- Little is known about the large carnivore biology and ecology. Presenting reliable scientific information on their role in nature to the competent authorities could help change their legal status.