

Large Carnivores in the “Republic of Macedonia” (Recognised by Greece as: “The Former Yugoslav Republic of Macedonia”)

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I. DISTRIBUTION

I. 1 Distribution of brown bear in Macedonia

The brown bear has not been extensively studied in the country. Apart from data on killed bears that have been published in hunting magazines, scientific literature concerning the species is very poor, dealing mainly with taxonomic studies or regional faunistic investigations.

The bear is found mainly on the mountainous western part of the country, from the border with Yugoslavia in the north to that with Greece in the south. It occupies the slopes of Shara Mountain, Korab, Bistra, Stogovo, Karaorman, Jablanica, Plaknenski Planini, Galichica and Baba Mountain. There is also some evidence of bear presence on Jakupica and Nidzhe Mt. A small number of animals could be entering from Bulgaria on the east, on Maleshevo Mt.

I. 2 Distribution of wolf in Macedonia

Wolf is distributed on the whole territory of the Republic of Macedonia. In previous decades wolf has been recorded in every region in Macedonia as well as its den, puppies, winter packs (according official report of Donchev, 1996).

According the questionnaire in the frames of the Wolf Project, the wolf is present in all regions where we had disseminated the questionnaires. A den was found in 86 % of them, a couple was registered in 57 %, and a winter packs were present in 71 %. Wolves were present mostly on the whole area of jurisdiction of the organization that returned the questionnaire, and in two localities only during the winter/autumn period. In all regions there are wolves killed in the recent period (1998 - 2000).

I. 3 Distribution of lynx in Macedonia

Lynx is one of the large carnivores with an uncertain status in the Republic of Macedonia. Its population's trend is still obscure besides the efforts done in last few years. However, it is obvious that lynx is distributed only in west Macedonia:

Shar Planina (Vrben),
Bistra (St. Jovan Bigorski, Trnica, Volkovija, Sence, Tresonche, Janche, Rostushe)
Stogovo (Mogorche, Gari)
Korab (Tanushe, Nistrovo, Ribnica, Grekaj, Zhirovnica, Strezimir) and
Deshat (Skudrinje, Prisojnica, Adzievci, Duf, Lokuv, Vidushe).]
Jakupica (Patishka reka, Kozjak)
Pelister
Galichica (Stara Galichica, Petrino, Kuratica)
Plakenska Planina (Mazatar, Krajshnik)
Ilinska Planina

Bigla
Jablanica (Gorna Belica, Sv. Spas, Crven Kladenec)
Karaorman (Malesija, river Drim gorge)

In the past, Lynx was present in the regions of eastern Macedonia. The last record on Plachkovica Mt. was noticed in 1924. Last record for Nidze is from 1971.

(Presented data are derived from Micevski (1997) and our own investigation)

II. POPULATION STATUS

II. 1 Information on the condition of the Bear population in Macedonia

Only assumptions can be made on the size of the population. Taking into account the size of the habitat and the existence of three national parks, it can be assumed that about 160 - 200 bears live in the country. Mavrovo National Park has a bear population of approx. 80 animals, Pelister N.P. around 30 and Galicica N.P. 3 to 4 individuals. Due to a lack of systematic surveys outside the National Parks, only estimations can be made for the overall population of the species. The actual total number can be either higher or lower and only an organized scientific survey in the whole of the country would produce accurate results.

II. 2 Information on the condition of the Wolf population in Macedonia

During the past, wolf has never been object of a study in Macedonia. No scientist has ever worked on its biology or status and distribution; at least no published data exist. Therefore, all data about the wolf in Macedonia originate from the hunter associations and state departments of forestry and hunt. No estimations of its population were ever done, and only precise data were noted about the killing. There is no information on killed wolves before 1947, and in the recent period, a gap from 1988-1992 exists. The number of wolves killed in this period is given on Table 1 and Fig. 2 in section VI (Threats).

Analysis of the questionnaire in 57.1 % percent shows that the number of wolves is increasing to 28. 6 % that it is stable, and in only one, the region of Galichica National Park, is decreasing. Concerning the opinion of the persons that filled the questionnaire, positive and negative opinion are presented with 42.9 % and very negative in 145.3 %.

Precise estimation of the wolf population cannot be done, but from the number of wolves killed each year, which is more or less stabile, we can conclude that its population is also stabile and at least twice bigger than the number of wolves killed. This conclusion, together with the size of the Country and the minimal area required by the wolves, leads us to a number of 600 - 800 individuals. However, after the data of the hunting associations (provided by the questionnaire), this number is 70 % higher- ca. 1000-1200, and the population has a positive trend. We still cannot be sure about the degree of validity of the questionnaire, since their interests are very different from the interest of scientist.

II. 3 Information on the condition of the Lynx population in Macedonia

According Miric (1981) there were approximately 120 specimens in Macedonia in 1974.

According Micevski (1997) the Lynx population in western Macedonia is presented by 11 specimens on Shar Planina and Korab ($0.055 \text{ ind.}\cdot\text{km}^{-2}$), 14 on Deshat ($0.156 \text{ ind.}\cdot\text{km}^{-2}$), 4 on

Stogovo (0.143 ind.km⁻²) and 25 on Bistra (0.194 ind.km⁻²). The total number of lynx individuals is estimated at 54. Compared to Miri} (1981) this data are higher meaning that the lynx population number has positive trends. Results of Micevski (1997) seem to be higher than the real situation, but they show that the lynx population in protected areas (Mavrovo National Park) is stable.

III. HABITAT

Habitat characteristics / use of areas occupied by species

In general for the territory of the Republic of Macedonia it can be concluded that higher portion of the habitats occupied by large carnivores are more or less in good condition. The highest threat is posed by forestry and hunting (mostly poaching). Apart from this human - animal conflict is not important generally because of the migration trends in 50s to 70s that has led to decrease of every kind of agriculture, livestock rising, abandoning of villages close to the habitat or in the habitat and secondly the low developed road infrastructure (except for the forest roads) does not have negative effects on habitat fragmentation. Detailed description is not possible at the present moment but it will be target of further investigation on the pilot area - Kaimakchalan and surrounding area (Mariovo) in the frames of this project.

A. General vegetation and land use maps of the country (large scale)

Vegetation map of the Republic of Macedonia is not available. Instead, we are able to find the vegetational-climazonal-pedological map from Filipovski et al. (1996).

There are about 900,000 hectares of land under forest, or about 35% of the total area of the Republic of Macedonia. Arable agricultural land extends over some 670,000 acres, or 27% of the total area of the Republic, and there is about similar area of land under pastures. Some 70% of the arable land is in the private sector.

Agricultural land	670 000
Arable land	560 000
Orchards and gardens	20 000
Vineyards	40 000
Meadows	50 000
Pastures	670 000
Swamps, fishponds	2 000

IV. CONFLICTS WITH HUMANS

A. Level of damage caused by the species to livestock

1. The Bear

The questionnaire survey implemented in 1998 showed limited damages to livestock and some damages to orchards, cornfields and beehives. Damages are considered, in most cases, as a natural occurrence of rural life. It should be noted, however, that damage records are rather incomplete and do not portray accurately the real situation.

2. The wolf

From the organized questionnaire in the frames of the Wolf Project we came to the following conclusions. The wolves had caused damages everywhere, and from the livestock greatest parts of attacks were made on sheep (70.75 %) and goats (20.29 %), and the rest up to 100 % go on kettle, horses, donkeys and hunting dogs. From the wild animals, greatest percent is on roe deer (65 %) and wild boars (15 %), and 20 % goes to other animals, mainly rabbits. It is to be pointed out that the number of roe deer killed (13) is much smaller than the number of sheep killed (387).

3. The Lynx

At the present moment we cannot present some more reliable data about this issues. Damages caused by lynx are often mixed with the damages caused by the wolves. Further investigations are needed.

B. Compensation system

There is no compensation system organized by the state institutions. The only mechanism that exists is the insurance system of livestock and plant products.

C. Distribution of livestock numbers per species. Maps with densities of livestock.

The livestock in the Republic of Macedonia consists of about 2.5 million sheep, 300,000 head of cattle, 170,000 pigs and horses. There are also more than 5 million domestic fowl and other poultry. There are over 80,000 beehives.

D. Trends of livestock industry (free ranging livestock)

Although the permanent population in the mountainous villages is decreasing due to internal migration in urban centers, there is an increasing trend in the number of shepherds and livestock animals that graze in these areas.

E. Human population density distribution (maps)

According to the 1991 population census, the total figure for the registered total and estimated population in the Republic of Macedonia was 2,033,964. More than half of the Republic's inhabitants (58.1%) live in urban areas, most of them in the capital, Skopje (450,000), followed by Bitola (85,000), Kumanovo (70,000), Prilep (70,000), Tetovo (51,000), Veles (47,000), Ohrid (43,000), Stip, etc. There are 1,753 populated settlements.

There are an average number of 80.7 inhabitants per square kilometre living in Macedonia. The most densely populated area is its north-western part (including Skopje), whereas southeast Macedonia is the most sparsely populated region.

F. Human attitudes towards the species. Past and present status.

1. Bear

The great majority of the questioned people had a very positive opinion about bears, even when they suffered damages in livestock or agricultural products. Rarely did people consider bears as dangerous and harmful animals. Dancing bears have not been seen in the country during the past 30 years, although there are a few cases of illegal bear cub trading with neighbouring countries. Poaching is still the main cause of direct killing in the country.

2. Wolf

Human attitude toward the wolf has significant changes concerning the past and present situation. Thus, from a dangerous and pest animal that should be terminated wherever it exists, today the

wolf is considered as dangerous and pest animal, but it should be protected as natural part of the wilderness.

3. Lynx

From the interviews with local people we have concluded that Lynx is considered as an important symbol of wilderness. Although the Lynx causes damages on livestock it is not considered as pest animal since the damages are insignificant. All of the interviewed people presented their opinion that the Lynx should be protected animal.

V. SPECIAL ISSUES

A. Genetic identity (hybridisation with dogs)

We have no reliable data to present concerning this issue.

B. Stray and feral dog presence

The only data to present here came out from the questionnaire in the Wolf Project: in 42. 86% of the questionnaires were positively answered on the question for the presence of feral dogs, but probably it is not meant on really feral animals.

C. Damage caused from stray and feral dogs on livestock

There are no precise data concerning this issue. The only evaluation that can be made by our own opinion is that there are no significant damages caused from stray and feral dogs on livestock, compared to the damages caused by the wolves.

D. Rabies distribution (historical, present situation)

In the period after 1970 there was no case of rabies registered in Macedonia. Few cases of rabies appeared in 2000 in Skopje surrounding. Most of the recorded cases were stray dogs.

E. Wild ungulate species in the country

- Wild boar
- Roe deer
- Chamois
- Red deer
- Damna
- Mouflon

VI. THREATS

A. Human caused mortality (animals killed per year)

1. Bear

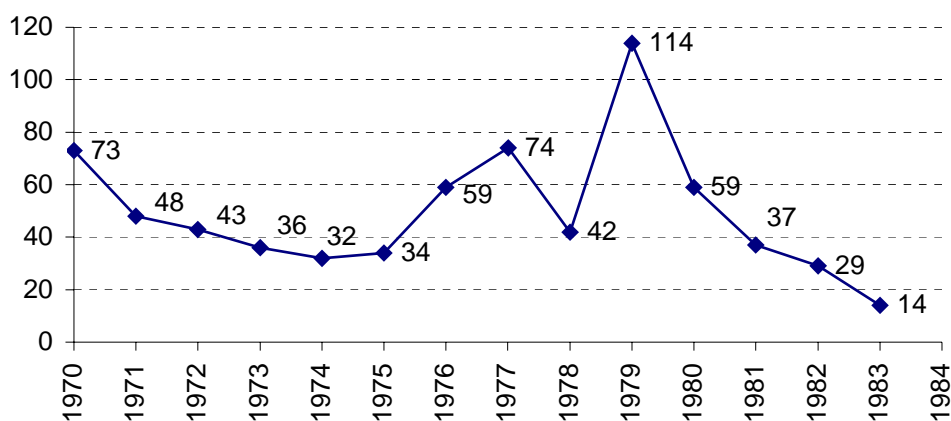


Fig.1: Number of bears killed in Macedonia in the period 1970 to 1983.

2. Wolf

No	Year	Males	Females	Cubs	Wolves killed	No	Year	Males	Females	Cubs	Wolves killed
1	1947				110	25	1971				209
2	1948				181	26	1972	90	37	52	179
3	1949				923	27	1973	120	47	82	249
4	1950				755	28	1974				261
5	1951				485	29	1975				261
6	1952				522	30	1976				275
7	1953				322	31	1977				257
8	1954				367	32	1978				217
9	1955				372	33	1979				266
10	1956				269	34	1980	156	65	104	325
11	1957				276	35	1981	164	46	69	279
12	1958				253	36	1982	138	57	72	267
13	1959				187	37	1983	162	65	85	312
14	1960				240	38	1984	146	130	61	337
15	1961				155	39	1985	140	107	64	311
16	1962				133	40	1986	148	108	47	303
17	1963				237	41	1987	101	69	30	200
18	1964				245	42	1993	163	135	65	363
19	1965				123	43	1994	210	167	83	460
20	1966				153	44	1995	154	168	74	396
21	1967				147	45	1996	214	184	82	480
22	1968				226	46	1997	183	139	94	416
23	1969				219	47	1998	173	77	70	320
24	1970				195	48	1999	209	137	40	386
						TOTAL	2671	1738	1174	14424	

Table 1: Number of killed wolves in the country, 1947-1999.

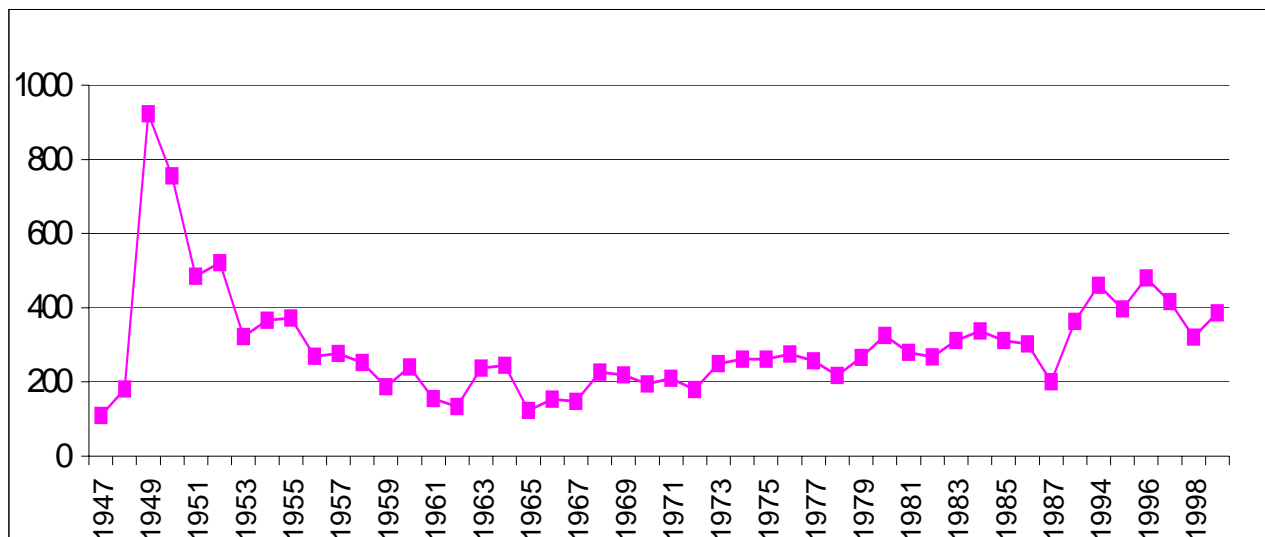


Fig. 2 Number of killed wolves per year in the Republic of Macedonia

Two main conclusions can be drawn from Fig. 2.:

1. The number of killed wolves was rapidly decreasing until 1964
2. This number began to increase again after 1965.

These periods are presented separately on Figs. 3 and 4.

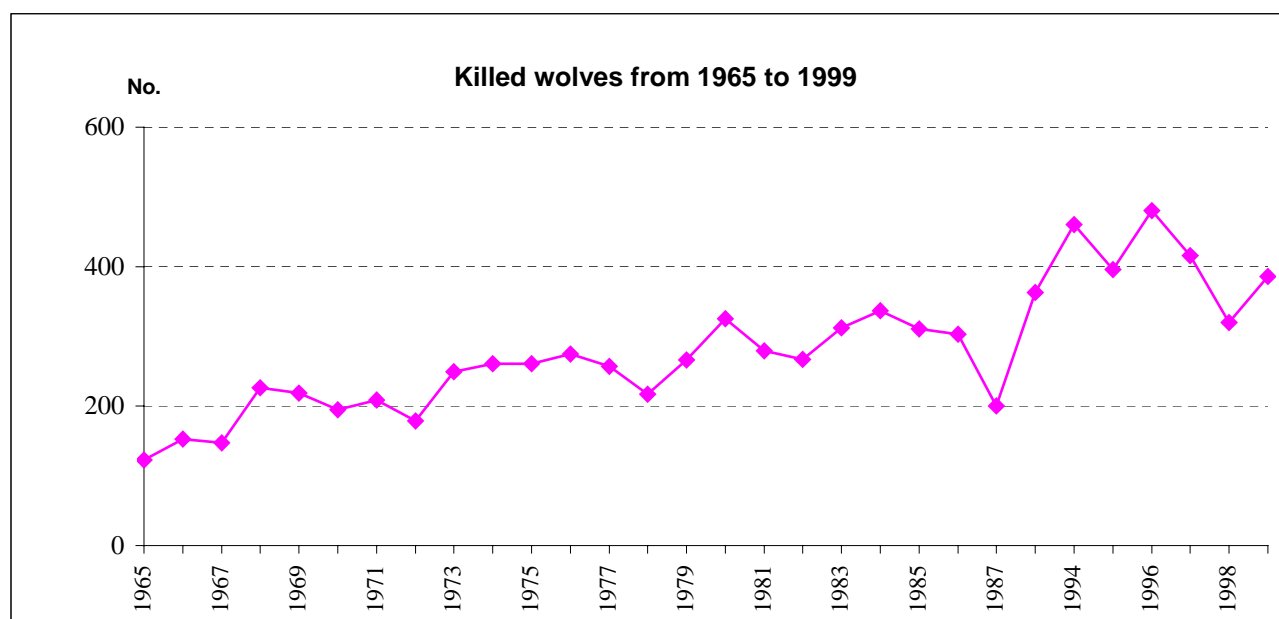


Fig. 3 Number of killed wolves per year in the period of 1965 - 1998 in the Republic of Macedonia

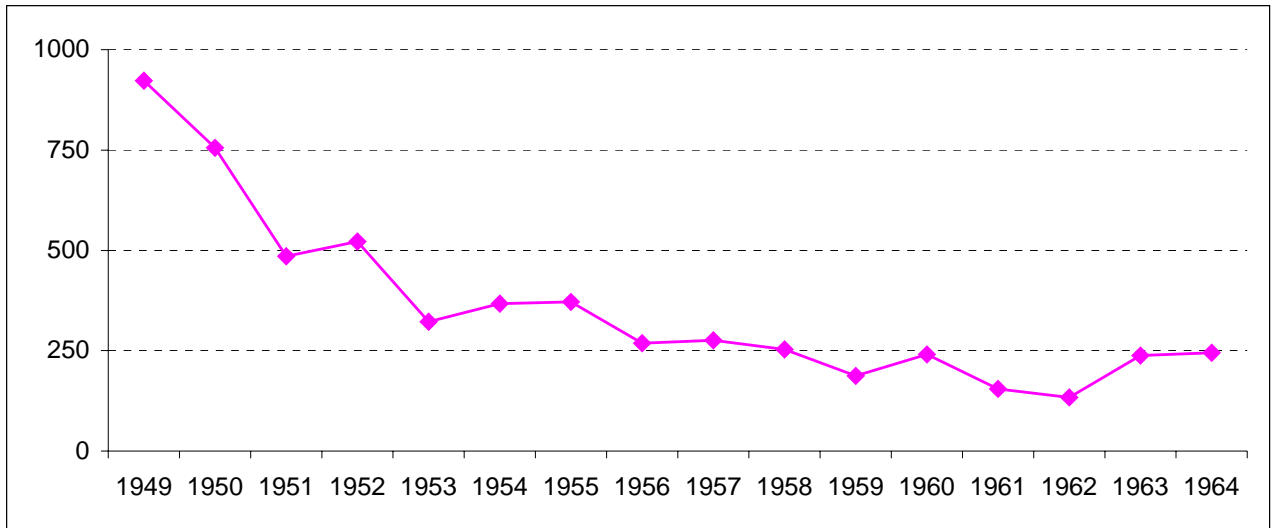


Fig. 4 Number of killed wolves per year in the period of 1949 - 1964 in the Republic of Macedonia

Note: data from 1947 and 1948 were excluded from the analysis because to the fact that in this short period after the World War II, the administration in the State might be considered as not very confident in collecting this kind of data.

3. Lynx

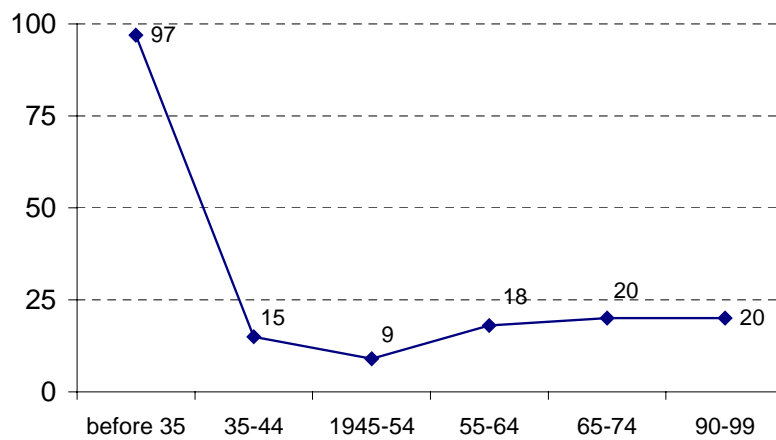


Fig. 5 Number of killed Lynx specimens in Macedonia in 20th century

B. Methods of human caused mortality

1. Bear

- Hunting
- Trapping

2. Wolf

- Individual Hunting
- Organized Hunting
- Trapping
- Poisoning (in the past)

3. Lynx

- Hunting
- Trapping

C. Use of poisons for predator control

Poisoning - after the War an organized campaign for extinction of the wolves begun, and every possible steps for its killing were allowed. The poisoning was the easiest way for killing the wolves, and was widespread through the whole Balkan Peninsula. Other species, especially birds of prey also suffered severe consequences of this campaign.

D. Main roads and highways (maps)

Map of traffic infrastructure will be added.

E. Hunter attitudes towards species

From the interview with local hunters we came to the conclusion that hunters care more about the wild animals than the other people. They respect the bear and lynx and always expressed their opinion that these animals should be strictly protected. The majority of hunters consider wolf as a pest animal and they desire to kill as many wolves as they can. However, most of them will kill even a bear or lynx, just if they have a good opportunity beside their awareness of the consequences of this act.

VII. CONSERVATION STATUS

VII.1. The Bear is protected according to the Hunting Law. The 1996 Hunting Act introduced significant changes. According to s. 12, 15 the bear is under absolute protection and bear hunting is permanently banned. There is an exception nevertheless. Hunting might be allowed with a MAFWM permission for scientific and educational purposes, for zoos and natural history museums, for breeding and the prevention of contagious diseases, as well as when the species is causing damages (s. 17, 18 par. 4). In case the species causes damages, the MAFWM is issuing a hunting permission following the advice of the government's administrative body competent for environmental protection. Although the country has not yet ratified the CITES and Rio Conventions, the Bern Convention has been into force since 1999.

VII.2. The wolf is not protected animal in Macedonia by any Law that deals with protection of the nature or particular species. There are no indications that the wolf might be included in some of these laws soon.

VII.3. The Hunting Law strictly protects Lynx as permanently protected species and no hunting is allowed.

LITERATURE

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