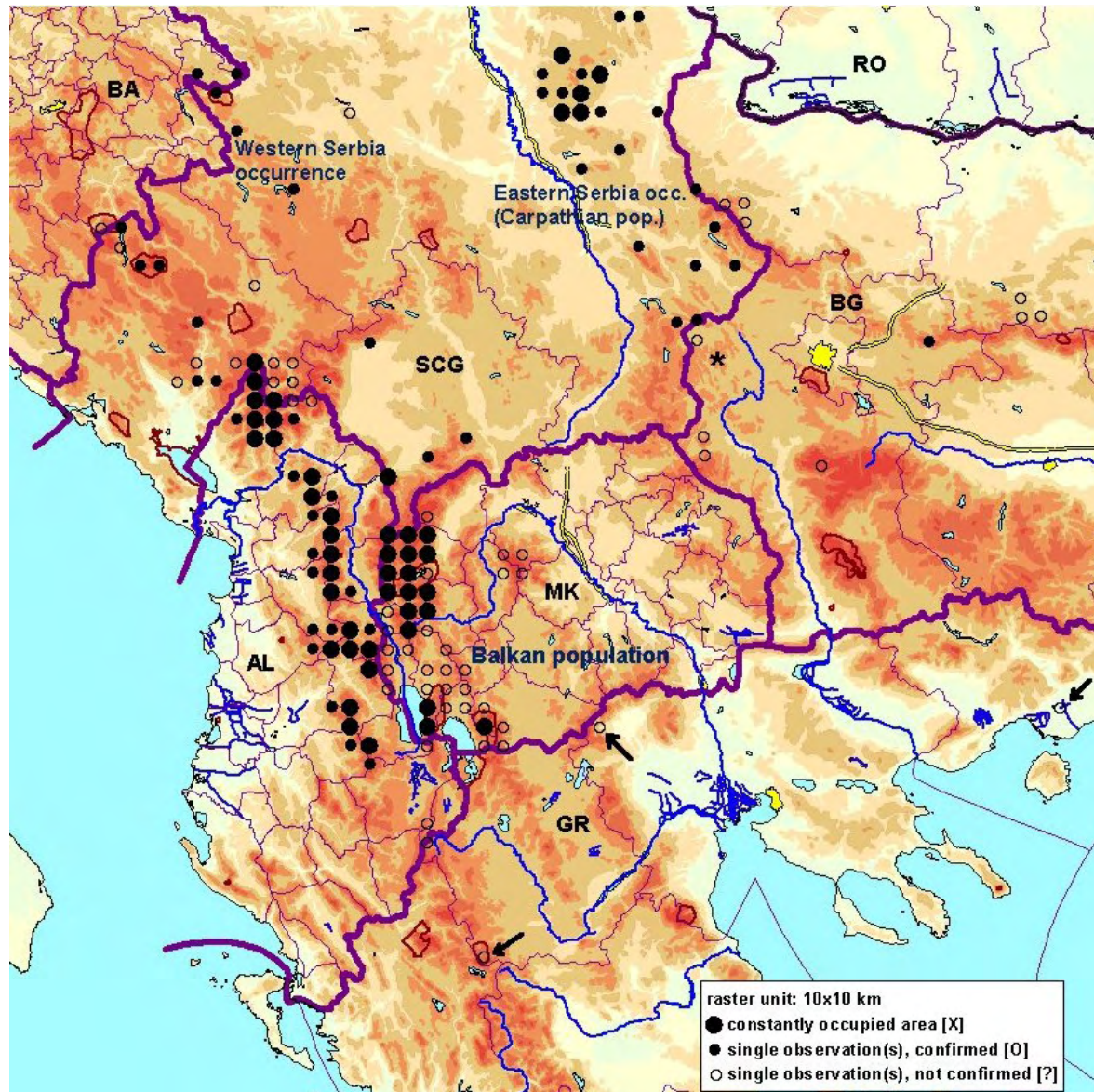


Balkan population

1. Description:

1.1. Distribution of the Balkan population in 2001



(* new data from March 2003: lynx tracks)

1.2. Countries (regions) and spatial trend

Countries sharing the population: *Albania* (Albanian Alps & Central-Central East Albania), *FYR Macedonia* (Mavrovo-, Galicica- & Pelister NP), *Serbia and Montenegro* (S-, SW- & W- Kosovo and Metohija province, W-, SW-, Central & N- Montenegro), *Greece* (Voras Mt. & Tzena and Pinovo Mt., Nestos Delta, Vassilitsa & Valia Kalda NP (both N. Pindos)), *Bulgaria* (Unconfirmed data in SW-Bulgaria (Osogovo, Rui, Kraishte, Maleshevska and Vlahina mountains) of possible origin from the Balkan population).

Spatial trend (change in distribution area since 1995): Real changes are unknown. The distribution area is larger due to better information available.

2. Status and trend:

2.1. Extension

Country	Lynx distribution area [km ²]				Population share (% area [X] / [X+O])
	[X]	[O]	[?]	[X+O]	
Albania	2'300	1'500	500	3'800	56.1 / 56.7
FYR Macedonia	1'700	0	2'600	1'700	41.5 / 25.4
Serbia and Montenegro	100	900	1'300	1'000	2.4 / 14.9
Greece	0	0	300	0	0 / 0
Bulgaria	(0)	(200)	(1'000)	(200)	(0 / 3)
Total population	4'100	2'600	5'700	6'700	100 / 100

2.2. Fragmentation

Total area ([X+O] – isolated [O]):	5600 km ²
Number of patches:	8
Mean patch size and range:	700 km ² ; 100-1'400 km ²
Mean nearest distance between patches:	60 km

2.3. Size of the population

Country	Estimation 1995*	Estimation 2001**	Density (lynx per 100 km ² area [X])	Trend 1990- 1995*	Trend 1996- 2001
Albania	15-37	15-25	0.65-1.09	(decreasing)	unknown
FYR Macedonia	unknown	35	2.06	unknown	decreasing
Serbia and Montenegro	30	30	-	decreasing	decreasing
Greece	unknown	(no confirmed evidence)	-	-	unknown
Bulgaria	-	single individuals	-	-	unknown
Total population	<i>n.d.a.</i> ^a	~80-105	~1.5	<i>decreasing</i>	<i>decreasing</i>

* Eurasian Lynx Action Plan 2000, Table 2 (BREITENMOSER *et al.* 2000)

** or most recent estimation available, refer to the respective country report

^a Population size 1995 according to Eurasian Lynx Action Plan (page 17) = 50 lynx; status, distribution and number unclear

2.4. Management

Country	Legal status	National institution in charge	Conservation / Management plan status 1995*	Conservation / Management plan status 2001
Albania	fully protected	General Directorate of Forest and Pastures (GDFP)	none	none (planned)
FYR Macedonia	fully protected	Ministry of Agriculture and Forestry	-	none
Serbia and Montenegro	fully protected	Bureau for Nature Protection of both, Serbia and Montenegro	-	none
Greece	fully protected	Ministry of Agriculture	none	none
Bulgaria	fully protected	Ministry of Environment; National Board of Forests of the Ministry of Agriculture and Forests	-	none
Population	<i>fully protected</i>			<i>none</i>

* Eurasian Lynx Action Plan 2000, Table 3

2.5. Harvest and known losses (yearly average 1996-2001)

Country	Harvest number	Removal of problem animals	Illegal killings	Other mortality	Total Ø 1996-2001	Total Ø 1990-1995*
Albania	-	0	3.8	0	3.8	-
FYR Macedonia	-	0	0	0.33	0.33	-
Serbia and Montenegro ^a	-	0	(0.41)	(0.04)	(0.45)	(0.21)
Greece	-	0	0	0	0	-
Bulgaria	-	(0)	(0.67) ^b	(0.17) ^b	(0.84) ^b	-
Total population	-	0	~5	~1	~5	<i>n.d.a.</i>

^a Has several populations but no respective numbers for each of them. The numbers here are the calculated share of losses to the Balkan population in proportion of its distribution to the total lynx distribution area in the country.

^b in brackets as population origin (Balkan/Carpathian) is still unclear

* Eurasian Lynx Action Plan 2000, Table 3

2.6. Depredation, compensation and prevention

Depredation: There has only been one incidence in Bulgaria in 1996 (one sheep killed). Otherwise lynx depredation has either been absent in 1996-2001 (Albania, FYR Macedonia) or unknown (Serbia and Montenegro, Greece, Bulgaria 1997-2001). Depredation in the Balkan lynx population seems to be very rare and therefore no matter for conservation measures.

Compensation: FYR Macedonia is the only country applying a compensation system for lynx damage. There is no such system in Albania, Serbia and Montenegro, and Greece. Bulgaria pays for bear and wolf damage only because of the unclear lynx status.

Prevention: The use of sheep guarding dogs to protect sheep herds is known for Albania, Bulgaria and Greece (primarily against wolf attacks). As lynx depredation in all Balkan countries is very rare, removal of problem animals is not foreseen and illegal retaliation killings have most probably not been connected with damage prevention.

3. Threats

Country (population share in % area [X]) ▶	Albania (56.1 %)	FYR Macedonia (41.5 %)	Serbia and Montenegro (2.4 %)	Greece	Bulgaria	Balkan population 1996-2001
Threat ▼						
Agriculture	X					X
Extraction of wood	X	X	X		X	XX
Infrastructure development: Industry						
Infrastructure development: Human settlement						
Infrastructure development: Tourism / recreation		X				X
Infrastructure development: Road building				X		
Legal hunting & trapping						
Shooting (illegal)	X		X ^b		X	XX
Trapping / snaring (illegal)	X		X			XX
Poisoning						
Vehicle and train collision						
Storms / flooding						
Wildfire					X	
Avalanches / landslides						
Competitors	X		X		X	XX
Prey / food base	X	X			X ^d	XX
Pathogens / parasites						
Limited dispersal	X		X		X	XX
Poor recruitment / reproduction / regeneration	X					X
High juvenile mortality	X					X
Inbreeding		X	X			X
Low densities	X		X		X	XX
Skewed sex ratios	?					
Slow growth rates	X					X
Population fluctuations			X			
Restricted range	X	X	X			XX
Recreation / tourism		X				X
Research						
War / civil unrest		X	X			X
Transport						
Other		X ^a			X ^{c, d}	

^a Feeding at urban waste collection centres

^b Data are very scarce. Access to the population in Kosovo and Metohija province is difficult or even impossible. There are indications that poaching by local and international groups in these provinces is very frequent.

^c illegal trophy hunting

^d most important current threats: rapid decrease of prey base (roe deer and chamois) and the poaching for trophy

Threats 1995 (Eurasian Lynx Action Plan 2000, Table 6):

MVP (population size, genetics), habitat fragmentation, illegal killings, prey base

4. Population assessment

The Balkan population is the smallest and most threatened autochthonous lynx population of Europe and deserves special attention. This is in particular relevant because the Balkan lynx has been described as an own subspecies *Lynx lynx martinoi* (MIRIĆ 1978); see also (SIMEONOVSKI & ZLATANOVA 2001). This original description did not get much attention and was not widely accepted. HEMMER (1993) considered the phylogenetic independence of the Balkan lynx (under the name *Felis lynx balcanica*) but rejected it. MIRIĆ's (1978) proposal was ignored for two reasons: (1) the geographic proximity of the Balkan population to the Carpathian and the (extinct) Dinaric and Alpine populations, and (2) the fact that the distribution of the Balkan lynx at that time had already been reduced to Albania and the south of former Yugoslavia and no ecological knowledge and only few museum specimen were available. We do not have the information needed for a final judgment of the taxonomic status of the Balkan lynx. However, preliminary genetic analyses indicate that the Carpathian and the Balkan population may differ considerably (CH. BREITENMOSER-WÜRSTEN and G. OBEXER-RUFF, pers. comm.). This differentiation could be the result of the long-term isolation of the Balkan lynx population; it is however also possible that the two populations or sub-species, respectively, originated from different refugial regions as a consequence of the zoo-geographic history during the late Pleistocene and early Holocene. The taxonomic status of the Balkan lynx population is a priority question in the light of the recent spread to the south-east and south of the Dinaric population in Bosnia-Herzegovina and of the Carpathian population in Serbia and Bulgaria, respectively (see Western and Eastern Serbia occurrence in the map and population reports).

The total size of the population is estimated to be about 100 individuals at best (Table 2.3), distributed over an area of 4'100-6'700 km², and split into eight patches, indicating a strong fragmentation (Table 2.2). It is impossible to assess the recent trend in population size or distribution. The Balkan lynx population experienced a severe bottleneck in 1935-1940 with an estimated number of only 15-20 individuals left. After World War II the population started to recover, especially in Kosovo and the FYR Macedonia (MIRIĆ 1981). In the 1960-70s, it also reappeared in Montenegro. The population estimation was some 280 lynx in 1974 (MIRIĆ 1981). In the first European status report (BREITENMOSER & BREITENMOSER-WÜRSTEN 1990), no information was available for Albania as it was impossible to find an expert contact at that time, and only very limited distribution data for the rest of the area. For the 1995 status report (BREITENMOSER *et al.* 2000), expert contacts had been established in all range countries, but the information available were guesses and did not base on field surveys. In a comprehensive report from 2001 all information available for the range countries were summarised: Bosnia and Herzegovina (SOLDO 2001), FYR Macedonia (HRISTOVSKI 2001), FR Yugoslavia (PAUNOVIC, MILENKOVIC & IVANOVIC-VLAHOVIC 2001), Albania (BEGO 2001), Bulgaria (ZLATANOVA, TZVETKOVSKI & TZINGARSKA-SEDEFEHEVA 2001); (SPASSOV, SEORGIEV & SPIRIDONOV 2001), and Greece (PANAYOTOPOULOU 2001). Although these reports as well as the newest inquires presented in this document were still not the result of systematic field surveys, they now based on a network of people and institutions made increasingly sensitive for large carnivore conservation and on a growing number of observations and records. The most obvious shortcomings of the status report presented here are: (1) no standardised monitoring is established in any of the range countries, quality of information depends on the incidental presence of trained staff, and it is hence impossible to compare and judge the reliability of the data; (2) no systematic field survey using adequate methods has ever been done for the whole potential distribution area; (3) no scientific field project addressing the ecology and life history of the Balkan lynx was ever carried out; (4) earlier assessments based on qualified guesses for parts of the distribution area at best and do not allow to judge the trend of the population in the recent past (see 1.2) . It is a general believe that the Balkan population is decreasing, but we do not have any data to confirm it. The most important areas for the lynx were recently zones of war and social disturbances. Peace and economic welfare must have first priority for local people and national authorities. This must, however, not conflict with nature conservation projects, which may offer a chance for co-operation in favour of the common natural heritage.

In spite of the lack of coherent data, the information on the distribution of the species seems to be consistent between the countries involved (see map) and confirm earlier guesses. Lynx still occur in the mountains along the Albanian-Macedonian border, but the Drin valley splits the population. In FYR Macedonia, the known distribution is mainly in national parks. This might be an artefact of the presence of observers and an established reporting system; the area outside and between national parks must be investigated using adequate survey techniques. The abundance estimated from the number of lynx given for Albania and FYR Macedonia, respectively, differ between the two countries (Table 2.3), but they are within the range of possible densities if compared with the information from radio-telemetry projects from other regions.

The main threats are considered to be forest management (extraction of wood), illegal killing (no data available for FYR Macedonia), limited prey base and competition (wolf) (Table 3). Furthermore, intrinsic factors such as restricted range, low density and limited dispersal were mentioned by all contacts, no surprise given the smallness of the population. From the size and the distribution, the Balkan lynx population must be considered critically endangered – Europe's only autochthonous population in this category (see Conclusions, chapter 3) – and needs effective protection and immediate conservation actions. However, before a conservation and recovery programme can be started, basic information on the ecology of the lynx, on the environmental conditions, the threats, and the human dimension aspects must be available.

The next steps towards a recovery programme for the Balkan lynx population could be:

1. To carry out a field survey in the whole potential distribution range of the Balkan lynx by means of interviews with local people, snow-tracking, kill assessment etc.
2. To perform a habitat suitability and prey base assessment for the entire range.
3. To rise awareness among public and private institutions and to encourage international co-operation.

Based on the existing knowledge, an assessment of the ecological potential (habitat and prey), and with a clear commitment of the authorities in charge in the range countries, all partners should then work out a recovery plan for the Balkan lynx population.

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