



STATUS AND MANAGEMENT OF THE WOLF IN POLAND

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Abstract

*The history, past status and distribution of the wolf *Canis lupus* in Poland is presented. After being persecuted as a pest, the wolf was given game species status in 1975, with a close season from 1 April to 31 July. The wolf inhabits about half of Poland with two core areas in the southeast and northeast of the country. Two main methods of hunting wolves (from a tower and using fladry) are described. Management attitudes and threats to the wolf population are also discussed.*

Keywords: Poland, wolf management.

INTRODUCTION

The antagonism between wolf and man dates back to the beginning of human history. Wolves were always considered competitors for the same animal resources and could be dangerous to man. Prejudices and conflicts increased as farming and ranching expanded, and wolves became extinct by the end of the 19th century in most parts of densely populated Europe, only limited populations surviving in some areas (Bibikov, 1985).

Poland is the last country in Central Europe where a relatively large wolf population still exists. However, since no research on this predator was carried out until the 1980s information on wolves in Poland is often inaccurate and based on old data (Sumiński, 1975a). The aim of this paper is to describe the history, presence and threats to wolves in Poland. It also outlines management practices and gives a review of Polish literature on wolves which is inaccessible to most scientists.

METHODS

Data of the Ministry of Environment Protection, Natural Resources and Forestry on estimated population size of wolves in Poland from 1953 to 1990 were consulted. These data (and data on game ungulates) were established by government foresters or members of the Polish Hunting Association on the basis of snow-tracking censuses (Anon., 1974), and currently using 'year-round' observations.

Ministry of Environment Protection, Natural Resources and Forestry data on numbers and places

where wolves were killed from 1953 to 1990 were also consulted. Such data are recorded within each administrative unit of the country.

Information on numbers of ungulates killed by wolves from 1985 to 1992 were obtained from the Forest Administration District of Krosno (southeastern Poland) and the Game Management Department of the Białowieża Forest Administration (northeastern Poland).

In addition, Polish literature on wolves was reviewed.

RESULTS

Historical status and distribution

The wolf has inhabited Poland since the Glacial Period (Wolsan, 1989). First records of conflict with man have been found in documents from some administrative areas dating back to the beginning of the 19th century, and several cases of people being killed by wolves have been described up to the middle of the 19th century (Krawczak, 1969). There are similar reports up to the end of 19th century from Sweden and Finland, and to the mid-1950s from Russia (Pavlov, 1990).

In areas of wolf abundance detailed regulations for their extermination were introduced, defining the obligations of local residents. Poisons were used and special wolf hunts involving the inhabitants of many villages carried out. High bounties were paid for wolves killed and heavy fines levied on those citizens who did not follow the regulations (Okarma, 1987).

As a result, the wolf's range gradually decreased and the population west of the Vistula river was eradicated by the end of the 19th century. By the early 1900s they were restricted to a few forested and inaccessible regions of northeast and southeast Poland. In the late 1910s wolves again expanded west, and were present in greater numbers than before in eastern Poland and the Carpathian Mountains (Wolsan & Bieniek, 1987).

In 1927, the wolf was for the first time declared a game species by Polish wildlife law, but was simultaneously classified as a pest which could be controlled using any techniques available (poisoning, trapping, shooting, killing pups in dens). In the 1930s regular wolf hunts and persecution resulted in a considerable decrease in wolf numbers (Okarma, 1987).

During the 1940s (the period of World War II) wolves rapidly increased and were even observed far west of the Vistula river. In the early 1950s the population size was estimated to be nearly 1000 individuals

(Sumiński, 1975a) and some losses in livestock and an increase in the number of wildlife killed were also recorded (Kowalski, 1953b).

In 1955 a wolf control programme was launched by the government. As a result a special wolf control service was created, the wolf was excluded from the game species list, and high bounties were paid both for adults and cubs killed: 1000 Polish złotys (Pzl) for a wolf killed during an individual hunt, 500 Pzl during a co-operative hunt, and 200 Pzl for a wolf cub killed in its den. The average monthly wage in Polish industry at this time was about 1100 Pzl (Anon., 1956). A special book on wolf biology and techniques for wolf extermination was also published (Kowalski, 1953a). One of the most frequently used methods was poisoning with luminal. During the most intense wolf control programme a large number were killed: 421 individuals in 1956, 352 in 1957 and 421 in 1958. The wolf plague (as it was called) was officially announced to be over by 1959 (Siedlecki, 1959); however, the bounty was increased to 1200 Pzl in 1960 (Anon., 1960) and 1500 Pzl in 1964 (Anon., 1964).

In the early 1970s the wolf's range was limited to the forests of north and southeastern Poland (less than 10% of the total area). The population was estimated

to be below 100 individuals and its continued survival in Poland was doubtful (Sumiński, 1975a). Subsequently, the issue of wolf protection gained more and more support (Sumiński, 1970; Buchalczyk, 1972; Klarowski, 1973) and the policy of wolf management slowly began to change. In 1973, poisoning was banned and the bounties were abandoned all over Poland except in the areas where there were still relatively high wolf populations: in northeastern Poland a bounty of 1500 Pzl was still paid and in southeastern Poland it was increased to 3000 Pzl (Anon., 1973). In comparison the average monthly wage at this time in the state sector of industry was 2800 Pzl (Anon., 1975a).

In 1975, the wolf was declared a game species (Anon., 1975b), which considerably improved its status. A close season from 1 April to 31 July was introduced all over Poland except in areas of high densities, where hunting was allowed throughout the year. Since 1981, the wolf has had annual seasonal protection over the whole country.

Current distribution

At present wolves inhabit about half of the country (approximately 160 000 km²), with two core areas of highest density in southeastern and northeastern Poland (Fig. 1) where wolves occur continuously even in low-

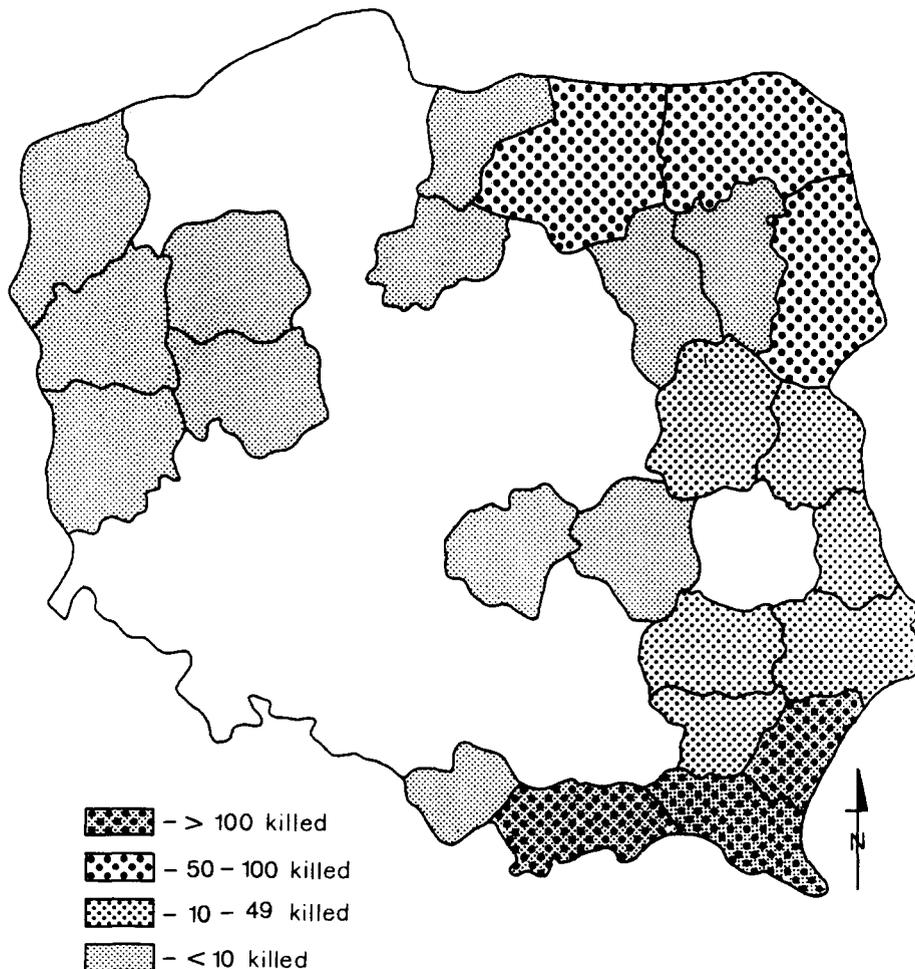


Fig. 1. Occurrence and relative density of wolves in Poland, on the basis of locations of wolves killed within individual administrative provinces from the 1980/81 to 1990/91 hunting seasons (courtesy of the MEPNRF).

density years (Sumiński, 1975a; Buchalczyk, 1983). In the remaining areas the density is low (Okarma, 1989). The total population size has recently been reported to be above 900 individuals.

Estimations of wolf numbers were conducted up to the late 1980s on the basis of snow tracking censuses, but Trokowicz (1980) proved in the Biebrza river valley that this method overestimated the actual number of wolves.

The low reliability of official figures of game numbers forced the Ministry of Environment Protection, Natural Resources and Forestry to give up the snow tracking method and introduce 'year-round' observations—supported by driving censuses. This method is very subjective, the data compiled are not comparable and their accuracy is unknown.

Assuming that the official figure is unreliable and that it considerably overestimates the actual wolf number (Trokowicz, 1980), a method using harvest distribution and numbers of wolves killed was used to obtain a more precise picture of the wolf distribution in Poland (Okarma, 1989) (Fig. 1). The number and localities of wolves killed are the only figures in Poland for which the accuracy is unquestionable.

The distribution of these kills showed that the wolf has expanded its population range in Poland since its designation as a game species in 1975 (Okarma, 1989). A comparison can only be made between the early and late 1980s because in 1975 Poland was divided into totally new provinces, making it virtually impossible to compare the distribution of wolves killed over the long term (i.e. from the 1950s until the 1990s) as the harvest of all game species was registered within each particular province.

The density of wolves is highest in southeastern Poland (Carpathian Mountains). Of all wolves killed in Poland during the 1980/81 to 1988/89 hunting seasons, more than 60% were killed in this region. Fewer were killed in the other core area in the northeast of the country, where the wolf density is lower.

Official data on the harvest of wolves in Poland showed that the number destroyed has varied considerably since the registration of kills was started in the early 1950s (Fig. 2). The highest number were killed during the most intensive period in the control programme (1955–1959), though the accuracy of these official data should be treated with some caution, as

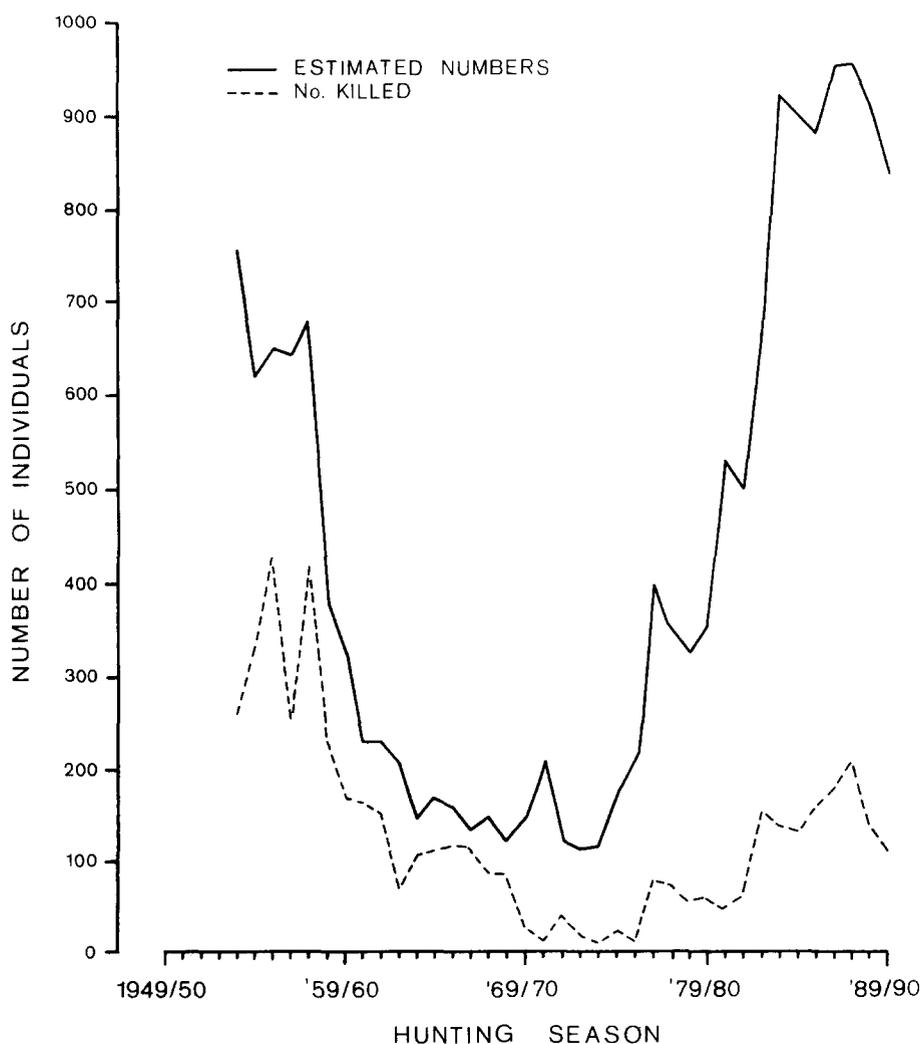


Fig. 2. Official estimates of the wolf population size and numbers of wolves hunted in Poland from 1953 to 1991 (courtesy of the MEPNRF).

there were many cases where wolf-like skulls and pelts of large domestic dogs were shown to attract the bounty. An accurate method for distinguishing wolf and domestic dog skulls has only recently been described (Sumiński, 1975*b*), and it is impossible to estimate how many of these old specimens, recorded as wolves, were simply domestic dogs.

A relatively low number of wolves were killed from the late 1960s through to the early 1980s. This trend reflected the small area occupied by wolves and the low interest in wolf hunting. However, the 1982/83 hunting season showed a sudden increase in the numbers killed (Fig. 2). This sharp increase marked the beginning of a continuing increase in hunting pressure on the wolf population. The factors contributing to this are: (1) wolves have recently been recognised by hunters as a very attractive prey; (2) wolves occur in relatively large numbers only in specific areas of Poland; and (3) although hunting is difficult and time-consuming it is considered to be very exciting. In addition, the monetary value of the wolf trophy (pelt and skull) has increased rapidly due to the severe economic crisis (from the early 1980s) supported by high inflation in Poland. The wolf trophy can currently be sold on the open market for approximately 4–5 millions Pzl (200–300 US\$), which is the equivalent of one-and-a-half months' work for the average Polish wage-earner (author's unpublished data). Thus considerable poaching exists (mainly by hunters killing wolves without a licence), the extent of which is impossible to determine.

In spite of the fact that recent hunting pressure on wolves has been so high, the number of animals killed annually has decreased during the last four years, from more than 211 in the 1987/88 hunting season to 110 in 1990/91 (Ministry of Environment Protection, Natural Resources and Forestry, pers. comm.). Official estimates of wolf numbers also showed a decreasing trend (Fig. 2). This could be an effect not only of poor hunting conditions (lack of snow) during the last three very mild winters, but also of an actual decrease in the number of wolves.

Management and hunting methods

In Poland all game species, including the wolf, are the property of the state. Most of the country is divided into hunting units (areas of at least 3000 ha), with the most productive being administered by the state forest administration districts, and the others by local hunting clubs which lease these areas from the state.

The management of all game species, therefore, is the responsibility either of the government forest administration or hunting clubs, according to the regulations set by the Ministry of Environment Protection, Natural Resources and Forestry and the Polish Hunting Association. In each hunting unit estimations of game numbers are made and harvest bags planned. Hunters must have a licence, and may only use rifles and shot-guns to kill wolves.

Wolves are hunted in Poland for their trophy (skull



Fig. 3. A tower used for hunting wolves (drawing by M. Szlachciuk).

and pelt), using two main methods: shooting from specially built hunting towers and using 'fladry'.

Wolf hunting towers (Fig. 3) are built on the edge of forest or at the edge of openings inside the forest. They are wooden constructions, 5–10 m high, and have a small hide on top, with walls thick enough to make it possible to stay throughout the night regardless of the weather. The hide has a small door and one or two small windows through which to shoot. About 20–30 m from the tower a cow or horse carcass is placed on the ground, after which the hunter waits in the tower for the wolves to appear.

The second and more effective way of hunting is using a device called 'fladry' (Fig. 4)—long ropes with strips of red material (40–50 cm long and about 10 cm wide) attached every 35–40 cm. After localizing a wolf pack in a resting place hunters surround the area with fladry. This is done in complete silence (as wolves can easily be disturbed), with the ropes hung on trees, bushes and sticks so that the ends of the material strips do not touch the ground. After the whole area is surrounded, hunters move to one place on the line and several metres of rope are removed at this location. Then, two or three hunters enter the surrounded area making only a slight noise. Disturbed wolves try to escape to a safe place, but they do not cross the fladry, walking instead along the fladry until finally they find the gap, where they are shot by hunters. Entire wolf packs are often killed in this way, but the



Fig. 4. Wolves inside 'fladry' (drawing by M. Szlachciuk).

actual mechanism of this behaviour has not yet been explained.

Management policy in Poland has always reflected an image of 'the big bad wolf' with a clear tendency to limit their numbers. The main reason for this was losses to livestock and wildlife. In the 1950s livestock losses were recorded every year, e.g. during November 1951–October 1952 wolves were reported to have killed 30 cows, 892 sheep, 2 horses, 20 pigs (Kowalski, 1953b). Nowadays these losses are so small, with no economic importance, that no records are kept.

Currently much more wildlife, mainly red deer, are killed by wolves than in the 1950s. Such a shift in predatory behaviour and preference on the part of the wolves could be a result of at least a four to five times increase in red deer *Cervus elephus* (Ministry of Environment Protection, Natural Resources and Forestry, pers. comm.), which are the main prey of wolves both in the lowlands (Reig & Jędrzejewski, 1988; Jędrzejewski *et al.*, 1992) and in the Carpathian Mountains (Leśniewicz & Perzanowski, 1989). As no records are kept of wildlife losses in Poland as a whole only data from some areas are available (Table 1).

In spite of the fact that wolves have been shown to kill mostly red deer calves and females (Okarma, 1984, 1991) and juveniles among wild boar *Sus scrofa*

(Jędrzejewski *et al.*, 1992), which are least preferred by hunters, the management tendency to place severe limits on wolf numbers still continues, reflecting the persistence of 19th century views.

As such opinions now have less public support, even among hunters, the official policy towards wolves has recently stressed a need to keep a reasonable number of wolves. However, a very long open season is maintained, the number of licences issued for wolf hunts is very high, and the number of animals that may be shot is larger than the size of local populations (Brzeziński, 1991). This, and ignorance concerning its biology and predation, is the major threat to the future of the wolf in Poland.

The difficult economic situation in Poland could, however, have some positive effects on the wolf population. Because they need the money local forestry administration units have, since the 1990/91 hunting season, introduced relatively high fees for wolves (up to 500 000 Pzl or 40 US\$, which is now about 25% of an average month's salary). This could, to some extent, reduce hunting pressure on the wolf.

All facts mentioned above show that there is an urgent need to consider the wolf as an endangered species in Poland. To reach this goal two major actions are required: (1) intensify research on wolf ecology—especially its interactions with large ungulate populations; and (2) start an extensive programme of educating wildlife managers, hunters, and foresters to demonstrate the actual role of wolves in the ecosystem, simultaneously intensifying a campaign to protect them.

The beginnings have already been made. Intensive research is being carried out on the ecology of the wolf and lynx *Lynx lynx* in the Białowieża Forest, and for research purposes hunting of these predators has been prohibited in the whole area since 1990. Results of research obtained are popularized by articles in newspapers, periodicals (Jędrzejewska *et al.*, 1991), TV and radio programmes.

The campaign to protect the wolf in Poland, still opposed by many wildlife managers, may reach its goal in two stages. First, by reducing the very long hunting season to four months (November–February), and secondly by protecting the wolf in areas where it occurs in low densities and extending protection over the whole

Table 1. Numbers of elk *Alces alces*, red deer *Cervus elaphus*, roe deer *Capreolus capreolus* and wild boar *Sus scrofa* killed by wolves in the Białowieża Primeval Forest (northeast Poland) and in the Forest Administration District (FAD) of Krosno (southeastern Poland) from 1985/86 to 1991/92 hunting seasons (Miłkowski, 1986; Okarma, 1992)

Hunting season	Białowieża Forest (about 623 km ²)				Krosno FAD (about 1100 km ²)		
	Elk	Red deer	Roe deer	Wild boar	Red deer	Roe deer	Wild boar
1985/86	—	37	4	4	310	69	68
1986/87	—	43	18	—	282	86	91
1987/88	1	36	13	4	232	93	41
1988/89	—	17	5	—	254	104	75
1989/90	—	19	3	1	283	128	83
1990/91	1	26	7	—	252	133	89
1991/92	1	49	13	18		No data	

country. The first major success was recently achieved, when the wolf was declared a protected species in the county of Poznań (western Poland) from 1992 (Anon., 1992). This will certainly stimulate wolf protection efforts in adjacent administrative units, and in the near future bring protection to the wolf throughout the whole country.

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