

## Distribution of rare and endangered mammal species in Silesia during the years 2004-2008

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**Abstract.** Distributions of 12 mammal species (*Castor fiber*, *Spermophilus citellus*, *Muscardinus avellanarius*, *Glis glis*, *Lutra lutra*, *Mustela erminea*, *Mustela putorius*, *Canis lupus*, *Ursus arctos*, *Lynx lynx*, *Alces alces*, *Rupicapra rupicapra*) in Silesia during the years 2004-2008 are presented on maps. A rough estimation of their numbers is also provided for seven regions in Silesia (Katowice [Upper Silesia], Opole, Wrocław, Wałbrzych, Legnica, Jelenia Góra and Zielona Góra regions). The study is based on inquiries addressed to all (N=871) forest districts in Silesia. Data were obtained from 730 (83.8%) forest districts. Population dynamics of those species were also traced as far back as literature records allowed. For many of these species (*Castor fiber*, *Glis glis*, *Lutra lutra*, *Alces alces*, *Canis lupus*) an increase of their numbers in the recent few decades have been shown.

**Key words:** inquiry, population dynamics, *Castor fiber*, *Spermophilus citellus*, *Muscardinus avellanarius*, *Glis glis*, *Lutra lutra*, *Mustela erminea*, *Mustela putorius*, *Canis lupus*, *Alces alces*, *Rupicapra rupicapra*.

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### I. INTRODUCTION

Since 1925 (PAX 1925), no systematic attempt was undertaken to review the distribution of mammal species in Silesia until 1983, when PUCEK and RACZYŃSKI (1983) presented an atlas of their distribution in the whole territory of Poland. Although most species in this atlas were unrecorded, it has remained till present the only source of information on the distribution of many species in Silesia, as well as in other provinces in Poland.

For some very common species, such as *Sorex araneus*, *Talpa europaea*, *Mus musculus*, *Apodemus sylvaticus*, *Microtus arvalis*, *Lepus europaeus*, *Vulpes vulpes*, or *Capreolus capreolus*, there is not much sense to present their distribution in the form of atlas maps, especially in such a small scale as proposed by PUCEK and RACZYŃSKI (1983). There are, however, a number of mammal species for which the distribution can still be well presented in the form of an atlas or in other similar ways. For some of those species, data from forest inspectorates and local hunting associations can be fairly reliable and valuable sources of information. In the Atlas edited by PUCEK and RACZYŃSKI (1983) and subse-

quently in many other publications, these sources of information have been, however, neglected. As a consequence, our present knowledge on the distribution of many mammal species, such as *Glis glis*, *Ondatra zibethicus*, *Castor fiber*, *Oryctolagus cuniculus*, *Mus-tela erminea*, *Mustela putorius*, *Nyctereutes procyonoides*, *Lutra lutra*, *Sus scrofa*, *Alces alces*, remains strikingly incomplete.

In this paper, for the first time since the year 1983, the distribution of some less common, less known and endangered species are presented on maps with a net of forest districts. Excluded are all mammal species introduced in Silesia, such as *Ovis musimon*, *Dama dama*, *Cervus nippon*, *Nyctereutes procyonoides*, *Neovison vison*, *Procyon lotor*, *Ondatra zibethicus*, *Oryctolagus cuniculus* (KOPIJ 2014). Most of them are regarded as invasive species, negatively affecting our indigenous fauna. So, even if still rare, they do not require any form of protection. Their current status in Silesia will be the subject of separate publication.

In this paper, much detailed mapping, with much higher resolution than that in traditional atlases, is used. The study period is restricted to five years only, not to more than 50 years as in the former Atlas (PUCEK & RACZYŃSKI 1983). This makes the presented distributional maps much more precise and more reliable.

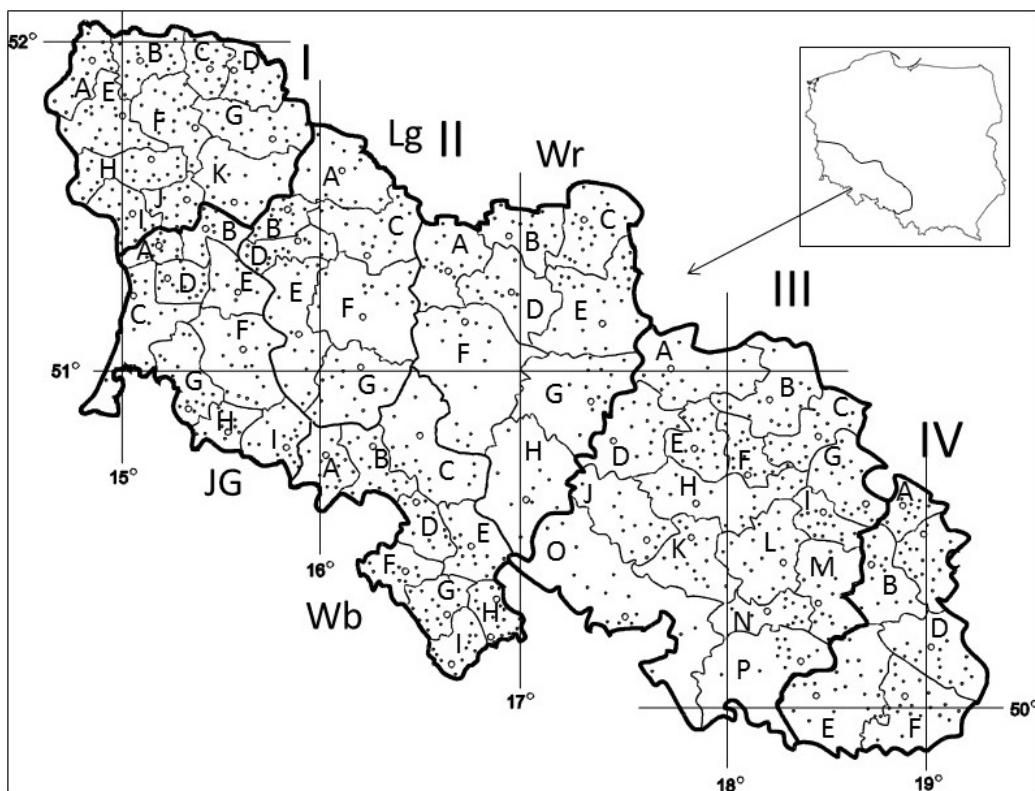
## II. MATERIAL AND METHODS

The distribution of selected mammal species in Silesia during the years 2004-2008 have been determined by means of an inquiry directed to particular forest districts ( $N=871$ ) through forest inspectorates in Silesia (ca. 42 000 km<sup>2</sup>), within its boundaries as delineated by DYRCZ et al. (1991) (Fig. 1). It was requested in the inquiry whether the species does occur currently in the forest district, and if so how many specimens occur in this forest district.

Information was obtained from 730 (83.8%) forest districts within 57 (89.1%) forest inspectorates. No information was obtained from the following forest inspectorates: Kup, Milicz, Wołów, Wałbrzych, Raszów, Wymiarki and Lubsko. However, for Milicz Forest Inspectorate data were collected directly in the field.

Distribution of given mammal species is presented on a map with points representing the site of the office building of a particular forest district, within forest inspectorate encompassing dozen or so forest districts. The forest inspectorates in Silesia fall within three Regional Directorships of the State Forests: Katowice, Wrocław and Zielona Góra. Katowice RDSF is divided here into two parts: eastern, roughly corresponding with Upper Silesia, and western corresponding with Opole Silesia. Wrocław RDSF is divided into four parts which roughly conforms to the former voivodeships (provinces): Wrocław, Wałbrzych, Legnica and Jelenia Góra (Fig. 1). In addition, for most species all forest districts (within given forest inspectorates), where a given species was recorded, are listed in alphabetic order.

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**Fig. 1.** A map of the study area. Legend: small dots: seat of forest district, small open circles: seat of forest district inspectorate, thick lines: province boundaries (I, II, III, IV), medium lines: region boundaries within Lower Silesia province (Wr, Wb, Lg, JG), thin lines: boundaries of forest district inspectorates (A, B, C...).

**I: Southern part of the Lubuskie province:** A: Gubin, B: Brzózka, C: Zielona Góra, D: Przytok, E: Lubsko, F: Krzyżkowice, G: Nowa Sól, H: Lipinki, I: Wymiarki, J: Żagań, K: Szprotawa; **II: Lower Silesia:** Wr – Wrocław region: A: Wołów, B: Ząbkowice Śląskie, C: Milicz, D: Oborniki, E: Oleśnica, F: Miękinia, G: Oława, H: Henryków; Wb – Wałbrzych region: A: Kamienna Góra, B: Wałbrzych, C: Świdnica, D: Jugów, E: Bardo, F: Zdroje, G: Bystrzyca Kłodzka, H: Łądek Zdrój, I: Międzylesie; Lg – Legnica region: A: Głogów, B: Przemków, C: Lubin, D: Chocianów, E: Złotoryja, F: Legnicka, G: Jawor; JG – Jelenia Góra region: A: Ruszów, B: Świętoszów, C: Pieńsk, D: Węgliniec, E: Bolesławiec, F: Lwówek, G: Świebodzice, H: Szklarska Poręba, I: Śnieżka; **III: Opole Silesia:** A: Namysłów, B: Kluczbork, C: Olesno, D: Brzeg, E: Kup, F: Turawa, G: Lubliniec, H: Opole, I: Zawadzkie, J: Tułowice, K: Prószków, L: Strzelce Opolskie, M: Rudzieniec, N: Kędzierzyn, O: Prudnik, P: Rudy; **IV: Upper Silesia:** A: Koszęcin, B: Brynek, C: Świeklaniec, D: Katowice, E: Rybnik, F: Kobiór.

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### III. REVIEW OF SPECIES

#### RODENTIA

##### European beaver *Castor fiber*

The first literature record of the species in Silesia goes back as far as the early 11<sup>th</sup> century (THIETMAR VON MERSEBURG 1012-1018): ‘*iuxta amen, qui Pober dicictus sclavonice, Castor latine*’. This statement constitutes actually the first literature record of any animal species from Silesia, and possibly from Poland at large. In the Middle Ages, the beaver was fairly common all over Silesia (SCHWENKFELD 1603), when hunting was restricted only to the aristocratic families from the Piast Dynasty. However, due to excessive hunting in subsequent centuries, the beaver suffered a widespread decline, so much that during the years 1760-1770, only a few of them survived in the Odra River (KALUZA 1815). The last beaver in this river was shot on 17 March 1778 near Szydłowiec (Brzeg district). Ten years later the last specimen in Silesia was shot on the Nysa Łużycka River near Zgorzelec (PAX 1925).

After a long absence in Silesia, the beaver has been reintroduced in this region in 1985: a pair from Stobnica Station in Wielkopolska province was released on Młyńówka in the Niezgoda forest district, Milicz forest inspectorate (GRACZYK et al. 1986). In addition, a female with three juveniles was also released on 30 September 1993 in the Barycz River above Żmigród (PAWŁOWSKA-INDYK & INDYK 1996).

In 1995 there were four sites with beavers known in Silesia, all in the Barycz Valley: single specimens in Jamnik fish-pond and Barycz River above this fish-pond, and in Barycz River between Ruda Żmigrodzka and Łąki; single families in Koniowskie fish-ponds, Śloneczny Dolny fish-pond and Barycz River above Gadzinowy fish-pond (PAWŁOWSKA-INDYK & INDYK 1996). Additional sites were recorded in 1999 in Dolina Jezierzycy Landscape Park and its surroundings (BARTMAŃSKA & GRYSZKIEWICZ 1999).

During the years 2004-2008, the beaver was reported as apparently already common in Silesia, being especially numerous in the Odra River near Jelcz, Wrocław, Miękinia (mainly in Szczepanów forest district), Gubin and Głogów; Bory Dolnośląskie; lower Bóbr River; Barycz Valley; Widawa, Mała Panew, Ścinawa Niemodlińska and Kłodnica rivers. It has reached the Sudety Mts. in Spalona Dolna (Bystrzyca Kłodzka forest inspectorate), and Polanica (Zdroje forest inspectorate) (Table I, Fig. 2).

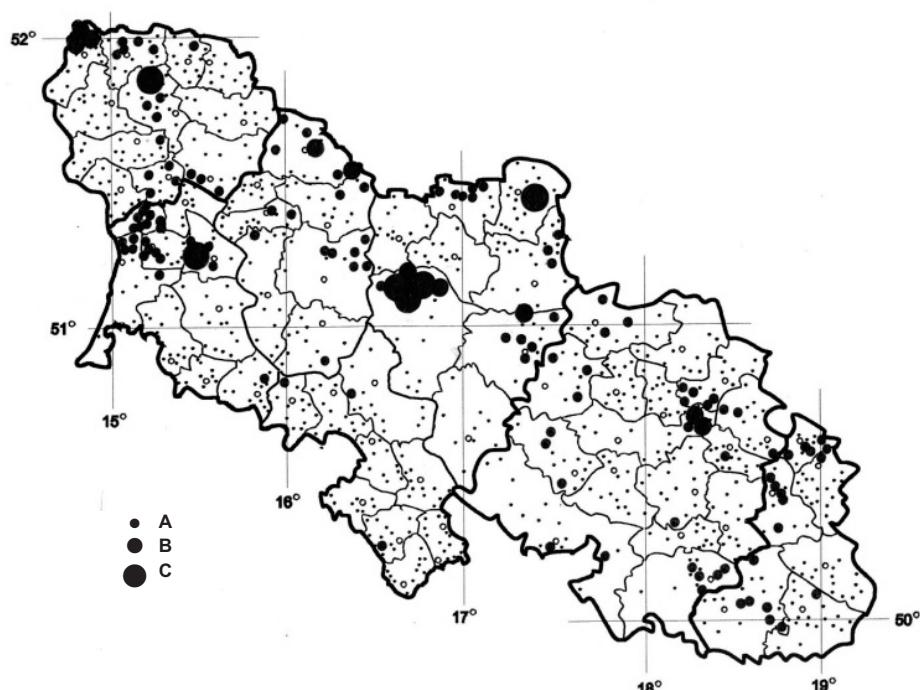
**List of records:** Zielona Góra Region: Szprotawa: Długie, Ilowa, Karliki, Nowe Miasteczko; Lipinki: Złotnik, Olszyniec; Krzysztkowice: Kozła, Krzysztkowice; Zielona Góra: Laski, Świdnica. Lower Silesia: Żmigród: Borek, Chodlewo, Niezgoda, Olsza, Wilkowo; Oleśnica: Ligota Polska, Sokołowice, Sosnówka; Oborniki: Prusice; Oława: Chrząstawa, Janików, Jelcz, Karwiniec, Kotowice, Oława; Miękinia: Chwalimierz, Kołylniki, Mokra, Mrożów, Szczepanów, Wilczków; Bystrzyca Kłodzka: Spalona Dolna; Świdnica: Lubiechów; Głogów: Bielawy, Dalków, Głogówko, Rzeczyca, Zabornia; Lubin: Naroczyce, Orsk, Rudna; Chocianów: Chocianów, Trzmiel; Legnica: Mierzowice, Mołczyn, Raszówka I, Raszówka II, Rogów, Zaborów; Złotoryja: Modła; Jawor: Dobromierz; Kamienna Góra: Marciszów; „Śnieżka”: Karpniki, Strużnica; Pieńsk: Bielawa, Grodzieszów, Piaseczno, Stojanów, Zielonka; Bolesławiec: Brzezinka, Daniel, Głuszec,

Table I

Distribution of European beaver's records (number of families) in forest districts of Silesia in 2004-2008

Region	Number of families		
	1	2	3
Upper Silesia	18	0	0
Opole Silesia	27	2	0
Lower Silesia			
Wrocław	15	3	4
Legnica	18	2	0
Wałbrzych	3	0	0
Jelenia Góra	23	0	1
Zielonogórskie	17	3	1
Total	121	10	6

Jeziory, Osieczów; Węgliniec: Bieniec, Czerwona Woda, Stawiska, Węglowiec, Świętoszów: Dębowiec, Jelenie Rogi, Jeziornik, Lubiechów, Łaszowa, Nowoszów, Przejęsław, Rudawice, Sieraków. **Opole Silesia:** Niemysłów: Gręboszów, Polkowskie, Smogorzów; Kluczbork: Tuły; Brzeg: Dobrzyń, Roszkowice, Rybno; Turawa: Laskowice; Opole: Grodziec, Knieja, Krasiejów; Lubliniec: Sieraków; Zawadzkie: Krupski Młyn, Świerkle, Zarzece; Strzelce: Kłodnica; Prudnik: Moszczanka, Ściborzyce, Trzebina; Rudy Raciborskie: Bargłówka, Krasiejów, Rudy, Solarnia, Szymocice. **Upper Silesia:** Koszęcin: Boronów, Cieszowa, Kalety, Ka-



**Fig. 2.** Distribution of the European beaver in forest districts in Silesia during the years 2004-2008. A: 1 family, B: 2 families, C: 3 families.

mienica, Piłka, Zielona; Brynek: Bezchlebie, Strzybnica, Świnowice; Świerklaniec: Cynków, Kolonia Woźnicka, Miasteczko Śląskie, Nakło, Polski Las, Świerklaniec; Rybnik: Kłokocin, Leboszowice, Szczotki, Wielopole, Woszczyce, Żory; Kobiór: Zgoń.

#### *European ground squirrel *Spermophilus citellus**

SCHWENKFELD (1603) did not make any mention about this species. It was recorded in Silesia for the first time (as ‘very rare’) at the beginning of the 19<sup>th</sup> century (WEIGEL 1806). It had appeared in this province apparently as a result of natural northward expansion from the Czech Republic, probably through the Moravian Gate. KALUZA (1815) reported it as rare in Głubczyce region, but as already ‘common’ in Nysa, Ziębice and Wrocław principalities, and from Środa Śląska surroundings. According to GLOGER (1833), in the 1830’s, it was already widespread and common all over Silesian lowlands; and even ‘very common’ in areas covered with loess soils (i.e. Głubczyce Plateau and Wrocław Plain).

At the beginning of the 20<sup>th</sup> century, the Silesian population of European ground squirrels probably had reached the maximal level of density. Three districts, namely: Strzelce Opolskie, Opole (recorded also in Groszowice and Grudzice, today within the administrative boundaries of the city of Opole) and Niemodlin comprised a stronghold of this species. At this time, it was extremely common at the military range near Łambinowice (Niemodlin district), where during the years 1893-94 more than 4000 individuals were counted, and in the next year as many as 3655 of them were shot (PAX 1925).

However, soon after, the European ground squirrel Silesian population began to decrease in numbers. During the years 1962-1964, 25 sites were still occupied, all located in Opole Silesia only. The largest colonies were located in Kamień Śląski, Nakło, and Gogolin. In Lower Silesia and Zielonogórskie, it became extinct (SURDACKI 1965).

In 1973, it was known only from one large colony (a few thousand individuals) in Kamień Śląski and six smaller satellite colonies in Góra Świętej Anny, Ligota Dolna, Malnie, Otmice, Przywory and Siedlec. By the year 1983, it finally became extinct even there (MĄCZYŃSKI 1985, PROFUS 2001).

In the summer of 2005, a reintroduction project was launched: 79 individuals originating from Hungary were released in grasslands of a disused airport near Kamień Śląski. In 2006 an additional 100 individuals, and in 2007 a further 64 individuals, were released at this site (KEPEL & KALA 2007). The restitution project was continued till 2015 (WIĘCKOWSKA 2015).

#### *Hazel mouse *Muscardinus avellanarius**

Before 1945, it was known from 62 sites in Silesia, including 14 sites in Opole Silesia (Rynarzice near Korfantów, Otmuchów, Sławniowice, Głubczyce, Racibórz, Las Prudnicki, Lubsza near Brzeg, Mała Panew near Opole, Lasowice Wielkie near Kluczbork, Olesno, and four sites between Stobrawa and Prosna); six sites in Upper Silesia, and two sites in Zielonogórskie (PAX 1925, SCHLOTT 1929, BAU 1935).

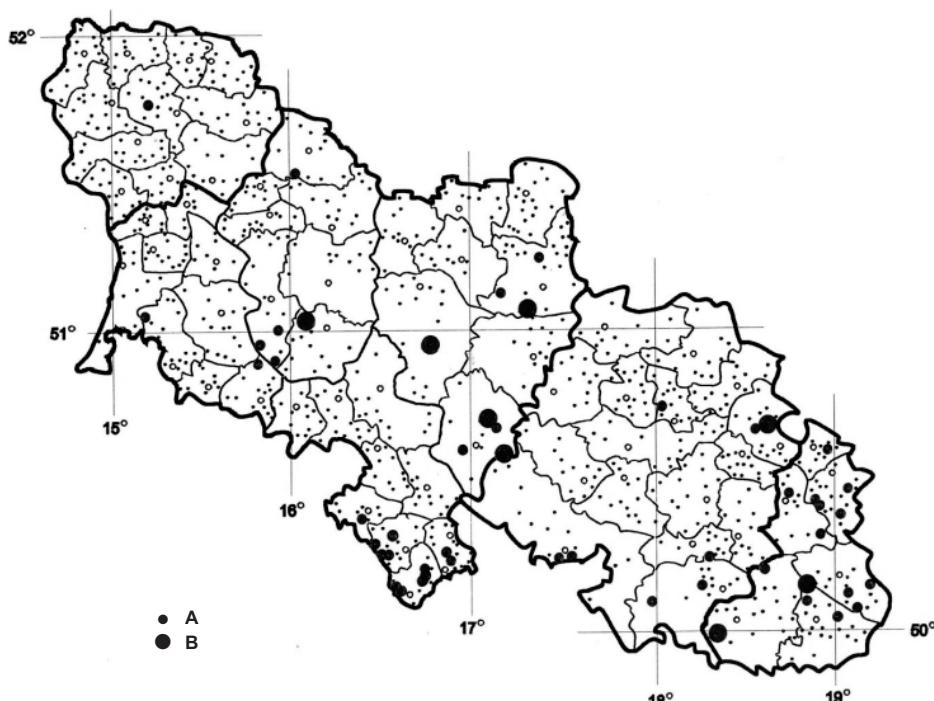
From 1945 through 1990 only a few additional sites were discovered (PUCEK & RACZYŃSKI 1983). However, during the years 1991-2005, it was recorded from 30 UTM squares in the Sudety Mts. alone, but with no records from Opawskie Mts. in Opole Silesia (BARTMAŃSKA et al. 2010).

Table II

Distribution of hazel mouse's records (number of families) in forest districts of Silesia in 2004-2008

Region	Number of families	
	1-2	3-5
Upper Silesia	13	2
Opole Silesia	7	2
Lower Silesia		
Wrocław	4	3
Legnica	4	1
Wałbrzych	12	0
Jelenia Góra	2	0
Zielonogórskie	1	0
Total	43	8

During the years 2004-2008, it was recorded in 51 forest districts, mostly in Upper Silesia (15 records) and Eastern Sudety Mts. (11 records) (Table II). Since World War II, it was recorded (n=9 records) for the first time in Opole Silesia. It appears to be very rare in Zielonogórskie province, where it was recorded only in one forest district. This record requires further confirmation. The hazel mouse reaches Sudety Mts. in "Góra Miłek" nature reserve in Wojcieszów forest inspectorate; Jawornica forest inspectorate near Międzylesie (in nest boxes), and in Maciejowa (Fig. 3).



**Fig. 3.** Distribution of the hazel mouse in forest districts in Silesia during the years 2004-2008. A: 1-2 families, B: 3-5 families.

A precaution should be taken while interpreting the data from 2004-2008, as the hazel mouse could have been confused by some foresters with other similar species, such as *Dryomys nitedula*, *Glis glis*, *Micromys minutus* or even with wood mouse *Apodemus* spp. The data require, therefore, further confirmation by direct field exploration, at least in the stronghold areas, i.e. Eastern Sudety Mts. and Upper Silesia.

**List of records:** **Zielona Góra Region:** Lipinki: Boniec, Olszyniec. **Lower Silesia:** Oleśnica: Bartków, Kątna, Szczodre; Oława: Kopalina, Kotowice; Miękinia: Chwalimierz, Kamienna, Mokra; Henryków: Bobolice, Krzywina, Sarby; Łądek Zdrój: Bielice, Stronie Śląskie; Międzylesie: Goworów, Lesica, Nowa Wieś, Różanka; Bystrzyca Kłodzka: Spalona Góra, Spalona Dolna; „Zdroje” (Szczytna): Bobrowniki; Głogów: Dobromyśl; Złotoryja: Lubiechowa, Rzeszówek, Wojcieszów Górnny; Kamienna Góra: Podlesie, Sędzisław; „Śnieżka”: Maciejowa; Świeradów: Platerówka; Świętoszów: Łaszowa. **Opole Silesia:** Lubliniec: Brzezinki, Zborowskie; Rudy Raciborskie: Baborów. **Upper Silesia:** Świerklaniec: Cynków, Kolonia Woźnicka, Nakło, Pniowiec, Świerklaniec; Kołbiór: Mokre, Mościska, Promnice, Zawada; Katowice: Śmiłowice.

#### Edible dormouse *Glis glis*

According to PAX (1925), it was quite common in Silesia, at the foothills of Sudety Mts. He has shown on a map 52 sites where the species was known to occur before 1925. In that time it was, however, absent in Upper Silesia and very rare in Opole Silesia (recorded only in Głuchołazy, Otmuchów, and Góra Św. Anny), on the right bank of the Odra river in Lower Silesia (Góra, Wołów, Szprotawa) and in Zielonogórskie (Kożuchów only). During the years 1926-1945, six other sites were discovered (PUCEK & RACZYŃSKI 1983): Mała Panew Valley, Stobrawa Valley, Sławniowice (BAU 1935), Prudnik, Pokój, and Ozimek (SCHLOTT 1927).

Between 1946 and 1989, the edible dormouse was apparently known only from Śnieżnik in Sudety Mts. (HAJDUK & STAWARSKI 1959, PUCEK 1983). All sites known before World War II were not confirmed. This suggests that our state of knowledge of this, as well as many other mammal species in Silesia, was very poor during the years 1946-1989, rather than a sharp decline of this species took place during that period.

In the 1990s several authors (INDYK & PAWŁOWSKA-INDYK 1994, BARTMAŃSKA et al. 1996, JURCZYSZYN 1997, PIKULSKA & MIKUSEK 1997, BARTMAŃSKA 1999, MIKUSEK & PIKULSKA 1999, WUCZYŃSKI & GRABOWSKI 2000) have evidenced that the edible dormouse is indeed a common species in the foothills and lower parts of Sudety Mts., as PAX (1925) had already well documented at the beginning of the 20<sup>th</sup> century. Between 1990 and 2000, the edible dormouse was recorded at 44 UTM squares (BARTMAŃSKA et al. 2010), including 28 new sites: Lipowa (UTM square XS32), Żelazowice (XS31) and Skoroszowice (XS32) in the former Wrocław voivodeship (INDYK & PAWŁOWSKA-INDYK 1994); Lipowa (Kondratowice county), Żelowice (Kondratowice county), Skoroszowice near Strzelin, Strachów and Czerwieniec (INDYK & PAWŁOWSKA-INDYK 1994); Miłoszycki Las (WS14) and Olszyna Leśna (WS25) in the Western Sudety Mts. (BARTMAŃSKA et al. 1996); Buczyna Szprotawska (WT40), Góry Sowie Landscape Park (XS10-11), near Wojcieszów (XS64), near Rzeszówka (WS65), near Sędziszowa (WS65), near Rochowice (WS73), near Leszczyna (WS75), Biała Woda

Table III

Distribution of edible dormouse's records (number of individuals) in forest districts of Silesia in 2004-2008

Region	Number of individuals		
	1-2	3-5	>5
Upper Silesia	5	1	0
Opole Silesia	9	1	2
Lower Silesia			
Wrocław	9	1	5
Legnica	8	0	7
Walbrzych	20	2	6
Jelenia Góra	3	0	1
Zielonogórskie	1	0	0
Total	55	5	21

(XR26), Góra Korzyń in Czerwieńczyce forest inspectorate (XR19), Nowa Wieś near Prudnik (XR19), Góra Św. Anny (CA09), near Kletno (XR36), near Jarnoltówka (XR77) (Jurczyszyn 1997); Kaczawa Mts. and Hills (BARTMAŃSKA 1999, POSADOWSKA 2000); near Sieniawka (XS22), in Ligota Wielka forest district (Świdnica forest inspectorate) and Środa Śląska (WCZYŃSKI & GRABOWSKI 2000); Stołowe Mts. (PIKULSKA & MIKUSEK 1997, 2007; MIKUSEK & PIKULSKA 1999).

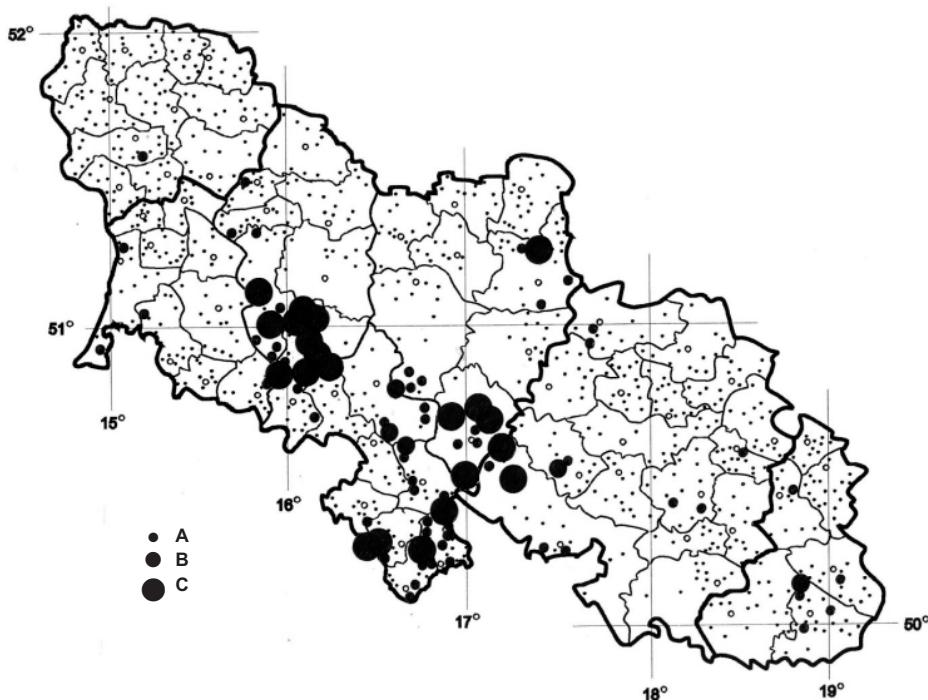
Most of these sites ( $n=21$ ) were confirmed in the first decade of the 21<sup>st</sup> century (BARTMAŃSKA et al. 2010) and additional sites were discovered between 2002 and 2007:

Dębina forest district (Tułowice forest inspectorate), Biechów forest district (Prudnik forest inspectorate), Domaszkowicki Forest (Nysa county) (KOPIJ 2007), Ołowiane Mts. (POSADOWSKA 2002), Złote Mts. (BARTMAŃSKA & MOSKA 2004), Głęboka in Otmuchów Depression (XR49), Sławniowice and Pokrzywna in Opawskie Mts. (BARTMAŃSKA et al. 2010).

By the enquiry conducted during the years 2004-2008, the edible dormouse was reported from 82 forest districts (Table III). Most records (87%) originated from the southern part of Lower Silesia province, where it is especially common in three areas: Kaczawskie Mts. and Kaczawskie Hills, Niemczańsko-Strzelińskie Hills and Eastern Sudety Mts. The species appears to be so common in the Sudety Mts., up to Śnieżnik Massif, that mapping its sites seems to be pointless. In any further studies in this region, attempts should be, therefore, taken now to estimate its population size in selected habitats, as was already initiated by JURCZYSZYN (1997).

In the part of Silesia beyond the Sudety Mts., and especially on the right bank of the Odra River, the edible dormouse is, however, still rare (15 sites) and very rare in Zielonogórskie (one record only) (Fig. 4), so that any new sites still merit our attention.

The enquiry from 2004-2008 has, therefore, fully confirmed our knowledge about the distribution of the dormouse in Silesia, known from the early 20<sup>th</sup> century (PAX 1925). The rapid increase in the discovery of new sites between 1990 and 2000 and especially a high number of such sites recorded during the years 2004-2008 may indicate also a real increase of the dormouse population and its expansion to lowland deciduous (mainly oak and beech) forests. This increase could have been, possibly, caused by a decline of its potential competitor, the red squirrel *Sciurus vulgaris* and/or climate warming. The edible dormouse is inclined to warmer climate, being much more common and widespread in the



**Fig. 4.** Distribution of the edible dormouse in forest districts in Silesia during the years 2004-2008. A: 1-2 individuals, B: 3-5 individuals, C: >5 individuals.

south than in Central Europe. ANDĚRA (1986) also documented that the dormouse is a fairly common species in the Czech Republic, south of the Sudety Mts.

**List of records:** **Zielona Góra Region:** Szprotawa: Leszno Górne, Małomice, Stara Kopernia, Stawy; Żagań: Cietrzewo, Karliki, Trzebów; Lipinki: Złotnik; Krzyżkowice: Biedrzychowice, Bienów, Podgórzycze, Żarków; Zielona Góra: Czerwińsk; Brzózka: Bobrowice, Bronków, Brzezica, Łąkowa; Gubin: Borek, Chlebowo, Drzeńsk. **Lower Silesia:** Oleśnica: Bartków, Maleszów, Zbytowa; Miękinia: Juszczyn, Kiełczyn, Sulistrowiczki, Tąpadło; Henryków: Bobolice, Gościęcin, Krzywina, Niedźwiedź, Sarby, Skalice, Strochów, Witosławice; Bardo: Chwaliszław, Dębowina, Grodziszczce, Jemna, Opolnica, Tarnowa, Złoty Stok; Łądek Zdrój: Kamienica, Konradów, Łądek Zdrój, Nowa Morawa, Młynowiec, Skrzynka, Stronie Śląskie; Międzylesie: Biała Woda, Idzików, Lesica, Nowa Wieś, Różanka; Bystrzyca Kłodzka: Poręba, Spalona Dolna, Spalona Góra, Kamienna Góra, Waliszów; Świdnica: Bielawa, Gilów, Jodłownik, Ligota Wielka, Piskorzów; Przemków: Piotrowice; Chocianów: Krzyżowa; Złotoryja: Jerzmanice, Lubiechowa, Modła, Raszówek, Wilków, Wojcieszów, Wojcieszów Górný; Jawor: Chełmice, Dobromierz, Kaczorów, Kłaczyna, Męćinka, Muchów, Myślów, Myślinów,

Półwieś, Siednica; Kamienna Góra: Grzedy; Świeradów: Platerówka; Jugów: Czerwińczyce, Kalenica. **Opole Silesia:** Namysłów: Świty, Ziemiełowice; Zawadzkie: Piotrowina; Tułowice: Gnojna, Goszczowice, Grabin; Strzelce: Klucze, Kępna; Prudnik: Dębowiec. **Upper Silesia:** Brynek: Tworog; Kobiór: Branica, Mokre, Mościska, Promnice; Katowice: Czułów.

## CARNIVORA

### Common otter *Lutra lutra*

According to GLOGER (1833), the otter was ‘not uncommon’ in all rivers and larger ponds in Silesia, in the 19<sup>th</sup> century. It used to occur even in a castle park in Żagań and in the inner part of Wrocław (in Kallenbachschen Schwimmanstalt) (PAX 1925). In the Sudety Mts., its range extended to 600 m a.s.l. (PAX 1925).

In the 1885/86 hunting season, a total of 282 specimens were shot in Silesia, i. e. 0.7 individuals/100 km<sup>2</sup> (for comparison, in the neighbouring Brandenburg 577 specimens were shot, i.e. 1.4 specimens per 100 km<sup>2</sup>). It was most common in the former Milicz (3.4) and Niemodlin (1.4) districts; fairly common (1.1-2.0) in Rybnik, Gliwice, Góra, Ścinawa, Wołów, Strzegów, Złotoryja, and Kożuchów districts. In other districts, it was rare (<1.0 specimens per 100 km<sup>2</sup>), and was not recorded at all in Głubczyce, Prudnik, Strzelin, Ząbkowice, Dzierżoniów, Wałbrzych, Bolków, Świerzawa, and Lwówek districts (PAX 1925). During the years 1891-1913, the Silesian Fisheries Association paid a premium for the killing of 1045 specimens (PAX 1925).

Due to excessive hunting, as exemplified above, it probably suffered a widespread decline in the following century, reaching a lowest population level in the 1980s. PUCEK and RACZYŃSKI (1983) recorded it in Silesia from a few sites only: the Barycz Valley, Odra River in Opatowice and Osobowice within present Wrocław municipality borders; Odra at Brzostowa near Krośnice, Odra at Dębna near Wołów, and on Widawa near Bierutów and Namysłów, Lasowice Małe and Jełowa. LEŚNICZAK (1984) recorded two additional sites in Opole Silesia: on fish-ponds near Kolonowskie, and on Nysa Kłodzka near Skorogoszcz. ROMANOWSKI (1984) and RUPRECHT (1996) did not provide any additional records.

A systematic survey of the otter in Wrocław voivodeship, Lower Silesia, conducted during the years 1991-1995 by means of an inquiry addressed to foresters, hunters and fishermen (BARTMAŃSKA et al. 1996) revealed a substantial increase in the numbers of the otter. It was recorded in 10 sites in the Barycz Valley (fish-ponds: Radziądz, Ruda Sułowska, Stawno, Potasznia, Żelaźnik; rivers: Barycz, Orla, Prądnia, Kobylarka and Kokot); in the Widawa River and some of its tributaries (Dobra, Oleśnica, Świerzyna, Smolna); in Oleśnica surroundings (fish-ponds at Szczodre, Raków and Nowy Dwór); in the Oława River near Mokry Dwór and Drzemikowice; in lower Bystrzyca River; and in the Odra River near Prężyce, Miękinia and Kamieniec.

During the years 2004-2008, the otter was widespread all over Silesia, recorded in 205 (28.1%) forest districts (Table IV). It has reached Sudety Mts. in Łądek Zdrój forest inspectorate (Stronie Śląskie, Konradów, Wojtówka forest districts), Platerówka and Radostaw forest districts. It appears to be especially common in the following river drainage

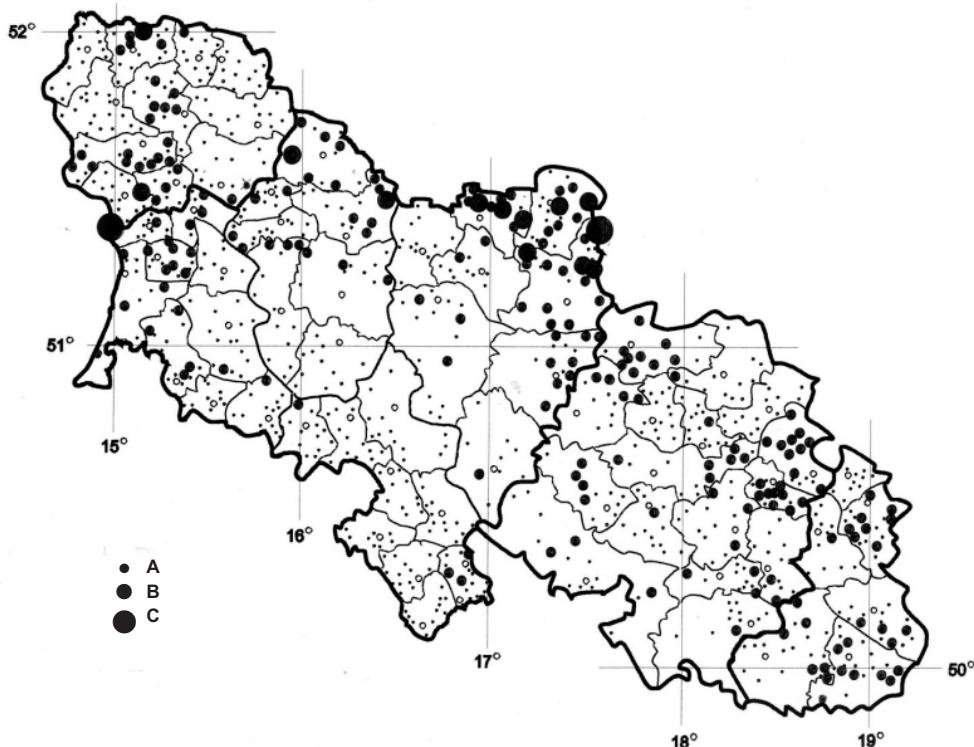
Table IV

Distribution of common otter's records (number of individuals) in forest districts of Silesia in 2004-2008

Region	Number of individuals		
	1	2	3
Upper Silesia	26	0	0
Opole Silesia	57	0	0
Lower Silesia			
Wrocław	37	8	1
Legnica	20	2	0
Wałbrzych	4	0	0
Jelenia Góra	22	0	0
Zielonogórskie	25	2	1
Total	191	12	2

systems: Barycz, Bóbr, Widawa and Mała Panew. The otter was recorded also in some fish-ponds, even the smaller ones, e.g. Dziuplina, Parowa, Niedzwiedzice, Bobolice, Krzyżowa and many small fish-ponds located amidst forests. It also inhabits some canals. The otter is rather uncommon in the Sudety Mts. (12 sites) and in Silesian Lowland on the left bank of the Odra River (10 sites) (Fig. 5). The Silesian population can be roughly estimated at 220-400 individuals (Table IV).

List of records: Zielona Góra Region: Szprotawa: Baszkowo, Czerna, Długie, Hłowa, Łozy;



**Fig. 5.** Distribution of the common otter in forest districts in Silesia during the years 2004-2008. A: 1 individual, B: 2 individuals, C: 3 individuals.

Lipinki: Nowe Czaple, Olszyniec, Suchleb, Złotnik; Krzystkowice: Guzów, Kosynka, Kozła, Krzystkowice, Krzywaniec, Wysoka; Zielona Góra: Buchałów, Laski, Łęczyce, Oklice; Brzózka: Brzezice, Kukadło. **Lower Silesia:** Źmigród: Borek, Chodlewo, Kanionowo, Niezgoda, Olsza, Przywsie, Radziądz, Ujeździec, Wilkowo; Oleśnica: Bartków, Budczyce, Drożecin, Goszcz, Kątna, Moleszów, Niecisów, Ostrowina, Sokołowice, Szczodre, Zalesie, Zbytowa; Oborniki: Prusice; Oława: Bystrzyca, Chrząstawa, Jelcz, Karwiniec, Kopalina, Kotowice, Oleśnica Mała, Oława, Paczków; Miękinia: Chwalimierz, Kamionna, Ratyń, Szczepanów; Henryków: Bobolice; Łądek Zdrój: Konradów, Stronie Śląskie; Głogów: Bielawy, Dalków, Dobromil, Duża Wólka, Głogówko, Wilków; Lubin: Dąbrówka, Koźlice, Naroczyce, Orsk, Tymowa; Przemków: Szklarki; Chocianów: Borówki, Krzyżowa, Trzebień; Legnica: Jaroszówka, Raszówka I, Rogów; Złotoryja: Michałów, Modła, Rokitniki; Kamienna Góra: Marciszów; “Śnieżka”: Maciejowa; Świeradów: Kotlina, Radostaw, Stawy; Lwówek Śląski: Lubomierz; Pieńsk: Bielawa, Grodzieszów, Jerzmanki, Posada; Bolesławiec: Głuszczec; Węgliniec: Czerwona Woda, Gaje, Ołobok, Osiecznica, Parowa, Węgliniec, Zebrzydowa; Świętoszów: Dębowiec, Głębokie, Lubiechów, Łaszowa, Rudawica, Sieraków, Strachów. **Opole Silesia:** Namysłów: Podmiejskie, Polkowskie, Siemysłów, Smogorzów, Świdry, Wierzbica, Ziemięlowice; Kluczbork: Zawiść; Brzeg: Borucice, Kuźnica Katowska, Rogalice, Roszkowice; Turawa: Laskowice; Opole: Dębska Kuźnia, Grodziec, Knieje, Krasiejów, Lipowa, Zawada; Lubliniec: Bór, Brzezinki, Ciasna, Kokotek, Łagiewniki, Łopian, Ponoszów, Rędziny, Wystrzyca, Zborowskie; Zawadzkie: Dębie, Haraszowskie, Kielcza, Krupski Młyn, Łaziska, Mosty, Piotrowina, Rytwiny, Świerkle, Tułowice: Dębina, Głębocko, Grabin, Szydłowiec; Prószków: Przysiecz; Strzelce: Damiec, Gąsiorowice, Klucze; Rudzieniec: Łaskanówka, Trachy; Kędzierzyn: Niezdrowice, Pokrzywnica, Rudzieniec; Prudnik: Biernatów, Kubice, Markowice; Rudy Racioborskie: Nędza. **Upper Silesia:** Brynek: Strzybnica; Świerklaniec: Cynków, Jędrysek, Miasteczko Śląskie, Nakło, Pniowiec, Truszczyca, Polski Las, Świerklaniec; Rybnik: Leboszowice, Ochojec, Woszczyce, Zaczisze, Żory; Kobiór: Branica, Gostyń, Jajosty, Międzyrzecze, Pawłowice, Radostowice; Katowice: Łędziny, Murcki, Podlesie, Reta.

#### *Stoat Mustela erminea*

According to PAX (1925), the stoat was much less common than the least weasel *Mustela nivalis* in Silesia, but its occurrence in this region was poorly known, which holds true to the end of the 20th century. During the years 2004-2008 the stoat was recorded in 148 forest districts widely and quite regularly spread over Silesia (Table V, Fig. 6). It has reached the Sudety Mts. in Śnieżnik, Niedźwiedzia Góra, Skałki and Polanica forest districts.

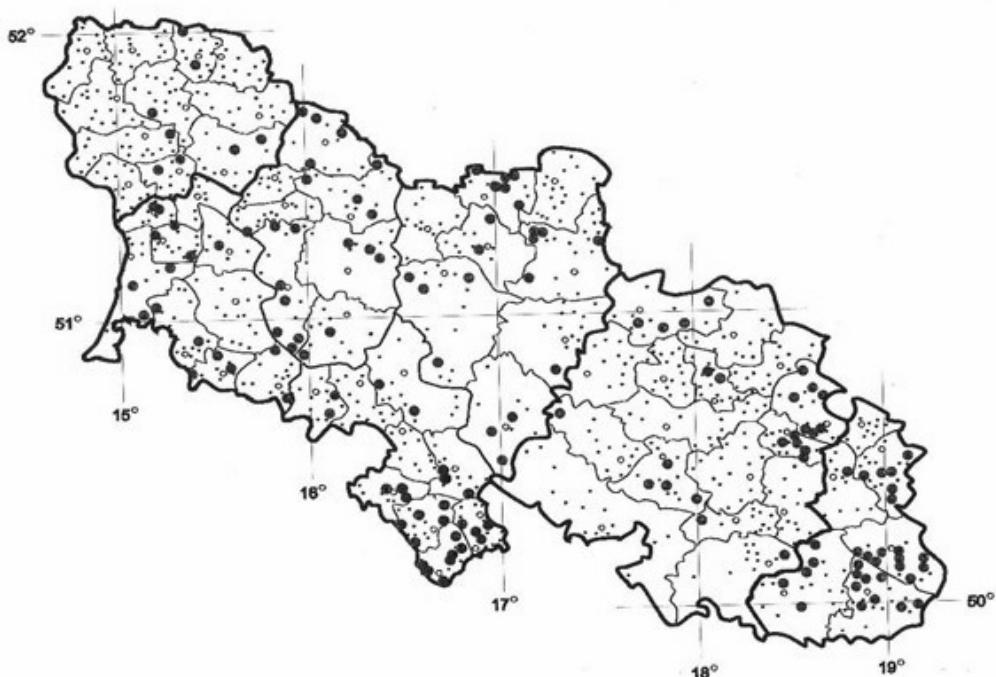
**List of records:** **Zielona Góra Region:** Szprotawa: Długie; Krzystkowice: Biedrzychowice, Kłepina, Żarków; Zielona Góra: Buchałów, Laski, Olcha; Brzózka: Bobrowice. **Lower Silesia:** Źmigród: Kaniowo, Niezgoda, Olsza, Przywsie, Radziądz, Wilkowo; Oleśnica: Budczyce, Grochowno, Ostrowina, Szczodre, Zalesie; Oborniki: Jary, Prusice; Oława: Oleśnica Mała; Miękinia: Chwałków, Juszczyn, Mokra, Wilczków; Henryków: Bobolice, Niedźwiedź, Witosławice; Bardo: Chwalisław, Dębowina, Opolnica; Łądek Zdrój: Bolesławów, Konradów, Nowa Morawa, Stary Gierów, Stronie Śląskie; Międzylesie: Goworów, Lesica, Nowa Wieś, Różanka, Smreczyna, Śnieżnik;

Table V

Distribution of stoat's records in forest districts of Silesia in 2004-2008

Region	N
Upper Silesia	31
Opole Silesia	25
Lower Silesia	
Wrocław	21
Legnica	21
Wałbrzych	26
Jelenia Góra	16
Zielonogórskie	8
Total	148

Bystrzyca Kłodzka: Lasówka, Poręba, Stara Łomnia, Waliszów, Żelazno; „Zdroje” (Szczytna): Orlica, Polanica, Wolany, Zdrój; Świdnica: Bielawa, Lubiechów, Piskorzów; Głogów: Bielawy, Dobromil, Kotla, Wilków; Lubin: Dąbrówka, Koźlice, Orsk, Sieroszowice; Krzyżowa, Parchów; Legnica: Mołczyn, Raszówka I, Szczytniki; Złotoryja: Jerzmanice, Lubiechowa, Modła, Nowy Kościół, Rokitniki, Wojcieszów, Wojcieszów Górnny; Jawor: Kaczorów, Siedmice; Kamienna Góra: Czarny Bór, Domyśl, Klata, Ogorzelec; „Śnieżka”: Bukowa, Maciejowa, Miłków, Skałki; Szklarska Poręba: Orle, Szronowiec, Rozdroże, Szklarska Poręba, Zieleniec; Świeradów: Niedźwiedzia Góra, Platerówka, Stawy; Pieńsk: Bierna, Grodzieszów, Jerzmaniki, Piaseczno; Bolesławiec: Daniel, Dobra, Tomaszów; Węgliniec: Parowa, Węglowiec, Zebrzydowa; Świętoszów: Strachów; Jugów: Božków, Ka-



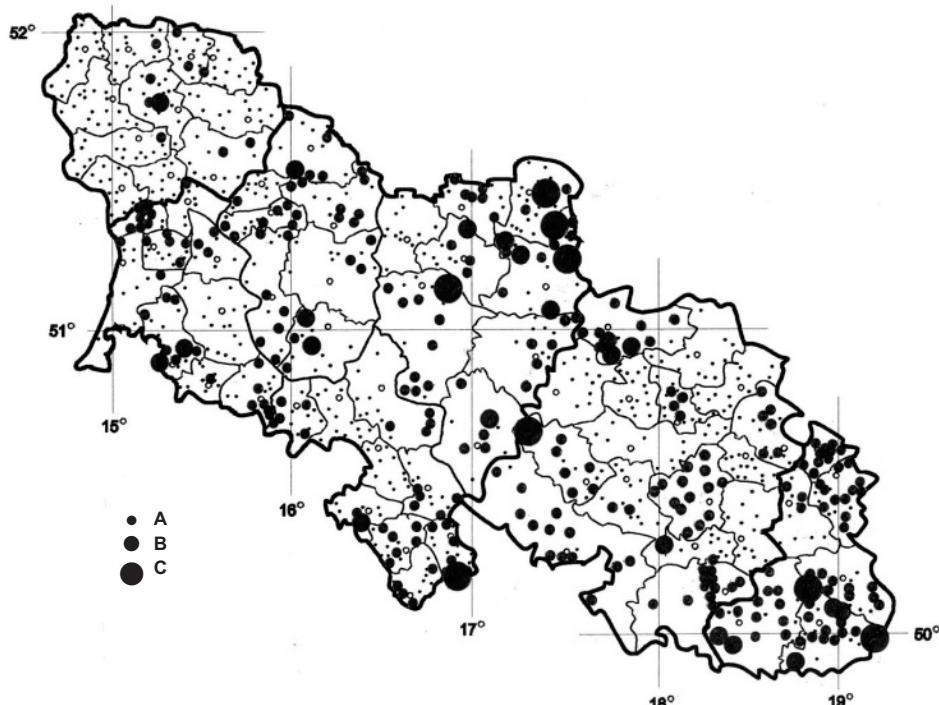
**Fig. 6.** Distribution of the stoat in forest districts in Silesia during the years 2004-2008. Bold dots indicate single records.

lenica, Świerki, Wojbórz. **Opole Silesia:** Namysłów: Komorzno, Siemysłów, Ziemiełowice; Turawa: Jełowa, Laskowice; Lubliniec: Bór, Koszowice, Rędziny, Solarnia, Zborowskie; Zawadzkie: Dębina, Kielcza, Mosty, Piotrowice, Świerkle, Zarzece; Tułowice: Gnojna; Prószków: Chrzelice, Pietna, Przysiecz, Rzymkowice; Rudziniec: Płużnica; Kędzierzyn: Pokrzywnica; Rudy Raciborskie: Bargłówka. **Upper Silesia:** Brynek: Tworog; Świeklaniec: Cynków, Miasteczko Śląskie, Pniowiec; Rybnik: Chwałęcice, Jankowice, Księżnice, Luboszowice, Ochojec; Kobiór: Branica, Gostyń, Międzyrzecze, Wydry, Zawada, Zwaków; Katowice: Czułów, Janów, Łędziny, Makoszowy, Murcki, Ochojec, Podlesie, Reta, Śmiłowice, Zadole.

#### European polecat *Mustela putorius*

In the 19<sup>th</sup> and at the beginning of the 20<sup>th</sup> centuries, it was a common species all over Silesia (KALUZA 1815, GLOGER 1833, PAX 1925). In the 1885/86 season, on average 12 specimens per 100 km<sup>2</sup> were shot in this province. The density was much lower (6.5 individuals/100 km<sup>2</sup>) in the neighbouring Wielkopolska and Brandenburg provinces (PAX 1925).

As shown in Fig. 7, during the years 2004-2008, the European polecat was still widespread and common in Silesia, both in the lowlands and in mountains. It was recorded in 285 forest districts (Table VI). Nevertheless, it suffered a decline in some parts of this prov-



**Fig. 7.** Distribution of the European polecat in forest districts in Silesia during the years 2004-2008. A: 1 family, B: 2 families, C: 3 families.

Table VI

Distribution of European polecat's records (number of families) in forest districts of Silesia in 2004-2008

Region	Number of families		
	1	2	3
Upper Silesia	54	5	2
Opole Silesia	65	4	1
Lower Silesia			
Wrocław	36	4	4
Legnica	32	3	0
Wałbrzych	29	1	1
Jelenia Góra	32	2	0
Zielonogórskie	9	1	0
Total	257	20	8

ince in recent decades (G. KOPIJ, own observ.). It appears to be still commoner than elsewhere in the following forest inspectorates: Rybnik (especially in Wodzisław, Adamowice, Syria forest districts), Kobiór (especially in Wydry, Promnick, Mokre, Jajost forest districts), and Oleśnica (especially in Zbytowa, Ostrowina, and Goszcz forest districts).

The European polecat is common throughout the Sudety Mts., especially in the Bystrzyca Kłodzka, Łądek, Zdroje, „Śnieżka”, and Świeradów forest inspectorates. It has reached Śnieżnik, Niedzwiedzia Góra, Duszniki, Polanica, Waliszów, Poręba and other forest districts.

**List of records:** Zielona Góra Region: Żagań: Baszkowo; Krzysztkowice; Krzysztkowice, Krzywaniec, Żarków; Zielona Góra: Laski, Świdnica; Brzózka: Bobrowice; Lower Silesia: Żmigród: Borek, Kaniowo, Niezgoda, Przywsie, Radziądz, Wilkowo; Oleśnica: Bartków, Budczyce, Dąbrowa, Drożecin, Gola Wielka, Goszcz, Maleszów, Ostrowina, Szczodre, Zalesie, Zamek Myśliński, Zbytowa; Oborniki: Kramiec, Osolin, Pęgów, Prusice; Oława: Jelcz, Krawiniec, Kopalina, Oleśnica Mała; Miękinia: Chwałków, Juszczyn, Mokra, Wilczków; Henryków: Bobolice, Gościęcin, Skalice, Suchowice, Witosławice; Bardo: Błotnica, Chwaliszław, Dębowina, Opolnica, Wojciechowice; Łądek Zdrój: Bielice, Bolesławów, Czernica, Łądek Zdrój, Skrzynka; Międzylesie: Nowa Wieś, Różanka, Smreczyn, Śnieżnik, Waliszów, Wyżki, Żelazno; Bystrzyca Kłodzka: Paszków, Piaskowice, Poręba, Stara Łomnia; „Zdroje” (Szczytna): Borowniki, Chocieszów, Duszniki, Orlica, Polanica, Wolany, Zdrój; Świdnica: Gilów, Ligota Wielka, Piława Góra, Piskorzów; Głogów: Bielawy, Dobromil, Duża Wólka, Obisz, Wilków; Lubin: Dąbrówka, Koźlice, Małomice, Nieszczyce, Orsk, Sieroszowice, Sucha Góra, Tyrczowa; Przemków: Biernatów; Chocianów: Chocianów, Krzyżowa, Nowa Kuźnica, Trzebień, Trzebnice, Trzmiel; Legnica: Mołczyn, Szczętniki, Zaborów; Złotoryja: Jerzmanice, Lubiechowa, Michałów, Modła, Rzeszówek, Wilków, Wojcieszów Górnny; Jawor: Kaczorów, Mącinka, Muchów, Siedmice; Kamienna Góra: Borówno, Chełmsko, Jarkowice, Klata, Szarocin; „Śnieżka”: Bukowa, Jedlinki, Karpacz, Maciejowa, Miłków, Skałki; Szklarska Poręba: Kamienicka Góra; Świeradów: Czernianice, Lubień, Niedzwiedzia Góra, Olszyna, Platerówka, Radostaw, Rębiszów, Stawy; Pieńsk: Bielawa, Grodzieszów, Wykroty; Bolesławiec: Dobra, Głuszec, Golenice, Tomaszów; Węgliniec: Ołobok, Osiecznica, Parowa, Węglowiec, Zebrzydowa; Świętoszów: Dębowiec, Głębokie, Rudawice, Strachów; Jugów: Božków, Czerwieńczyce, Kalenica, Nowa Wieś, Słupiec, Ścinawaka, Świerki, Wojbórz, Zdrojowisko. **Opole Silesia:** Namysłów: Gola,

Komorzno, Niwki, Podmiejskie, Polkowice, Siemysłów, Świty, Wierzbica, Ziemiełowice; Turawa: Dąbrówka, Jełowa, Laskowice, Marszałki; Lubliniec: Bór, Ciasna, Łopian, Ponoszów, Sieraków; Zawadzkie: Wiercholesie; Tułowice: Dębina, Głębocko, Gnojna, Grabin, Łambinowice, Sosnówka, Szydłowiec; Prószków: Chrzelice, Pietna, Rzymkowice; Strzelce: Daniec; Kędzierzyn: Brzezice, Pokrzywnica; Rudy Raciborskie: Bargłówka. Upper Silesia: Brynek: Strzybnica, Świnowice, Tworog; Świerklaniec: Cynków, Imielów, Jędrysek, Kolonia Woźnicka, Lubocz, Miasteczko Śląskie, Nakło, Polski Las, Świerklaniec, Wymysłów; Rybnik: Chwałęcice, Jankowice, Kłokocin, Księżnice, Luboszowice, Ochojec, Oczków, Sytnia, Szczotki, Wielopole, Wodzisław, Woszczyce, Zaczysze, Żory; Kobiór: Czarków, Gostyń, Jajosty, Kobiór, Mokre, Mościska, Promnice, Radostowice, Studzienice, Świerczyniec, Wydry, Zawada; Katowice: Czułów, Imielin, Janów, Makoszowy, Murcki, Podlesie, Reta, Zadole.

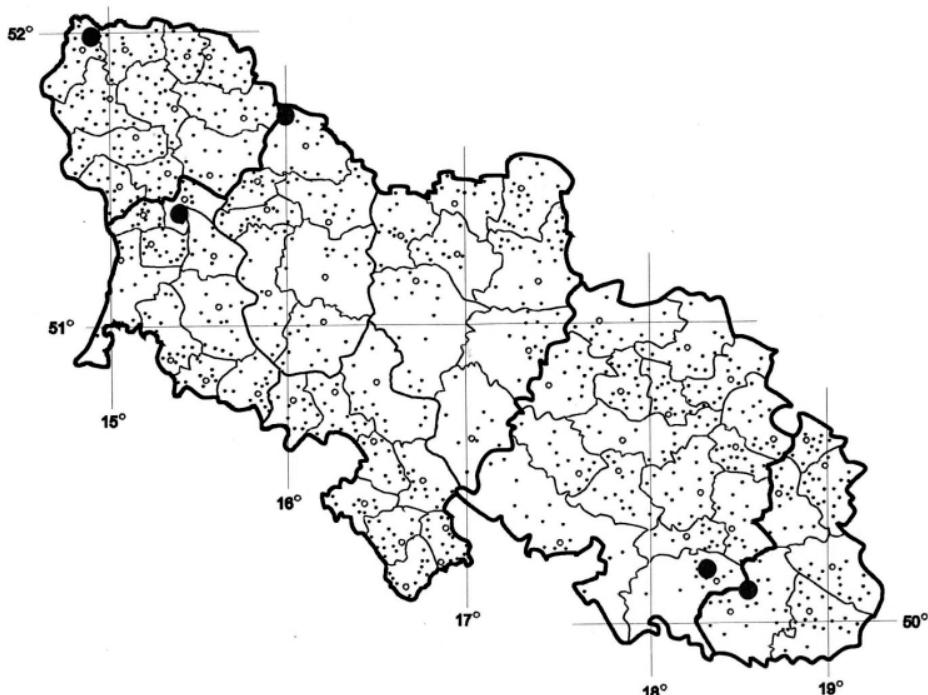
### *Wolf Canis lupus*

The wolf was still regarded by shepherds as a sort of plague in Silesia at the beginning of the 17<sup>th</sup> century (SCHWENCKFELD 1603). In the second half of the 18<sup>th</sup> century it was still relatively common near Polish borders. In 1761 a female with seven pups was found in Karkonosze Mts. In 1773, ca. 40 wolves were shot in forests near Góra. By the year 1787, the last six wolves were exterminated from the Ślęza Massif. During the years 1766-1815, 85 wolves were shot in Dąbrówka Górna forest inspectorate, near Opole (SIMON 1924). So, by the end of the 18<sup>th</sup> century, it became extinct as a resident animal in Silesia (PAX 1925).

In the 19<sup>th</sup> century, the wolf was recorded only on a few occasions as a passing animal in this province: in 1803 one animal was recorded in Karkonosze (HOSER 1803 in PAX 1925); at the beginning of the 19<sup>th</sup> century one wolf was shot near Łądek Zdrój (in Wallenberg-Fenderlina's Collection) and another one near Opole in April 1828; in 1831 one wolf was seen in Kłodzko Land; in 1845 single animals were recorded near Stobrawa (Brzeg district) and near Żagań; in March 1861, one was recorded near Kluczbork; in February 1866, one animal was seen in Kolonowskie; and in 1873 one wolf was shot in Przemkowskie Forests (PAX 1925).

In the 20<sup>th</sup> century, the wolf was recorded in Silesia also only as a passing animal: near Pszczyna and Biskupice in Upper Silesia; in Gorzów Śląski, Turawa, and Kielcza in Opole Silesia; and in Głogówko near Głogów (PAX 1925, PUCEK & RACZYŃSKI 1983). However, a few more passing animals have passed unrecorded during that century, e.g. Mikołeska forest district (Świerklaniec forest inspectorate): five passing animals in 1989; Bielawy forest district (Głogów forest inspectorate) – two individuals in 1998 (J. BORY-SIEWICZ, unpubl.).

During the years 2004-2008, it was recorded in 5 sites: 1) Ochojec (Rybnik forest inspectorate) – two individuals in 2007; 2) Borowiec forest district (Rudy Raciborskie forest inspectorate) – one individual in 2006; 3) Świętoszów forest inspectorate – one wolf in 2003-2005; 4) Bielawy (Głogów forest inspectorate); 5) Dzikowo/Dębowiec/Kaniów forest districts in Gubin forest inspectorate – one pair in 2007 (J. MORYŃ). At least, in the most western and the most eastern sites it appears to be now again a resident species (Fig. 8).



**Fig. 8.** Distribution of the wolf in forest districts in Silesia during the years 2004-2008. Bold dots indicate single records.

#### Brown bear *Ursus arctos*

It was a resident species in Kłodzko Land until the 16<sup>th</sup> century. According to the Count HANS VON HARDEGG's herbal (1534, cited by PAX 1925) brown bears were kept as tamed in a castle in Kłodzko. In the Sudety Mts., the last resident bears were shot in Kłodzko Land in 1664. At the beginning of the 18<sup>th</sup> century the brown bear became extinct as a resident animal in Silesia at large (PAX 1925, SIMON 1927). During the years 1726-1783 it was recorded only as a passing animal on a few occasions in Sudety Mts. (PAX 1925, SIMON 1927). One animal was recorded in Karkonosze Mts. in 1783. In total, five bears were shot in forests near Opole over a period of 12 years (1715-1726) (SIMON 1927). In the 19th century the brown bear was recorded once only: one individual was shot in Karkonosze Mts. in 1804 (PAX 1925). Since the 1990s it has appeared on a few occasions again in the Śnieżnik Massif in the Sudety Mts. (own observ.).

#### Lynx *Lynx lynx*

At the beginning of the 18<sup>th</sup> century, the lynx became extinct as a resident species in Silesia. Later on, it was recorded as a passing animal on a few occasions: one individual was shot near Zgorzelec in 1740, a few individuals were recorded in forests near Opole in 1743, one individual was shot in Zgorzelec Forests in 1799, and another individual was

shot in forests near Strzelce Opolskie in 1800 (GLOGER 1833, PAX 1925). No records exist in the 19<sup>th</sup> century (PAX 1925, PUCEK & RACZYŃSKI 1983). After a long absence in Silesia, it was recorded again in May, August and September 1992 in Chrząstawa Wielka forest district (ca. 3000 ha, including ca. 1000 ha old stand forest) in Oława forest inspectorate. It was apparently resident there (BARTMAŃSKA 1992). Since then, no further observations on the lynx were made in the whole Silesia.

## ARTIODACTYLA

### Eurasian elk *Alces alces*

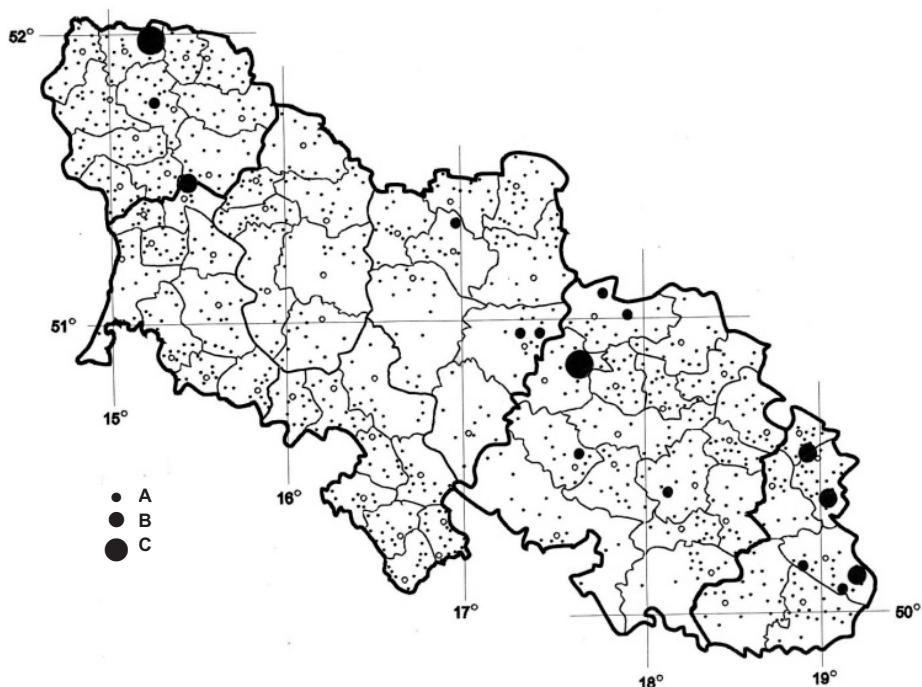
The first literature record of this species in Silesia goes back to the 12<sup>th</sup> century, when in 1186 the prince Bolesław I had killed 860 elks in Opole Principality (PAX 1925). It appears, therefore, that in those times, the elk was probably a common species in Silesian lowlands.

Most probably due to excessive hunting, especially during the Thirty Years War (1618-1648), the elk became very rare in the 17<sup>th</sup> century (PAX 1925). In the second half of that century only single animals were reported: in Oleśnica Principality in 1661; Raków near Oleśnica in 1663; Wrocław district in 1675; near Lubin in the end of that century. Four other records were made in the 18<sup>th</sup> century: near Olesno in 1725; near Oleśnica in 1743; near Racibórz in 1774, and near Lubliniec (PAX 1925). In the 19<sup>th</sup> century the elk was recorded also four times: 28.10.1888 one animal shot near Trzebnica; 13.10.1888 one animal recorded near Gliwice; in the 1870s one individual was recorded near Wrocław; 1894 one animal was observed in Rędzin (today within administrative boundaries of Wrocław) (PAX 1925). GRACZYK and KANIEWSKI (1978) and PUCEK (1983) provided only one record (WT square grit) of this species in Silesia for the period between 1945 and 1989.

In 1995, the elk was recorded in eight forest inspectorates: Katowice: 10-14 individuals, Brzeg: five, Milicz: 15, Oława: two, Świeradów: two, Węgliniec: two; Zielona Góra: five to seven, Nowa Sól: six individuals (BRZUSKI et al. 1995).

During 2001-2004, the elk was recorded on several occasions in Opole Silesia: in 2001 a female was seen around Czarny fish-pond near Niemodlin (KOPIJ 2013); in 2004 one animal was recorded in Przecza forest district near Lewin Brzeski, and in 2004 three animals occurred in Prószków forest sub-inspectorate (KOPIJ 2013). Throughout the years 2000-2001, one animal lived in the boggy forests between Olszowy and Loża fish-ponds in Niemodlin Land (KOPIJ 2003). In 2000-2004, a few animals were also recorded in forests between Brzeg and Namysłów (KOPIJ 2007), and in 2005 two males, two females and two juveniles were observed in Sosnówka forest district, Opole forest inspectorate (KOPIJ 2007).

During the years 2004-2008, the elk was recorded in 15 forest districts within 11 forest inspectorates. These records are clumped in three areas: the northern part of Upper Silesia, in Oława/Brzeg/Namysłów forest inspectorates, and near Zielona Góra. It is possible that the areas represent home ranges (residency) (Fig. 9).



**Fig. 9.** Distribution of the Eurasian elk in forest districts in Silesia during the years 2004-2008. A: 1 individual, B: 2 individuals, C: 3 individuals.

List of records: **Zielona Góra:** Brzózka; Krzystkowice; Krzywanięc. **Lower Silesia:** Świętoszów; Rudawica; Oborniki; Prusice; Oława; Jelcz, Kopalina; **Opole Silesia:** Namysłów; Smogorzów, Polkowice; Brzeg; Roszkowice; Strzelce; Kępa; **Upper Silesia:** Koszęcin; Klaty; Świerklaniec; Świerklaniec; Katowice; Lędziny, Śmiłowice, Murcki.

#### Chamois *Rupicapra rupicapra rupicapra*

The first record of this species in Silesia was made in 1972/1973 in Śnieżnik Kłodzki Massif (PUCEK & RACZYŃSKI 1983). In 1974 there were eight individuals in the area.

In 2004, two animals occurred near Jaskinia Niedźwiedzia (Bear's Cave) near Kletno, and four animals were observed in Łądek Zdrój forest inspectorate (K. RAKOCZY). Throughout the year 2006, 2-7 animals were observed also in Śnieżnik Massif (M. BRYJA). They are especially often seen in Jawornica forest district, Międzylesie forest inspectorate.

In 2005, two individuals were also recorded in Strużnica forest district, 'Śnieżka' forest inspectorate. This is a new site in the Sudety Mts., where the species is now resident.

All chamois have originated from the Czech Sudety Mts., where they were introduced several years earlier from an Alpine stock (M. BRYJA, unpubl.).

#### IV. CONCLUDING REMARKS

Data obtained by means of inquiry are regarded by some researchers as unreliable and not valuable. Such opinions are, however, not always justified, as the value of inquiry data depends largely upon: 1) what species are covered by the inquiry; 2) to whom the inquiry is addressed; 3) what kind of information the respondents are asked for in the inquiry. Since ungulates, carnivores and larger rodents are fairly well-known for foresters, which are usually also hunters, the chance of a misidentification of those species by them is low. The present inquiry was aimed to determine distribution of selected mammal species. Numbers of some of them were only roughly estimated. The numbers are more reliable if a species is territorial (e.g. Gliridae, Carnivora), rare (*Lutra lutra*), and/or with a sparse regular distribution (e.g. *Mustela erminea*, *Castor fiber*). If distribution is more clumped, the numbers could have been overestimated, as the same individuals could have been counted in a few forest districts. Although present data indicate an increase for most species investigated, precautions should be taken, as most atlas data (PUCEK & RACZYŃSKI 1983) and other data obtained by subsequent surveys (e.g. ROMANOWSKI 1984, GŁOWACIŃSKI 1992) were greatly underestimated.

Data presented here, which were obtained through inquiry, are proved to be reliable and valuable. It is, therefore, advisable to make use of the information on the distribution of some larger mammal species collected by foresters, either by direct interviews or by means of properly designed inquiry.

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