

Bogdan LASOTA, Anna RNOWSKA

POPULATION OF TIGERS IN POLISH ZOOS IN 2000–2006

POPULACJA TYGRYSÓW W POLSKICH OGRODACH ZOOLOGICZNYCH W LATACH 2000–2006

Department of Reproductive Biotechnology and Environmental Hygiene, West Pomeranian University of Technology, Szczecin, Poland

Streszczenie. Obecnie w środowisku naturalnym tygrysy zamieszkują tereny od wschodniej Turcji, przez południową Azję, do południowo-wschodniej Syberii, Półwyspu Malajskiego oraz Sumatrę, Jawę i Balię. Generalnie obszar występowania tych drapieżników kurczy się coraz bardziej, a niektóre podgatunki bezpowrotnie wyginęły, np. tygrys jawajski, tygrys balijski, tygrys kaspijski. Ogrody zoologiczne pozostają więc miejscami, gdzie można zobaczyć na żywo te wielkie koty. Utrzymywane są również w polskich zoo, gdzie coraz częściej prowadzi się tam programy hodowli i reprodukcji tego zagrożonego wymarciem gatunku. Celem niniejszej pracy była analiza pogłowia tygrysów i wybranych wskaźników reprodukcyjnych oraz śmiertelności w polskich ogrodach zoologicznych w latach 2000–2006. Na podstawie danych liczbowych z Informatora Ogrodów Zoologicznych oraz kart zwierząt dokonano analizy pogłowia tygrysów: amurskiego, bengalskiego, białego i syberyjskiego w Polsce w latach 2000–2006, uwzględniając wybrane wskaźniki reprodukcji. Populacja tygrysów w badanych latach zmniejszyła się o około 45%. Spadek ten dotyczył w większym stopniu samic. Liczba padłych zwierząt nie była rekompensowana liczbą urodzonego i odchowanego potomstwa. Utrzymanie stanu liczebności tygrysów w polskich ogrodach zoologicznych wymaga podjęcia intensywnych działań zmierzających do zwiększenia reprodukcji tego gatunku oraz zakupu lub „wypożyczenia” samic o sprawdzonej zdolności reprodukcyjnej.

Key words: Poland, reproduction, tiger (*Panthera tigris*), zoo.

Słowa kluczowe: Polska, reprodukcja, tygrys (*Panthera tigris*), zoo.

INTRODUCTION

Tigers probably come from eastern Siberia, from where it spread to different areas (Leksykon zwierząt 2001). Different environmental conditions in which they lived, forced them to develop a number of attributes, that allowed an adaptation to specific ecosystems. Therefore, several subspecies of these predators were separated, which live today: Chinese tiger (*Panthera tigris amoyensis*), Indochinese tiger (*Panthera tigris cobetti*), Bengal tiger (*Panthera tigris tigris*), Sumatran tiger (*Panthera tigris sumatrae*) and called Amur Siberian Tiger (*Panthera tigris altaica*) (Encyklopedia dzikich zwierząt 1992; Leksykon zwierząt 2001). Currently in the natural environment tigers live in areas of eastern Turkey, through southern Asia to southeastern Siberia, Malay Peninsula and Sumatra, Java and Bali.

Corresponding author – Adres do korespondencji: Bogdan Lasota, Department of Reproductive Biotechnology and Environmental Hygiene, West Pomeranian University of Technology, Szczecin, Doktora Judyma 6, 71-466 Szczecin, Poland, e-mail: bogdan.lasota@zut.edu.pl

The animals of the cat family are a large attraction of zoos. The aura of mystery and horror that surrounds these animals, attracts many visitors. While cheetahs and lions can be seen in their natural habitat in safari parks in Africa, in the case of tigers it is very difficult. However, in the last 10 years the population of tigers in some parks and reserves increased, for example in Ranthambore National Park in India (URL1). In this park also has been observed that the tigers increasingly shift their activity on the day time and get rid of the fear of people. Generally, however, the area of occurrence of these predators diminishes and some subspecies extinct, for example Javanese tiger, Balinese tiger, the Caspian tiger (Wielka encyklopedia przyrody 1997). Zoos are therefore still places where you can see live the big cats. They are also held in Poland, including Zoo in Gdańsk, Wrocław, Kraków. Increasingly various programs are carried out for breeding and reproduction of this endangered species.

The aim of this study was to analyze the population of tigers and selected indicators of reproduction and mortality in Polish zoos in 2000–2006.

MATERIAL AND METHODS

Data used for the study were taken from the Handbook of Zoos published in Lodz, which contains the information about population of animals in Polish zoos (Polskie ogrody zoologiczne 2000, 2001, 2002, 2003, 2004, 2005, 2006). The data have been supplemented by information from cards of animals. For analysis the data of Amur tigers, Bengal, Siberian and White tigers were chosen. Due to the very small number of tigers living in Polish zoo, in the calculations were included all subspecies of these predators in a single group. The analysis included the following indicators: a) the total number of individuals in each year and the number of females and males, b) the total number of cubs born in each year and the number of males and females born, c) the total number of cubs born, which died before 30th day after birth, also divided by sex.

Basic statistical calculations were performed using MS-Excel spreadsheets. Due to the small size of the study population the calculation of significance of differences was abandoned.

RESULTS AND DISCUSSION

Figure 1 illustrates the Polish population of tigers in the analyzed period. The average number of tigers per zoo is small (on average less than 2 individuals).

The number of tigers in investigated zoos presents Table 1. In the Wrocław Zoo inhabited the largest number of tigers in the investigated period (approx. 23% of the population in Poland).

The number of tigers living in different years of study are presented in Table 2.

Results shown in Figure 1 clearly indicate that, despite of better and more adapted to the species conditions in zoos, lack of competition and full access to food, as well as veterinary care, population of tigers in Polish zoos showed downward trend.

Most tigers in Polish zoos found in 2000. A year later, their number decreased by one individual and the state remained until 2002. It was the first period of stagnation, followed by a sharp decline in the number of tigers: in 2003 by almost 23%, and in 2004 and subsequent Polish population of tigers was only approx. 55% of the state in 2000.

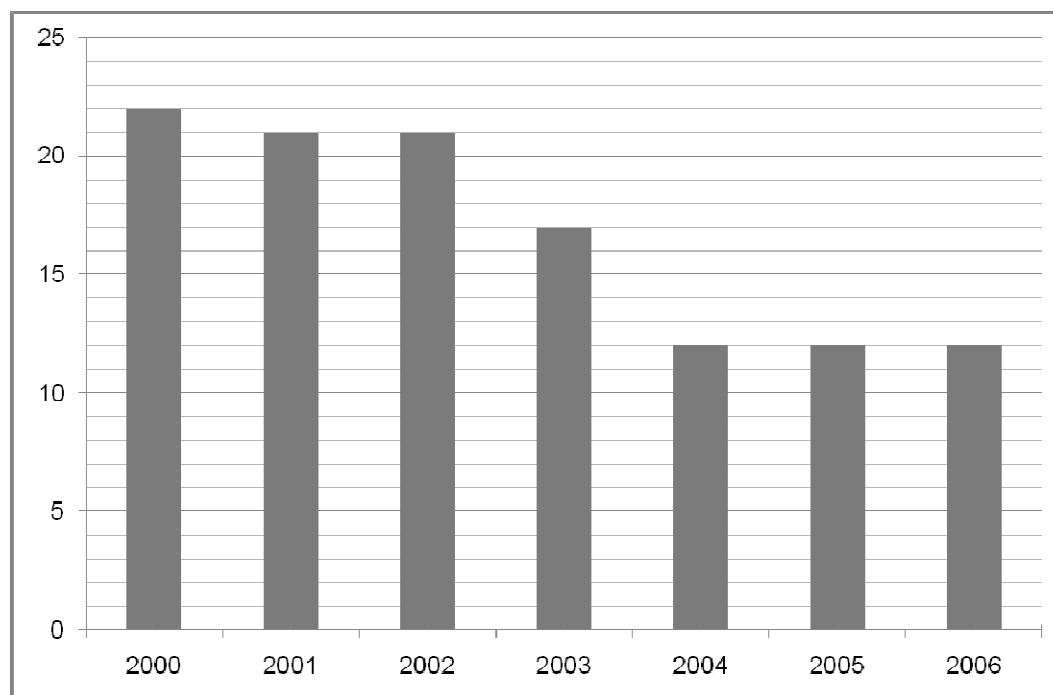


Fig. 1. The average number of tigers living in Polish zoos in 2000–2006

Rys. 1. Średnia liczba tygrysów żyjących w polskich ogrodach zoologicznych w latach 2000–2006

Table 1. Number and percentage of tigers in zoos in Poland in the period 2000–2006

Tabela 1. Liczba i udział procentowy grysów w polskich ogrodach zoologicznych w latach 2000–2006

Zoo	Average number of animals Średnia liczba zwierząt [%]
Chorzów	1 (6.0)
Gdańsk	1 (6.0)
Poznań	1.57 (9.4)
Katowice	2.1 (12.6)
Kraków	1.08 (6.4)
Łódź	1.6 (9.6)
Płock	2 (12.0)
Warszawa	1.71 (10.2)
Wrocław	3.95 (23.6)
Zamość	1.61 (9.6)

The gender distribution of tigers population are shown in Table 2. The number of individuals of both sexes in the investigated period never reached equilibrium. There were 2 males more approximately, and the proportion of animals of one sex is distributed in the ratio of 56 : 44 in favor of males. While the greatest decrease in male population was 42% (2004 and 2005), the greatest female decline was 60% (2006).

Table 2. Number of tigers living in Polish zoos each year

Tabela 2. Liczba tygrysów żyjących w polskich ogrodach zoologicznych w badanych latach

Year Rok	Number of zoos with tigers Liczba zoo utrzymujących tygrysy	Number of tigers Liczba tygrysów	Number of females Liczba samic	Number of males Liczba samców
2000	9	22	10	12
2001	9	21	10	11
2002	10	21	10	11
2003	10	17	7	10
2004	8	12	5	7
2005	9	12	5	7
2006	9	12	4	8
Average Średnia	9.1	16.7	7.3	9.4

Examined and verified was also tigers mortality rate of cubs that were born in the studied zoos. The results of the analyzes are contained in Table 3. The data and calculations comprised the period 2000–2006.

Table 3. Number of born and died tigers by gender in each year

Tabela 3. Liczba tygrysiąt urodzonych i padłych do 30. dnia życia z podziałem na płeć

Year Rok	Number of zoo where tigers were born Liczba ogrodów zoologicznych z urodzeniami tygrysiąt	The number of cubs born Liczba urodzonych tygrysiąt			The number of cubs died before 30 days of age Liczba martwych tygrysiąt w pierwszych 30 dniach życia		
		total ogółem	females samice	males samce	total ogółem	females samice	males samce
2000	1	2	1	1	2	1	1
2001	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0
2005	1	5	3	2	0	0	0
2006	1	3	1	2	0	0	0
Total – Ogółem		10	5	5	2	1	1

In 2000, when the number of tigers living in Polish zoos reached its maximum, to the world came a couple of cubs. The birth took place in the Wrocław Zoo. In 2001–2004, there were no tigers birth. At that time, the adult mortality rate was very high (mostly females), which – in the absence of their own offspring – resulted in the decline of number of tigers. The situation changed in 2005, when in the Poznań Zoo a female born 5 cubs. It was an extraordinary event, since the tigress born mostly 2–3 cubs. Newborn animals survived more than 30 days. Unfortunately, in the following days, there was noted death of four tigers. Probably these were individuals, who were born in the same year. Only one young male survived. In 2006 there was another birth at the zoo Poznań. With these cubs, the number of tigers for the first time since 2000 has increased. The ratio of born females to males in this year was 1 : 1.

Of all the cubs which were born in the years 2000–2006, the couple cubs born in Wrocław Zoo died before 30th day of life. This explains the situation in 2000, when with the highest number of tigers living in Polish zoos and own offspring, there has been no increase in the total number of tigers

RECAPITULATION

Polish population of tigers in zoos in decreased from 2000 to 2006 by approx. 45%. This decrease was affected to a greater extent females. Total loss was not compensated by the number of born and rearing offspring. Maintaining the number of tigers in Polish zoos requires intensive efforts to increase the reproduction of this species, meaning purchasing or borrowing females with proven reproductive capacity.

REFERENCES

- Encyklopedia dzikich zwierząt. Dżungla.** 1992. Świat książki, Warszawa. [in Polish]
Leksykon zwierząt od A do Z. 2001. Muza S.A., Warszawskie Wydaw. Lit., Warszawa. [in Polish]
Polskie ogrody zoologiczne. Informator ogrodów zoologicznych (Red. R. Topola) Sekcja Ogródów Zoologicznych, Polskie Tow. Zool. Łódź, 2000, 2001, 2002, 2003, 2004, 2005, 2006. [in Polish]
URL1: "Two more cubs spotted in Ranthambore". The Times of India. 29 May 2014
<http://timesofindia.indiatimes.com/city/jaipur/Two-more-cubs-spotted-in-Ranthambore/articleshow/35694718.cms>
Wielka encyklopedia przyrody. Ssaki. 1997. (Red. B. Zasiieczna). Muza S.A., Warszawa. [in Polish]

Abstract. Currently in the natural environment tigers live in areas of eastern Turkey, through southern Asia to southeastern Siberia, Malay Peninsula and Sumatra, Java and Bali. Generally, the area of occurrence of these predators declined and some subspecies extincted, for example Javanese tiger, Balinese tiger, the Caspian tiger. Zoos are therefore still places where you can see live the big cats. They are also held in Poland's zoos, where increasingly various programs are carried out for breeding and reproduction of this endangered species. The aim of this study was to analyze the population of tigers and selected indicators of reproduction and mortality in 2000–2006. On the base of data from the Handbook of Zoos, which contents the information about population of animals in Polish zoos, and from cards of animals the analysis of population of Amur tigers, Bengal, Siberian and White tigers in Polish zoos were carried out. The analysis included also some reproductive indicators. Polish population of tigers in the analyzed years decreased by approx. 45%. This decrease was affected to a greater extent females. Total loss was not compensated by the number of born and rearing offspring. To maintain the number of tigers in Polish zoos require intensive efforts to increase the reproduction of this species, and the purchase or "rent" females with proven reproductive capacity.

