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INDIVIDUAL QUALITY OF WOLF IN SOME BALTIC STATES

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Summary. Individual quality of wolves was presented as skull length and width, skin length and width, hair length, hair thickness and uniformity and skin "collar" size. The features mentioned above serve for pricing of wolf's skull and skin according to the requirements of the International Game Council, therefore the final value was presented with CIC points. The data enclosed in the 12 catalogues of trophies were analysed. A total number of the skulls evaluated was 521, skins 132, in that for 387 skulls and 72 skins all the priced elements were provided, whereas for the rest a number of CIC points. The collected material was analysed depending on the origin place: Poland, Lithuania, Latvia and Estonia. In Poland the three districts were distinguished regarding wolf spread and number all over the country. The second category of data analysis was made up of value of skulls and skins according to CIC points – a gold, silver and bronze medal group. It was found out that the differences between the means of the places of origin in the medal groups for the measurement features evaluated, i.e. length, width and for CIC points were under 5% and insignificant statistically (P<-0.05).No differences in wolf individual quality are reported to occur between the assessed countries and regions in Poland. However, the maximal values of single specimens prove that in the southern region of Poland the quality is the highest. The best skull from this region has been placed second in the world, while the skin – the fifth.

Keywords: wolf, skull, skin, pricing, measurements

INTRODUCTION

Individual value of wild animals includes various characteristics of the exterior and interior. Body weight is a widely used index as it is a measure of the nutritional reserves and their quality, site quality, the climatic conditions, animal age as well as individual preferences. Presenting descriptions of animals, most handbooks mention an average and maximal body weight of a species. Hunters shooting animals off evaluate highly the biggest and most gorgeous ones as some

organs of these animals make actual trophies of the chase. Trophies are assessed according to various formulas, they are presented at the exhibitions, awarded medals and published in catalogues. Skins and skulls, the trophies gained from wolves, reflect animals size and body weight [2]. In Europe for some tens of years there have been applied the uniform formulas for trophies pricing established by the International Council for Game and Wildlife Conservation (CIC).

The objective of the present paper is to estimate skulls and skins of the wolves shot off at the area of Poland, Lithuania, Latvia and Estonia, the pricing fixed according to the elements of the CIC assessment formulas.

MATERIALS AND METHODS

The examination material was made by the skulls and skins included in the catalogues from game-exhibitions held under the auspices of the International Council for Game (CIC). The international members of the committee and qualifications of the assessment committees members warrant the results are fully reliable. The trophies shown at every exhibition are described in a catalogue where a shooting off place and date are given, hunter's name and the assessment elements for the best trophies. A show place and year is mentioned next to a catalogue title. The following catalogues were used: Nowy Sad 1967, Budapest 1971, Turin 1972, Turin 1973, Czeskie Budziejovice 1976, Nitra 1980, Plovdiv Expo 1981, Poland 1983, Brno 1985, Nitra 1990, Kraków 1993. There were evaluated 521 skulls and 132 skins altogether. Owing to the specificity of catalogues, full information about the characteristics assessed was obtained for 387 skulls and 72 skins, whereas for the other skulls and skins the total quality by the CIC scores was gained.

The formula for skull estimation comprises a measurement of the greatest length (from occipital bone protrusion to the incisors) and the greatest width (in zygomatic arches perpendicular to longitudinal axis of skull). A sum of both measurements made with 0,1 cm accuracy makes the number of points. The skulls that earn from 37.00 up to 38.99 points are qualified for the bronze medal, from 39.00 to 40.99 pts for the silver and finally, over 41.00 pts for the gold medal. The assessment formula for skins includes a length measurement (from the tip of nose to tail base) and the smallest width (behind the forelegs).

The measurements are performed with 0.1 cm accuracy. The organoleptic estimation of the skin comprises evaluation of hair length (assessed within 0-10% range), thickness and hair uniformity (also up to 10%) as well as „collar" estima-

tion (longer part of hair at the neck region) – to 5%. The qualities of hair cover are assessed in per cent and then related to 0.01 product value of skin length and width. The sum of all the five elements makes the CIC score. The bronze medal awards to the skin that received 100.00-109.99 pts, the silver medal: 110.00-119.99 pts and the gold medal to the skin with over 120.00 pts [5, 6].

The catalogues present the trophies of the top quality, yet due to regular statistical feature distribution being decisive of trophy quality, it is number of trophies at the medal ranges, mean for gold medal-group and the maximal values for gold medal-group trophies that are individual quality measures of the animal assessed [1]. Upon the results presentation, the materials from Poland were divided into three regions (Fig. 1). This division is subject to physiological differentiation, number and concentration of wolves as well as other trophic conditionings [4]. There wasn't executed a territorial division smaller than a country of wolves from Lithuania, Latvia and Estonia owing to smaller physiological and biotic differentiation [4].

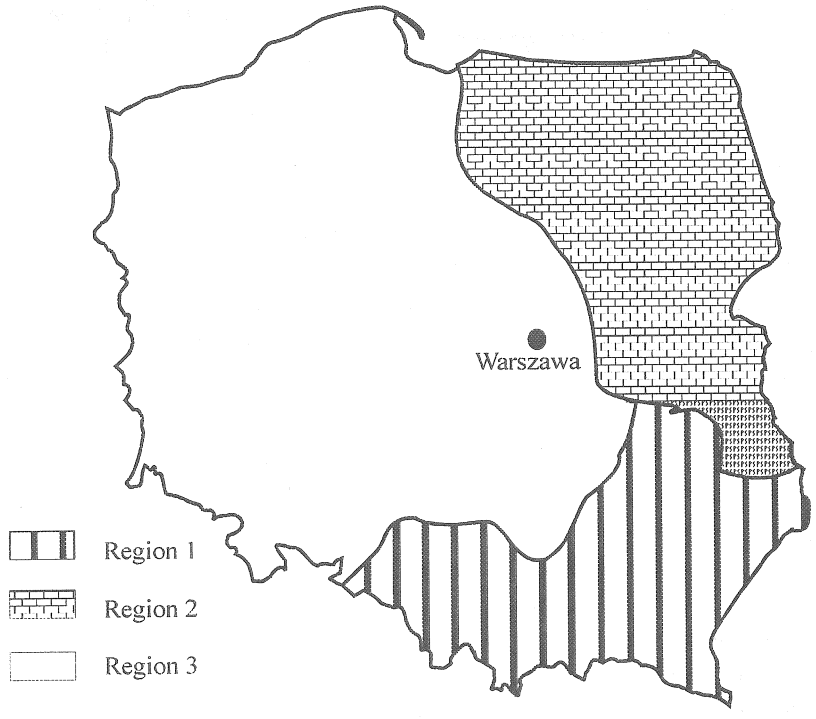

Fig. 1. Regions of wolves origin

RESULTS AND DISCUSSION

The skulls and skins examined were gained by the hunters in the years 1951-1997 (Fig. 2), yet there were no skins at all recorded up to 1971 and annual gain of wolf skulls reached 2-3 units and they were evaluated as medal due to their size. The medal skins were obtained mostly after 1983, whereas the skulls were gained more intensively in the years 1975-1980 and 1984-1992 when annual number of medal skulls amounted from 3 up to 13.

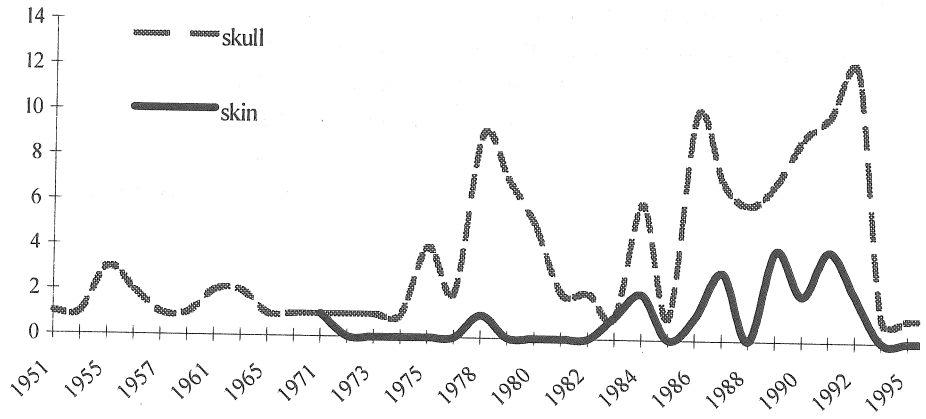

Fig. 2. Number of estimated skins and skulls gained in Poland, 1951-97

The length of wolf skulls gained at the Poland areas in the separated regions varied to 5 mm in the medal ranges (Tab. 1). The longest skulls were demonstrated by the animals obtained in the north-eastern Poland (region 2) – 27.2 cm (in the gold medal group), while those from region 3 (central Poland, north-western and south-western) showed the mean length of 26.7 cm. The differentiation in the individual animal length was considerably higher. A skull of the greatest length – 28.6 cm and the shortest one – 23.6 cm originate from the region 1 (south-eastern Poland). The skull width in the silver and bronze medal groups shows slight differentiation between the regions, while in the gold medal group the mean values were 14.8-14.9 cm in the regions. Total quality expressed by number of CIC points also shows small variation in the medal groups of the regions. In the gold medal group, where only the lower limit is restricted, in the regions 1 and 2 the means were even – 42.0 pts, whereas in the region 3 the mean was the highest – 42.6 pts but it is made up out of 5 skulls. However, the differences in the maximal values turned out to be higher. At the Janowskie Woods

(region 1) in 1982 a wolf was gained whose skull obtained 46.0 CIC scores and according to the international classification and number of points earned it was placed the second in the world [3]

Table1. Wolf skulls dimensions (in mm) and number of points CIC for the gold medal

Specification			Length	Width	Number of points CIC
Poland	Ist region	n	48	48	94
		x	27.00	14.89	41.96
		max	28.61	15.73	46.00
	IInd region	n	13	13	16
		x	27.19	14.82	42.01
		max	27.90	15.30	43.10
	IIIrd region	n	2	2	5
		x	26.70	14.86	42.58
		max	27.00	15.12	44.10
Lithuania		n	27	27	27
		x	27.26	14.96	42.19
		max	29.00	16.00	44.00
Latvia		n	43	43	43
		x	27.30	15.05	42.40
		max	29.00	16.00	45.00
Estonia		n	34	34	34
		x	27.21	15.06	42.29
		max	28.00	16.00	44.00

Among the Baltic States evaluated, the differences in skull length in the gold medal group figured out to 0.3 cm. The wolves from Lithuania and Latvia had the mean skull length 27.3 cm, from Estonia 27.2 cm and from Poland 27.0 cm. Similarly, the greatest length of a specimen was recorded in Lithuania and Latvia – 29.0 cm each, while the shortest 28.0 cm in Estonia. As to the width of skulls awarded to the gold medal, the means of the wolves from Lithuania, Latvia and Estonia reached 15.0 cm, whereas from Poland 14.9 cm. The maximal values were quite close as a wolf's skull from Poland had 15.7 cm and from the other countries 16.0 cm. Number of points CIC in the gold medal group was highest at Latvia – 42.4 pts, then in Estonia – 42.3 cm, in Lithuania 42.2 and in Poland – 42.0 pts. The greatest score was obtained by a skull from Poland – 46.0 and then from Latvia – 45.0, afterwards from Lithuania and Estonia – 44.0 pts each.

The length of skins for gold medal in all the mentioned countries was similar and the longest specimens came from Estonia (159.5 cm) and Poland (158.3 cm) and the shortest from Lithuania – 152.4 cm (Tab. 2).

Table 2. Wolf skins assessment for the gold medal

Country		Skin length (cm)	Skin width (cm)	Hair length (0-10%)	Hair thickness and uniformity (0-10%)	Collar width (0-5%)	Number of points CIC
Poland	n	9	9	9	9	9	30
	x	158.27	75.18	6.78	7.89	3.28	136.58
	max	174.30	86.40	-	-	-	170.98
Lithuania	n	6	6	6	6	6	6
	x	152.40	71.07	7.25	7.17	2.75	127.02
	max	166.40	74.40	-	-	-	148.55
Latvia	n	5	5	5	5	5	5
	x	154.20	70.20	6.30	5.90	2.80	124.29
	max	161.00	73.00	-	-	-	128.61
Estonia	n	3	3	3	3	3	3
	x	159.53	75.13	5.83	4.50	3.33	135.46
	max	170.60	80.00	-	-	-	143.21

Regarding this characteristics, the extreme values describing it were considerably higher. The longest skin comes from Poland – 174.3 cm and the shortest from Lithuania – 132.0 cm. The width of gold medal skins in Poland and Estonia was quite close: 75.2 and 75.1 cm, whereas the shortest from Lithuania – 70.2 cm. The skins classed among the silver medals had mean length from 66.3 cm (Latvia) up to 68.5 cm (Lithuania) and in the bronze medals the shortest were recorded in Poland – 60.7 cm and the longest – 65.3 cm in Latvia. A wolf of the widest skin was gained in Poland – 86.4 cm. while the narrowest – 60.0 cm in Lithuania and Latvia. Total quality expressd by number of points CIC in the gold medal group was close to that of the wolves from Poland (136.58 pts) and Estonia (135.83 pts). In the same group the wolves from Lithuania obtained 127.02 pts and from Latvia 124.29 pts. In the silver and bronze medal groups the differences between the countries were smaller than 2 pts resulting from the obligatory point range. A skin of the highest point value – 170.98 comes from Poland (5th position in the world) and a record skin from Lithuania – 148.55 pts, from Estonia – 143.21 pts and Latvia 128.61 pts [3].

The skin properties estimated organoleptically (Tab. 2) show substantially greater disproportions than the characteristics measured with a tape. The hair length in the gold medal group was assessed best at the wolves gained from

Lithuania – 7.2% and the poorest at the animals coming from Estonia – 5.8%. Alike Poland, in Estonia the lowest value of hair thickness and uniformity was determined in the gold medal skins – 4.5%, then in the silver medals – 5.7% and in the bronze medals – the highest i.e. 5.5%. Despite the same trend observed in estimation values in particular group, they were lower by around 3% than in Poland. A part of longer hair in the neck region called „a collar" shows less differentiation among the groups and a place of their origin. This characteristics is distinctively marked at wolves from Estonia (3.3; 3.7; and 3.5% in the medal group) and the faintest at the animals from Lithuania (2.7; 1.7 and 1.9% in each above mentioned group.

A skull length and width r_{xy} rate is 0.666. This rate value in the skin elements assessed is significantly smaller (Tab. 3).The highest correlation coefficient – 0.228 was fixed for skin length and width.

Table 3. Relations between the elements evaluated

Element estimated	Correlation coefficient value
Skull length x width	0.666
Skin length x width	0.228
Hair length x skin length	0.047
Hair length x skin width	-0.207
Hair thickness and uniformity x skin length	0.087
Hair thickness and uniformity x skin width	-0.180
Collar width x skin length	-0.231
Collar width x skin width	0.070

However, relations between skin length, thickness and uniformity as well as „collar" and skin measurements qualities did not exceed r_{xy} 0.3 and took positive or negative values.

CONCLUSIONS

The presented results show that individual quality of wolf expressed by size of skulls, skins and hair cover quality does not demonstrate any disproportions for the gold medal group. This assumption refers to the regions in Poland as well as to comparison between the Baltic States. However, the values of particular specimen (maximal values) indicate that the best quality wolves in Poland, and in the countries compared, are gained in the region of south eastern Poland. It is confirmed by 2nd place in the world concerning skull (46.00 pts) and as regards skin – 5th place in the world (170.98 pts). Number of the skulls evaluated in Poland is close to the sum from the other countries and the region of south eastern

Poland is most distinguished regarding number and quality. Number of skin estimated is markedly lower than that of skulls, which probably results from greater arduousness preparing skins and the tradition.

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JAKOŚĆ OSOBNICZA WILKÓW W WYBRANYCH KRAJACH NADBAŁTYCKICH

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Streszczenie. Jakość osobniczą wilków przedstawiono poprzez długość, szerokość czaszek, długość, szerokość skór, długość włosa, gęstość i równomierność włosa i wielkość „kołnierza" skór. Wymienione cechy służą do wyceny czaszek i skór wilków według formuły Międzynarodowej Rady Łowieckiej i z tego względu podano ostateczną wartość w liczbie punktów CIC. Analizę wykonano na podstawie danych ujętych w 12 katalogach trofeów łowieckich. Ogólna liczba ocenianych czaszek wynosiła 521, a skór 132, z tym że dla 387 czaszek i dla 72 skór dysponowano wszystkimi elementami wyceny, a dla pozostałych liczbą punktów CIC. Zebrany materiał analizowano w zależności od miejsca pochodzenia: Polska, Litwa, Łotwa i Estonia. W Polsce wyodrębniono 3 rejony uwzględniając rozprzestrzenienie i liczebności wilków na terenie kraju. Drugą kategorią analizy danych była wartość czaszek i skór według liczby punktów CIC – grupa złotomedalowa, srebrno i brązowomedalowa. Stwierdzono, że różnice wśród średnich pomiędzy miejscem pochodzenia w grupach medalowych wynoszą poniżej 5% dla ocenianych cech pomiarowych: długości, szerokości i dla liczby pkt. CIC i nie są statystycznie istotne ($P \leq 0,05$). Można twierdzić, że pomiędzy ocenianymi krajami i rejonami w Polsce nie występują różnice w jakości osobniczej wilków. Natomiast maksymalne wartości pojedynczych egzemplarzy wskazują, że w rejonie Polski południowo wschodniej jakość jest najwyższa. Najlepsza czaszka z tego terenu zajmuje 2 miejsce w świecie, a skóra 5 miejsce w świecie.

Słowa kluczowe: wilk, czaszka, skóra, wycena, pomiary