

# Data for external morphometry of stone marten, polecat and weasel in Hungary

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LANSZKI, J. & VALKÁR, B: *Data for external morphometry of stone marten, polecat and weasel in Hungary.*

**Abstract:** External morphologic parameters of the stone marten (*Martes foina*), polecat (*Mustela putorius*) and weasel (*Mustela nivalis*) were examined by means of carcasses (n=93, 34 and 12, respectively) collected between 1984 and 2009. The adult males were significantly bigger than the females, in body weight (BW) and all studied measurements, such as body length (BL), tail length (TL), hind foot length and ear length. Mean BW of adult stone martens was 1703 g and 1309 g, BL 450 mm and 419 mm, TL 255 mm and 241 mm in males and females, respectively. Mean BW of adult polecats was 1363 g and 728 g, BL 410 mm and 358 mm, TL 158 mm and 143 mm in males and females, respectively. Mean BW of adult male weasels was 146 g, BL 213 mm, and TL 69 mm.

**Keywords:** *Martes foina*, *Mustela putorius*, *Mustela nivalis* Hungary

## Introduction

The stone marten (*Martes foina*), the polecat (*Mustela putorius*) and the weasel (*M. nivalis*) are common carnivores in Hungary (HELTAI and LANSZKI 2007a, 2007b, TÓTH et al. 2007). Despite wide geographical distribution of these mustelids, knowledge about the biometry, biology and demography is still scarce in Hungary. Overview works (eg. FARAGÓ 2002) or The Atlas of Hungarian Mammals (eds. BIHARI et al. 2007) give series of external measurements concerning biometry, mainly from other countries. The aim of this study was to summarize suppletory external morphologic parameters from the Hungarian population of the three mustelids.

## Material and methods

Morphologic parameters of road traffic killed and trapped stone martens (n=93), polecats (n=34) and weasels (n=12) were examined by means of carcasses collected between 1984 and 2009. The seasonal distribution of stone marten carcasses collected was the following, winter: 33, spring: 15, summer: 15, autumn: 20 and unknown: 10. The stone marten bodies originated from Nógrád county: 51, Borsod-Abaúj-Zemplén county: 16, Somogy and Baranya counties: 20, and western Transdanubian region: 6. The seasonal

distribution of polecat carcasses collected was the following, winter: 7, spring and summer: 10 and autumn: 17. The polecat bodies originated from: Nógrád county: 17, Borsod-Abaúj-Zemplén county: 13, and Transdanubian region: 4. The weasel carcasses originated from all seasons; south Transdanubian region: 9, western Transdanubian region: 2 and Borsod county: 1.

In the post mortem examination general data (location, date, cause of death), sex, body weight (BW, to the nearest 0.1 or 1 g for weasel and 5 or 10 g for marten and polecat), body length (BL, length from nose to anus), tail length (TL, from anus to tail tip, excluding terminal hairs), hind foot length (FL), ear length (EL) were recorded. The examined bodies were categorised into adult and juvenile age groups according to body weight, measurements and teeth characters. A part of the bodies was so damaged after the road accident that it was not possible to measure all dimensions, therefore different sample sizes can be found in some traits in Table 1.

## Results and discussion

The mean body weight (BW), body length (BL), tail length (TL), hind foot length (FL) and ear length (EL) data of the stone marten are summarized in Table 1. Sexual dimorphism was marked: males were bigger and heavier than females (independent samples t-tests,  $P < 0.001$  in all parameters). In juvenile age group of stone marten the mean ( $\pm$ SE) BW in males ( $n=16$ ) and females ( $n=5$ ) was  $1311 \pm 39.3$  g and  $899 \pm 33.6$  g, BL  $436 \pm 6.2$  mm and  $382 \pm 14.8$  mm, TL  $238 \pm 4.3$  mm and  $197 \pm 19.7$  mm, respectively. Adults were slightly heavier than those stone martens which were studied in Germany (males: 1619.3g, females: 1233.2 g; Stubbe 1993), data in other parameters were similar.

The body weight and external morphologic data of the polecat are summarized on Table 1. Adult males were heavier and longer than females (independent samples t-tests,

**Table 1: External morphologic parameters of adult stone martens (*Martes foina*), polecats (*Mustela putorius*) and weasels (*Mustela nivalis*) in Hungary**

Parameter	Stone marten		Polecat		Weasel	
	Males	Females	Males	Females	Males	Females
BW (g)	Mean $\pm$ SE	1703 $\pm$ 31.8	1309 $\pm$ 25.9	1363 $\pm$ 49.0	728 $\pm$ 34.2	145.7 $\pm$ 13.16
	Min.-max.	1410-2310	1010-1510	1120-1800	600-890	112-220
	n	41	30	15	8	8
BL (mm)	Mean $\pm$ SE	450 $\pm$ 2.8	419 $\pm$ 25.9	410 $\pm$ 4.4	358 $\pm$ 8.5	212.9 $\pm$ 5.87
	Min.-max.	430-509	353-456	380-440	310-390	194-239
	n	39	30	15	8	8
TL (mm)	Mean $\pm$ SE	255 $\pm$ 2.5	241 $\pm$ 3.6	158 $\pm$ 3.5	143 $\pm$ 5.9	68.9 $\pm$ 2.34
	Min.-max.	218-300	212-280	130-190	120-170	61-83
	n	39	29	16	8	8
FL (mm)	Mean $\pm$ SE	90 $\pm$ 0.7	82 $\pm$ 2.9	64 $\pm$ 1.7	57 $\pm$ 2.4	32.8 $\pm$ 1.29
	Min.-	85-95	73-90	55-70	52-60	28-39
	n	20	9	9	3	8
EL (mm)	Mean $\pm$ SE	33 $\pm$ 0.6	30 $\pm$ 1.7	20 $\pm$ 1.2	16 $\pm$ 1.4	-
	Min.-	28-40	23-35	16-27	13-20	-
	n	24	22	10	5	-

Notes: BW: body weight, BL: body length, TL: tail length, FL: hind foot length, EL: ear length, n: number of individuals measured.

$P < 0.05$  0.001), except of hind foot length ( $P = 0.063$ ). In juvenile age group of polecat the mean BW in males ( $n = 5$ ) and females ( $n = 5$ ) was  $769 \pm 90.6$  g and  $585 \pm 38.7$  g, BL  $370 \pm 19.2$  mm and  $341 \pm 6.7$  mm, TL  $152 \pm 12.1$  mm and  $134 \pm 5.2$  mm, respectively. Adult polecats were slightly heavier than those which measured in a Czech-Slovakian study (males: 1131.0 g, females 653.9 g; Wolsan 1993), BL was slightly shorter, but in other parameters data were similar.

Appraisable sample number of weasel was available only from males (Table 1). BW of the two studied females was 36 g, and 42 g, BL of bigger female was 153 mm, TL: 43 mm and FL: 14 mm. BW of two juvenile females was 31.7 and 33.5 g, BL: 149 and 150 mm, TL: 41 and 40 mm. Adults were slightly heavier than weasels studied in Germany (males: 67.7 g, females: 39.6 g; Reichstein 1993). Other parameters were also larger, but similar to the study of Székely (1972) performed in Hungary (males: 214 mm, females: 176 mm).

More males than females were studied, the sex ratio (male : female) both for the stone marten and polecat was also 62:38%. Most of studied animals were adult, the ratio between adult and juvenile age groups was 77:23% for the stone marten and 71:29% for the polecat.

In conclusion, supplementary, new results arisen from this study are utilizable in management programs of carnivores.

### Acknowledgements

Thanks for the help in collection of animal carcasses.

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