

The seasonal selectivity for twigs of trees, shrubs, and dwarf-shrubs is indicated by the number of plant species which reach the mean of twigs consumed exceeding 50 during individual seasons of year. And so in spring there were 8 such species, in summer — 9, while in autumn and winter — only 4.

REFERENCES

- El and t R., 1964: Statystyka w rolnictwie. Państw. Wyd. Roln. i Leśn., Warszawa.
Forestry Research Institute, Warszawa 22, Wery Kostrzewy 3. Received, February 2, 1970.

Ryszard HAITLINGER

PITYMYS MC MURTRIE, 1831, FROM THE BESKID ŻYWIECKI
AND THE SUDETES

PITYMYS MC MURTRIE, 1831, BESKIDU ŻYWIECKIEGO I SUDETÓW

Differences were shown in the length of the tail, the hind foot and in particular the diastema between individuals from an isolated population of *Pitymys tatricus* from the Beskid Żywiecki area and *Pitymys tatricus* from the Tatra Mts. The mountain populations (Sudetes, Beskid Żywiecki) of *Pitymys subterraneus* exhibit far-reaching similarity of characters and on this account can be considered as morphologically identical. It is only tail length and length of the hind foot which are slightly greater in individuals from mountain populations than in those from lowland areas.

The subspecies taxonomy of the genus *Pitymys* Mc Murtrie, 1831, has not been fully elaborated and the differences found in the number of subspecies estimated for Europe would not appear to have been completely explained. In view of the fact that only small numbers of representatives of this genus occur the number of studies giving more comprehensive treatment of taxonomic and morphological problem in Central Europe is small (Langenstein-Issel, 1950; Kratochvil, 1952, 1964; Altner, 1958; Niethammer, 1960; König, 1962). In Polish literature one of the outstanding studies in this field is that by Wasilewski (1960) analysing the Białowieża population of *Pitymys subterraneus* (de Sélys Longchamps, 1835). Kowalski (1960) examined a small number of European pine voles from several places in the Carpathian Mountains. There is, however, a lack of information on the morphological characters of mountain populations.

After obtaining a larger number of common European pine voles from the Sudetes, Żywiecki Beskid mountain areas and Tatra pine voles from Pilsko (Żywiecki Beskid area) it proved possible to give some supplementary information on their morphology.

I had a total of 126 individuals of *P. subterraneus*, 52 from the Sudetes and 74 from the Żywiecki Beskid area, obtained during the period from 1961—1969. A series of European pine voles from Wrocław were used for purposes of comparison.

Thirteen individuals (including 2 juveniles) of *P. tatricus* Kratochvil, 1952 were obtained from the Żywiecki Beskid mountains. Eight pine voles collected by the author in the Tatra Mts, from the Gašienicowa Valley, and also the measurements given by Kowalski (1960), were used for purposes of comparison.

Individuals over 80 mm in body length, with body weight over 10 g and absence of juvenile fur, were taken as mature. This group of individuals was treated as a whole. It can be assumed that it corresponds to age groups III and IV established for Białowieża material by Wasilewski (1960).

1. *Pitymys tatricus* Kratochvil, 1952

European pine voles exhibiting features characteristic of *P. tatricus* were obtained in September 1968, August and October 1969 in the summit parts of Pilsko in the Żywiecki Beskid, at a height of 1300—1500 m above sea level (Tab. 1). The external dimensions are in complete

Table 1.

Body and skull measurements in *P. tatricus* from Tatra (Hala Gašienicowa) and Beskid Żywiecki (Pilsko) mountains.

Measurements	Tatra Mts (Hala Gašienicowa 1500 m)				Beskid Żywiecki Mts. (Pilsko, 1300—1550 m)					
	N	Min.	Max.	Avg±S. D.	N	Min.	Max.	Avg±S. D.		
Head & Body	8	96.2	114.0	103.7	5.82	12	84.8	116.2	103.0	8.02
Tail	8	36.6	47.6	41.1	3.40	12	32.7	45.0	39.1	3.19
Hind foot	8	17.3	18.0	17.6	0.24	12	16.0	17.9	17.1	0.61
Body wt.	8	18.0	30.0	21.7	4.26	12	14.5	36.0	26.2	5.32
Head & Body/Tail	8	35.4	43.4	39.6		12	29.6	43.4	38.0	
Cb.-length	5	23.91	25.20	24.17	0.61	9	21.47	25.88	24.12	1.25
Length of nasalia	5	5.95	6.72	6.35	0.28	11	5.69	7.35	6.56	0.49
Diastema	5	6.52	8.37	7.32	0.59	12	6.22	7.33	6.95	0.26
Maxillary tooth row	5	5.67	5.97	5.82	0.10	12	5.29	6.38	5.95	0.22
Occipital breadth	3	11.84	12.32			6	11.78	13.47	12.45	0.61
Brain case depth	3	6.2	6.4			6	5.9	6.7	6.5	0.31

agreement with those given by Kratochvil (1952). Specimens from the Polish Tatras described by Kowalski (1960) and pine voles from the Gašienicowa Valley exhibit differences in relative tail length and length of the hind foot. The animals from Pilsko are relatively heavy, and two of them (35 and 36 g) are far heavier than the maximum weight given for this species (Kowalski, 1964). Of the skull measurements the diastema is markedly smaller than in pine voles from the Tatras (Table 1). It is the most characteristic difference, since in the same range of body measurements only 3 individuals from the Tatras have dimensions coming within the range of measurements for the individuals from Pilsko (Fig. 1).

The taxonomic homogeneity of *P. tatraicus* has not so far been questioned. The present material, on account of the small numbers of individuals, does not provide grounds for arriving at far-reaching conclusions but

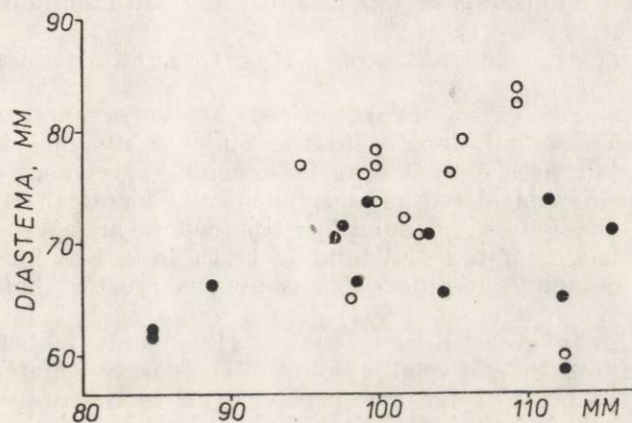


Fig. 1. Correlation between diastema length and body length in populations of *P. tatraicus* from the Tatras (1) and Beskid Żywiecki (2). Data for the Tatras include Kowalski's material (1960).

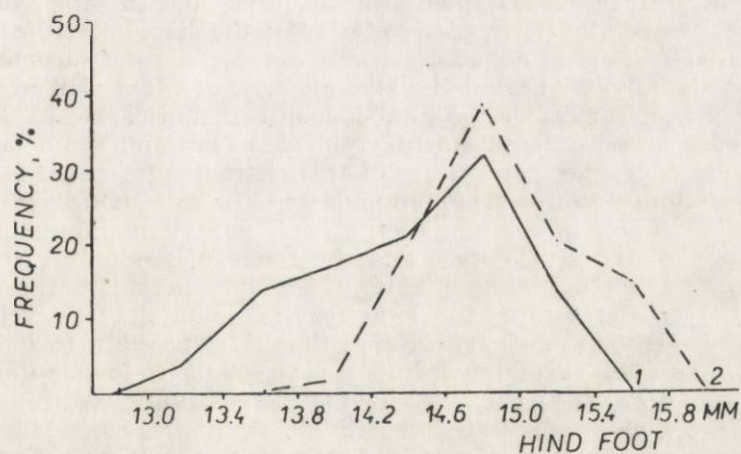


Fig. 2. Distribution of frequency of variations in length of hind foot (in per cent) in a mountain population from Beskid Żywiecki and a lowland population from Wrocław.

1 — Lowland population; 2 — Mountain population.

gives food for thought. *P. tatraicus*, nowadays limited to the narrow belt of the Tatra mountains, formerly possessed a far wider territorial range. Evidence of this is formed by the presence of the Tatra pine vole on the summit of Pilsko. This micropopulation has for a long time remained in

total isolation from other populations and exhibits certain morphological differences. It would therefore be interesting to establish to what extent such differences are significant and whether this is the only population of this species living outside the area of the Tatra mountains.

2. *Pitymys subterraneus* (de Sélvs Lonchamps, 1835)

Common pine voles are characterized by very small variations in dimensions. The populations from the Sudetes Mts and the Żywiecki Beskid mountain area exhibit such far-reaching agreement of characters that they can be considered as morphologically identical. Minimal differences from the lowland populations (Białowieża and Wrocław) can be observed in length of tail and hind foot (Table 2, Fig. 2). The relative tail length in mountain pine voles is always greater than in lowland individuals. Zejda *et al.* (1962) give a value of 33.7 for populations from the Silesian area; Kratochvil (1952) only 30.1 for Jesioniki. The scanty literature and small amount of comparative material available make it impossible to solve this problem. Up to the present there has been no question but that the Alpine forms and those from the Alpine foot hill forms have long tails.

About 33% of the lowland population (Wrocław) has a smaller hind foot than the lower limit of variation of this dimension in mountain populations (Żywiecki Beskid Mts). Kratochvil (1952) drew attention to the increase in measurements of the hind foot in pine voles living higher above sea level. In pine voles from the Karkonosze Mts and its foothills (400—1300 m above sea level) the average measurement of the hind foot is only 14.6; from the summit area of Ślęza (718 m a.s.l.) the average measurement for the hind foot is 14.2 mm (Table 2). The latter corresponds to the measurements typical of lowland pine voles. Kowalski (1960) gives low values of this character for some foothill populations from south-east Poland. Haitlinger (1970) presents an identical situation in relation to the bank vole, explaining this by the localisation of the study areas and the range of possibilities of contact with lowland or mountain populations. The possible adaptational character of the greater size of the hind foot in mountain pine voles is not clear. It is only in the vertical line that it is possible to indicate the direction taken by variations in this measurement. In lowland individuals (Białowieża, Wrocław) the average foot length varies within limits of 14.1—14.4 mm, in foothill areas (Bonn, Silesia), 14.6—14.9 mm and in mountains (Żywiecki Beskid, Alps) 15.0—15.3 mm. Geographical variations are difficult to determine. It should now be accepted that foot measurements increase in an east-west direction: Białowieża — 14.1 mm, Wrocław — 14.4 mm, Germany — 14.5 mm (Altner, 1958), Belgium — 14.6 mm (Miller, 1912, after Kratochvil, 1952). This is also shown by measurements of the foot in mountain individuals (Beskid, Sudetes — 15.00 mm; Alps — 15.1—15.3 mm).

In view of the identical or very similar skull measurements of lowland and mountain individuals (Table 2) it must be considered that European pine vole populations occurring in different parts of a country exhibit uniform characters. The only perceptible difference between lowland

Table 2.
Body and skull measurements in *P. subterraneus* from Wrocław, Słęża, Beskid Żywiecki and Sudetes.

Measurements	Wrocław			Słęża			Beskid Żywiecki			Sudetes										
	N	Min.—Max.	Avg±S.D.	N	Min.—Max.	Avg±S.D.	N	Min.—Max.	Avg±S.D.	N	Min.—Max.	Avg±S.D.								
Head & Body	29	81.1	111.7	97.2	7.64	9	89.0	100.8	95.1	3.17	74	84.1	106.5	94.9	5.21	43	80.0	107.6	97.8	5.76
Tail	29	25.0	34.6	30.6	2.68	9	26.6	32.0	28.8	1.89	74	25.8	36.5	31.0	2.22	43	27.9	27.8	32.0	2.52
Hind foot	29	13.2	15.2	14.4	0.55	9	13.5	14.7	14.2	0.39	74	14.2	15.8	15.0	0.37	43	14.0	16.0	15.0	0.43
Body wt.	29	12.0	30.0	18.7	5.43	9	13.1	20.0	17.6	1.78	74	11.0	23.0	17.0	2.43	43	10.5	24.5	18.1	2.88
Head & Body/Tail				31.5					30.3					32.6					32.7	
Cb.-length	8	21.52	22.70	22.19	0.37						59	20.06	23.93	23.93	0.82	21	20.73	23.74	22.47	0.59
Length of nasalia	12	5.13	6.41	5.66	0.31						45	4.77	6.80	6.80	0.34	27	5.18	6.31	5.82	0.31
Diastema	12	5.62	6.87	6.31	0.40						57	5.12	7.29	7.29	0.34	27	5.88	7.12	6.64	0.30
Maxillary tooth row	12	5.18	5.90	5.50	0.20						57	5.11	5.96	5.86	0.17	30	5.17	5.81	5.41	0.14
Occipital breadth	9	10.07	11.05	10.74	0.28						36	9.98	11.83	11.83	0.40	25	10.58	11.56	10.95	0.30

mountain populations is manifested in the dimensions of the hind foot and the tail length. Polish pine voles from mountain populations belong to the nominative subspecies.

REFERENCES

- Altner H., 1958: Biometrische Untersuchung an der Kurzoehrmaus *Pitymys subterraneus* (de Selys Longchamps, 1835). Zool. Anz., 160, 7—8: 135—146.
 Haitlinger R., 1970: Morphological characters of mountain populations of *Clethrionomys glareolus* (Schreber, 1780) and *Apodemus agrarius* (Pallas, 1771). Acta theriol., 15, 18: 000. Kowalski K., 1960: *Pitymys* Mc Murtrie, 1831 (*Microtidae*, *Rodentia*) in the Northern Carpathians. Acta theriol., 4, 6: 81—91. Kowalski K., 1964: Gryzonie — *Rodentia* [In »Klucze do oznaczania kręgowców Polski V. Ssaki — Mammalia« K. Kowalski ed.]. Państw. Wyd. Nauk.: 1—280. Warszawa—Kraków. König C., 1962: Eine neue Wühlmaus aus der Umgebung von Garmisch-Partenkirchen (Oberbayern): *Pitymys bavaricus*. Senckenberg. biol., 43, 1: 1—10. Kratochvíl J., 1952: Hraboši rodu *Pitymys* McMurtrie v Československu. Prace Morav. Akad. Ved. Prir., 24, 5: 155—194. Kratochvíl J., 1964: Die systematische Stellung von *Pitymys tatricus* Kratochvíl, 1952. Ztschr. Säugetierkunde, 29, 4: 230—235. Langensteen-Issel B., 1950: Biologische und ökologische Untersuchungen über die Kurzoehrmaus (*Pitymys subterraneus* de Selys Longchamps). Pflanzenbau u. Pflanzenschutz, 1, 4: 145—183. Niethammer J., 1960: Über die Säugetiere der Niederen Tauern. Mitt. zool. Mus. in Berlin, 36, 2, 2: 407—443. Wasilewski W., 1960: Angaben zur Biologie und Morphologie der Kurzoehrmaus, *Pitymys subterraneus* (de Selys Longchamps, 1835). Acta theriol., 4, 12: 185—247. Zejda J., Holišova V., Pelikan J., 1962: O některých vzácnějších savcích Slezska. Přírodovědný Časopis Slezský, 23, 1: 25—35.

College of Agriculture, Department of Zoology, Wrocław, Cybulskiego 20. Received, February 16, 1970.

Andrzej L. RUPRECHT

BOROWIEC OLBRZYMI, *NYCTALUS LASIOPTERUS* (SCHREBER, 1780) —
NOWY SSAK W FAUNIE POLSKI

NYCTALUS LASIOPTERUS (SCHREBER, 1780) — A NEW SPECIES IN THE FAUNA OF
POLAND

Nyctalus lasiopterus was first recorded in Poland. One skull of adult animal was found in the barn owl pellets coming from Królików, Konin district (52°04' N, 18°01' E).

Nyctalus lasiopterus (Schreber, 1780) jest stosunkowo szeroko rozprzestrzeniony w Europie, jednakże nigdzie nie należy do pospolitych. Zamieszkuje on dziuple i jako gatunek związany z lasami jest tym samym trudny do znalezienia. Znany jest z Hiszpanii (Bauer, 1956), Francji, Szwajcarii, Włoch, Jugosławii, Bułgarii, Rumunii (van den Brink, 1957), Turcji (Kahmann, 1962), Grecji (Wolf, 1964) oraz z europejskiej części ZSRR (Strelkov, 1963). Z uwagi na jego obecność w zachodniej części ZSRR (Białoruś — Serzhanin, 1961 i Ukraina — Tatarinov, 1956), możliwym wydawało się również stwierdzenie borowca olbrzymiego na terenie Polski (por. Kowalski, 1964).