

**Fragmenta Theriologica**

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## METAL CYLINDER AS A LIVE TRAP WITH A BAIT

## METALOWY CYLINDER JAKO PUŁAPKA ŻYWOŁOWNA Z PRZYŃETĄ

A metal cylinder is a very convenient trap for capturing small rodents, being easy to control (Snigirevska, 1939; Borowski & Dehnel, 1952; Novikov, 1953). It does not require, during capture, any setting of complicated (often deteriorating) mechanical devices which other live traps have. Its principal positive trait is that in the period of one capture a large amount of mice can be caught. This is especially important in ecological investigations. The agglomerative appearance of small rodents is the cause that in some places at a given period large quantities of animals may be caught, while simultaneously other places can remain unprofitable. In these cases the use of separate live traps causes their blocking by animals caught earlier than those which visit the traps later. In effect, there follows a general lowering of the number of animals that could be caught and, on the other hand, a picture of capture not adequate to penetration on separate points may be attained.

However, captures conducted by means of cylinders have a series of imperfections (Borowski & Dehnel, 1952). Contemporary ecological research often needs methods procuring large quantities of live material. Cylinders, while fulfilling the condition of mass capture, caused hitherto a considerable mortality among caught animals.

To diminish this mortality, probably mainly provoked by a loss of warmth in the animals and a lack of food, a wooden box of cylindrical shape (Fig. 1, 2), with thick walls, was placed at the bottom of the cylinder. It was made out of a hollowed-out round piece of wood with a diameter equal to the light of the cylinder. Two movable round laths (5) were attached to it at the top and at the bottom of the box so as to form lids that could be pushed aside. On the upper lid an entrance opening into the box was drilled, with a diameter of 3 cm, for animals falling into the cylinder. A movable plate (3) was attached near the opening of the box so as to leave only a small slit. The animals on entering the box push aside the plate and this is a signal during control that the box contains an animal. Thus the trouble of opening empty boxes is spared. On the lid of the box a handle (4) in the shape of a ring is fixed which renders possible the pulling out of the box with the aid of a hook, without bending down and stretching a hand towards the cylinder. By means of this hook the plate mentioned above closes the entrance opening before the box is removed.

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The mice were shaken out of the box into a linen bag by opening the lower lath and partly the upper one for chasing the animals out. The use of this box facilitates and hastens the taking out of captured animals. For capture hermetically soldered cylinders of rustless tin were used, 70 cm. deep and with a diameter of 15 cm. This depth of the cylinder prevents the springing out of some well jumping rodents, as for instance *Apodemus flavicollis* (Melchior, 1834).

An increase in the depth of cylinders in winter procures also an improvement of thermal conditions in the box, as it is placed in a stratum of the soil that usually freezes in forest conditions.

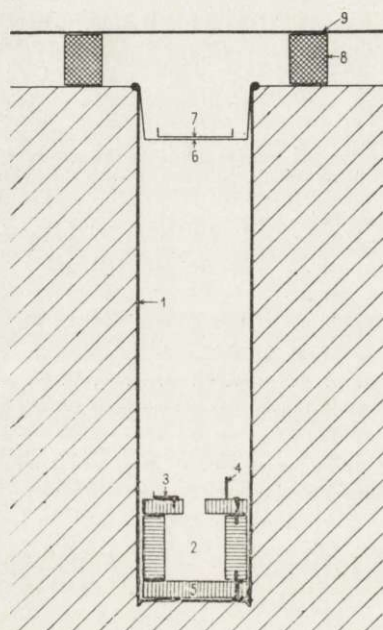


Fig. 1. (Explanation in the text).

It is important for the bottom of the cylinder and the box to be dry. Therefore, a square of tar-board (9) (60 cm. × 60 cm.) is placed above the cylinder on three wooden blocks (8) or pieces of brick and the like. This shelters the cylinder from wetting by rain or covering with snow and creates an additional thermal isolation of the interior of the cylinder. The cylinder ought not to be placed in a hollow of the terrain, where water might penetrate into it from the exterior.

For obtaining a high degree of capturing of animals living in the given terrain baiting can be used, so as to encourage them to approach the cylinders. Therefore, Petri dishes (7) containing grains of oats were placed in the cylinders on additional wooden floors (6) at a depth of about 10 cm. from the upper border. In our investigations the dishes remained for three nights (the oats were supplemented once daily) and on the fourth night the floor was taken out. The animals thus learned to visit the cylinders in the same way as they visited points provided with bait in the method described by Andrzejewski & Pielowski (1956).

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For preliminary investigation 10 cylinders were used, placed at a distance of 35 cm. from each other. Bait for the rodents was placed in 5 of them and 5 cylinders remained without. The cylinders were disposed on a surface of 2.5 ha on which every 15 m. points with bait and live traps were arranged in a square pattern.

All rodents captured both in cylinders and in live traps were marked with individual numbers and released immediately. Rodents were removed from cylinders once daily and twice daily from traps.

Investigations were carried out from February until April 1962. The atmospherical conditions in this period were very unfavourable for capture. The minimum temperatures fluctuated between +7°C to -14°C and during most of the days when capture was undertaken it rained or snowed and the snow cover maintained itself during February and nearly until the end of March.

The rodents endured quite well the time spent in the cylinders. Only 2 dead individuals, 1.7 per cent, were found in the cylinders for 118 captured ones. The

reason of their death, however, was not quite clear, as on both animals traces were found showing that they had been bitten by the rodents which remained in the cylinder.

The result of capturing into cylinders, with or without bait, is much higher than that of traps. The mean figure for animals caught in a trap amounts to 0.12, while it is of 1.0 (Table 1) in a cylinder. During the period of investigation the record number for rodents simultaneously caught in one cylinder was of 8 individuals. The attraction of the bait increases considerably the number of captured mice (the difference between them and cylinders with no bait is statistically significant). The number of captures in cylinders with no bait is also high. The fact that they were buried in places situated in the neighbourhood of points where the bait was disposed in order to attract mice to the traps — therefore in a zone of increased penetration of the animals — might exert a certain influence.

Marked animals, that is those constantly inhabiting the investigated area, were mostly caught in cylinders. Our material does not permit any definite assertion as to whether the frequency with which migrating mice (new on the investigated surface) fall into cylinders and traps is the same — or whether these two ways of capture act in a different manner in relation to this group of animals.

**Table 1.**  
The results of catching.

Date		Febr.	March							April				Total	Avg.
		26	5	12	17	19	23	26	30	2	6	9	13		
Number of catches	with a bait	5	6	4	11	8	7	8	6	11	3	7	5	81	6.7
	without a bait	2	4	0	5	5	5	4	1	3	3	4	1	37	3

In our material, however, a distinctly greater tendency appeared in the capturing of mice by means of cylinders rather than of live traps, towards the capturing of a given individual at the same point of capture. When we consider the percentage of participation in two consecutive captures at the same point in relation to all captures as an indicator for such repetition, then the percentage for live traps is of 2.3, while it amounted to 83 for cylinders (a statistically significant difference). In spite of the fact that the observed difference may result in a certain degree from the placing of cylinders at greater intervals, it still appears that the enormous difference in repeated, consecutive captures in the same cylinders, when compared with live traps, suggests that cylinders can furnish a picture of spatial penetration of rodents in a different manner than traps.

Preliminary results of capture by means of cylinders adapted to catching small rodents allow to state their great utility as a live trap for investigation based on the scheme "catch, mark, release". This is indicated by a considerable capturing of animals and the possibility of catching many individuals in a single cylinder, the mortality of these animals being very low. The fact that pictures of spatial penetration, differing from those of live traps, might be obtained must not escape attention.

The collected material is of a preliminary character. For further use of modified cylinders in ecological investigations it is necessary to work out such problems as the character of capture of the migrating part of the population, comparative capturing of different species and its alteration in time etc.

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## OBSERVATIONS SUR L'ACCOUPEMENT DES CHIROPTERES

## OBSERWACJE NAD KOPULACJĄ NIETOPERZY

Je relaterai ici deux observations ayant trait, l'une au Grand Rhinolophe, *Rhinolophus ferrumequinum* (Schreber, 1774), l'autre à la Pipistrelle, *Pipistrellus pipistrellus* (Schreber, 1774).

Le Grand Rhinolophe, *Rhinolophus ferrumequinum* (Schreber) est une espèce qui se montre très commune en saison froide dans les pays calcaires et accidentés situés au nord de Paris: Mantois, Vexin, Valois, Beauvaisis. Bien souvent je l'ai rencontrée, représentée par des hibernants généralement isolés, en prospectant, d'octobre à avril, les grottes et les carrières souterraines de ces régions. Cependant je n'ai pu observer — qu'une seule fois — un couple de ces animaux.

Dans l'après-midi du 2 novembre 1959, je pénétrai dans la grotte "Verrier", carrière souterraine située près du village de Bazemont. Au détour d'une galerie, dans une petite salle, j'aperçus un couple de Grands Rhinolophes, *Rhinolophus ferrumequinum*. Les deux animaux se tenaient accrochés à la paroi par leurs pattes postérieures et leurs têtes étaient dirigées vers le bas. Le mâle chevauchait la femelle selon le mode de copulation habituel chez les Mammifères.

Je me suis approché doucement, en évitant de faire du bruit, mais les Rhinolophes n'ont pas tardé à se séparer. Ils se sont enfuis au vol, le mâle en premier. J'ai pu capturer la femelle un peu plus loin. Elle était mouillée sur le dos et présentait une masse blanche, assez grosse, ovoïde et renflée, fixée sur le pelage, près de l'orifice génital. Cette formation, de nature probablement spermatique, frappait à première vue, par ses contours nets et réguliers.

Le 9 avril 1960, j'ai découvert, dans la "Grotte des Trois Murins" à Bazemont, un couple de Pipistrelles, *Pipistrellus pipistrellus*. Ces deux animaux étaient perchés à une paroi verticale et superposés comme les Rhinolophes dont il vient d'être question. Ils avaient la tête dirigée vers le bas et le mâle était notablement reporté vers l'arrière. Comme chez les Rhinolophes dont nous venons de parler, il était impossible de distinguer les organes génitaux externes pendant le coït. J'ai rampé jusqu'à l'emplacement du couple, mais les deux Chiroptères se sont séparés; la femelle s'est envolée; le mâle, resté en place, a pu être pris et examiné. Il avait le pénis turgescent, ce qui prouve qu'il y avait bien eu accouplement.

La température ambiante était de + 9°C, et le degré hygrométrique devait être élevé. Il est à remarquer que, à l'instar des Grands Rhinolophes observés en novembre, ce couple de Pipistrelles se tenait dans une petite salle et non dans une grande galerie.