

1. INTRODUCTION

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From the foundation of the Department of Ecology in 1952, then transformed into the Institute of Ecology PAS, population studies constituted an important part of its investigations. These studies were first headed by two successive directors of the Institute, K. Tarwid and K. Petruszewicz, then subsequently by R. Andrzejewski, who was succeeded by L. Ryszkowski, and finally by both Andrzejewski and Ryszkowski. These studies, first laboratory-experimental, were rapidly expanded into the field, and field experiments were often carried out. The main object of the field studies became the bank vole, the most common and ubiquitous species of small mammals in Poland.

Independent investigations were conducted at the Department of Agrocoenology at Turew, which has finally been transformed into an independent Department of Agrobiology and Forestry PAS in Poznań, headed successively by Z. Wilusz, P. Trojan, and L. Ryszkowski.

Also many ecological studies on small mammals were conducted at the Chair (then the Department) of Ecology and Evolutionism of the Institute of Zoology, University of Warsaw (headed by K. Petruszewicz, then by K. Dobrowolski).

At the same time, intensive morpho-physiological studies with deep ecological inclinations were developed at the Mammals Research Institute PAS at Białowieża (headed by A. Dehnel, then by Z. Pucek).

In the early 1960s, a specific field of physiological ecology (not ecological physiology) was developed at the ecological research centre in Kraków (headed by W. Grodziński), where both laboratory and field investigations were conducted.

It is worth emphasizing that parallel studies in the same areas and in the same vole populations were carried out on endoparasites (K. Kisielska, Department of Parasitology, PAS) and ectoparasites (S. M. Janion, Institute of Ecology, PAS) of small rodents.

Population studies of small mammals were greatly intensified in the 1960s and in the first half of the 1970s due to the International Biological Programme (IBP). Studies carried out in different centres were coordinated for many national symposia. As the result, they were of a complementary character, and the co-operation was so close that

we can speak about common Polish studies, which yielded 102 papers on the bank vole, and, more importantly, a detailed review of the literature on this species was compiled. Polish studies on small rodents, particularly on *Clethrionomys glareolus*, started to occupy an important position on the world scale. As a consequence of this development of population studies, the IBP Small Mammals Working Group was established at the symposium of the PT (Productivity of Terrestrial Ecosystems) section of the IBP at Jabłonna in 1966. K. Petruszewicz was the head and L. Ryszkowski the scientific secretary of this group.

The IBP Small Mammals Group was very active. A non-periodical bulletin, Small Mammals Newsletters was issued. Every other year, international symposia were organized: Jabłonna 1966, Oxford 1968, Helsinki 1970, and finally Warsaw-Dziekanów 1973. The first three symposia produced the following publications: Jabłonna — "Secondary productivity of terrestrial ecosystems"; Oxford — "Energy flow through small mammals populations"; Helsinki — "Proceedings of IBP meeting on secondary productivity in small mammal populations". Workers from 27 countries were involved in the IBP Small Mammals Working Group. The result of these joint studies was an advanced standardization of methods and terminology, coupled with a great diversity of study problems.

These intensive studies were summarized in the Vth volume of IBP synthesis: "Small mammals, their productivity and population dynamics" (Cambridge University Press, 1975).

In the course of these studies a huge body of empirical data was collected and a number of theoretical concepts were developed concerning population dynamics and the underlying regulatory mechanisms. A basic theoretical concept — widely though not commonly accepted — is the view that the population is not only the sum of individuals satisfying a certain criterion, but it is an integrated whole, the properties of which cannot be explained using even a complete knowledge of all individuals living in it. The population is a super-organismal unit in a cybernetical sense, an organized system. This organization determines or co-determines population dynamics, the fate of the population. There is also a large body of empirical material concerning the productivity of small mammals in a general sense of the word, and also the ecological role of small mammals in the functioning of ecosystems. As *Clethrionomys glareolus* is one of the most common and widely distributed species in Europe and Asia, we have accumulated a large set of data on the ecology of this species. Hence, an idea was born among Polish ecologists to prepare an ecological monograph of the bank vole. This book is the result of their efforts in this direction.