

# **MUSKRAT POPULATIONS**

***1962 Winner,  
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by an Iowa State Faculty Member***



*Paul L. Errington, Scientist*

116

**PAUL L. ERRINGTON**

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PAUL ERRINGTON was internationally recognized for his work in the population phenomena of vertebrates, especially fur and game species, and made extensive studies in this field in North America and northern Europe. Dr. Errington was professor of zoology at Iowa State University before his death in 1962. He became a staff member at Iowa State in 1932, the same year he received his doctorate from the University of Wisconsin. Recipient of many awards, he was given the American Wildlife Conference Aldo Leopold Medal (1962), a yearly award in recognition of the highest achievement and service to wildlife conservation. He was twice honored by the Wildlife Society for outstanding wildlife publication.

He was author of more than two hundred technical and popular articles and besides this book was author of "Of Men and Marshes" and "Muskrats and Marsh Management."

In 1958-59, Dr. Errington conducted research in Europe on population dynamics of higher vertebrates, with the support of the Guggenheim and National Science Foundations and the Swedish government.

He was Fellow of the American Association for the Advancement of Science and the American Ornithologists Union, and member of the American Society of Zoologists and numerous other scientific organizations.

For the manuscript of this book, Dr. Errington, several months before his death, received the 1962 Iowa State University Press \$500 annual cash award for its selection as the most significant new book manuscript by an Iowa State University staff member submitted to the Press during the year.

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## Preface

According to most definitions, the muskrat (*Ondatra zibethicus*—see Appendix A for taxonomy and phylogeny) can be regarded as a highly successful form of life, and, as such, it combines much of what is desirable in a subject for investigation. It is widely distributed and locally abundant over much of its native North America; and, since its artificial introduction in Eurasia during the present century, it has demonstrated its ability to acquire and to hold a vast, racially new, geographic range. It exhibits both generalized and specialized morphology, both a “down-to-earth-practicality” and psychological sensitivity, both wide and narrow ecological tolerances.

As a youth and young man, I learned something about the behavior, life history, and ecology of the muskrat in the course of 13 winters (1915–28) spent wholly or to a substantial extent as a fur trapper in Brookings and Haakon counties, South Dakota, and in Beltrami and Koochiching counties, Minnesota. Then, in 1934, in connection with regular duties at Iowa State University, I began the investigation on which this book largely is based. This research program continued through the spring of 1958, covering a span of approximately a quarter of a century. Throughout the entire period, the program was recognized as an official activity under the Agricultural Experimental Station of Iowa State University.

My approach in the latter investigation has been conditioned in part by combinations of personal interests, experience, and opportunities for study and in part by the encouraging productiveness of certain lines of biological exploration. I have given special attention to the mortality of the muskrat and to the conditions under which mortality may or may not significantly delimit populations. I am aware of hiatuses in my researches and data and of a certain unevenness in my treatment of population dynamics of the muskrat, but mine has been so much a one-man undertaking that some things have had to be neglected or underemphasized if emphasis were to be placed on others.

In my opinion, the chief contributions of this long-term and intensive study of free-living muskrat populations have related to manifestations of overpopulation, to territoriality and other forms of social intolerance, to adjustments during emergencies, to epizootiology in nature, to predation, and to the distinctions between intercompensatory and noncompensatory trends in rates of population gain or loss.

To supplement the intensive year-round Iowa studies, I visited representative areas of North America lying between the 35th and the 55th degrees of latitude. These out-of-state studies were chiefly during the summers of 1948 and 1949, with the help of grants from the Wildlife Management Institute and the active cooperation of the Hudson's Bay Company, the government of Manitoba, and public agencies in northwestern United States. Brief field trips outside Iowa included one to the singularly interesting muskrat-vacant swamps and streams of southern Georgia and northern Florida, as a guest of H. L. Stoddard, in April, 1929.

Finally, I took a year's leave of absence for a program of work and travel in northern Europe, 1958-59, of which the greater part was spent in the muskrat's new and probable future range in Scandinavia; this was done through the financial backing of a John Simon Guggenheim Memorial Fellowship, a National Science Foundation grant, grants-in-aid from the Swedish game research council, and cooperative arrangements with especially Lund University, the Northern Museum at Stockholm, and the Norwegian and Danish as well as Swedish governments.

In general, acknowledgments to persons who have been helpful to me in my studies of wild populations—whether by means of their published findings or in personal relations—shall be reserved for appropriate places in text or bibliography. I have been helped by many to whom I feel unable to express appreciation individually. With the passing of the years, I can no longer fully recognize, if I ever could, exactly how much I might be indebted to some people, nor can I adequately trace the origin of concepts somehow growing out of discussions with my colleagues. Perhaps my memorial article (1948b) on the late Professor Aldo Leopold of the University of Wisconsin may acknowledge part of what I owe to his good influence early in my professional career; and, in a similar way, I think of Stoddard and W. L. McAtee, both of whom were with the U.S. Biological Survey in those years.

I am very appreciative of the statistical help that I have received on the Iowa State University campus throughout the muskrat investigations, especially from Professors G. W. Snedecor and F. A. Brandner. For help with special statistical problems, I am also indebted to, among others, Doctors T. W. Horner, E. L. Kozicky, and M. L. Ferguson.

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