RESOLUTIONS OF RESPECT

Paul L. Errington 1902-1962

Paul L. Errington, pioneer population ecologist and naturalist, died on November 5, 1962. He was known throughout the world for his research

productivity and originality, for his long-term field studies in vertebrate population ecology, and for the application of ecological principles in wildlife management.

Born in 1902 on a farm near Bruce, South Dakato, he was educated in local elementary and secondary schools at Brookings. As a boy, he strengthened a polio-crippled leg by walking into the countryside and observing wildlife. During high school days, he trapped intensively and, following graduation, spent a trapping season in the Big Bog Country of Northern Minnesota. These rewarding experiences convinced him that he should continue his academic work in zoology. He attended South Dakota State College in nearby Brookings on a part-time basis while he earned his living trapping and farming. He took some coursework at George Washington University while in Washington, D. C. and studied at the U. S. National Museum. There he became acquainted with workers in the U. S. Biological Survey. He began work at the University of Wisconsin in 1929 under a graduate research fellowship sponsored by the Sporting Arms and Ammunition Manufacturers' Institute. Errington had always been interested in predators and his thesis allowed him to study the influence of predation on populations of bobwhites. Aldo Leopold, at that time a representative of the Sporting Arms and Ammunition Manufacturers' Institute, became a major influence on Errington and they shared many long and productive discussions of vertebrate ecology and game management.

After receiving his Ph.D. in 1932, Paul Errington was appointed Research Professor at Iowa State College where he worked until his death. He was placed in charge of wildlife research and was technical adviser to the Iowa Fish and Game Commission. This early research program was financed by Jay "Ding" Darling and by the Commission as a cooperative program with Iowa State College. As Chief of the Biological Survey, Darling later expanded this concept to the Cooperative Wildlife Research Unit program.

Errington's early publications (1929-1935) resulted mostly from this thesis research and his early work in Iowa and emphasized practical aspects of bobwhite ecology and management. He published several papers on the techniques of appraisal of food habits of raptors and other predators. However, he devoted one paper to the examination of factors influencing vulnerability of bobwhites to predation and demonstrated the relationship between predators, territorial behavior and carrying capacity of the habitat. He pointed out that "predators consumed mainly an ill-situated surplus." This was in disagreement with the reigning idea that the degree of predation was a simple direct relationship between predators and the abundance of prey.

Not only was predation on adults explored but high egg losses in pheasants were evaluated in collaboration with Frederick Hamerstrom. It was demonstrated that despite nest losses, a high percentage of hens brought off broods successfully because of their renesting potential. In an early experimental study, the effect of human predation on game species was explored by comparing shot and unshot quail populations. He learned that shooting losses followed biological laws since population levels remained similar on both areas, but natural mortality was lower on the shot than unshot areas.

A number of papers on gallinaceous birds were co-authored by Frederick Hamerstrom and it was with both Frances and Frederick Hamerstrom that Errington authored his classical paper on **"The great horned owl and its prey in the North Central United States"** (Iowa State Coll. Agric. Exp. Station Res. Bull. 277:759-850) which won the 1941 Wildlife Society Publications Award.

The biological principles underlying the automatic adjustments in the regulation of populations gradually consumed a greater part of his time and interests. At first he explored these phenomena in upland game birds. Quail populations were investigated by correlation of carefully recorded population data and information on the annual growth rate of the population. The annual increment was found to be inversely density-dependent.

The drought conditions on the Great Plains and, undoubtedly, boyhood memories of trapping, lured Errington back to the marshes and to furbearers. In 1935 he began his muskrat work with studies of growth and movements of tagged animals, and intensive observations on the territoriality, social conflicts and reproductive success of carefully censused populations.

As with the quail, predation again came under special study in the relationship of mink to muskrats. The traditional concepts of the impact of predators on prey were scrutinized closely and again, the vulnerability of prey was shown to be dependent on population levels in relation to carrying capacity and social pressures. He also demonstrated the commoness of compensatory breeding in muskrats and explored the relationship between breeding rates, disease losses, and cycles.

Errington's publications on muskrats have been many and include his popular book on **"Muskrats and marsh management"** published in 1961 by the Wildlife Management Institute. However, his major work on the species, **Muskrat Populations"** will be published during 1963 by the Iowa State University Press. It will record 25 years of observations and provide a synthesis of our present knowledge of this species.

Work with numerous predators provided the background for Errington's classical review, "Predation and vertebrate populations" (Quart. Rev. Biol. 21: 144-177, 221-245) which integrated his ideas with those of others and won Errington a second Wildlife Society Publication Award in 1947. He was able to demonstrate that predation rarely depresses vertebrate populations and that the automatic compensatory mechanisms within highly territorial species were of much greater significance in population regulation than were other factors such as predation. There was some indication that predation might be of great importance in those species which were tolerant of crowding, such as the ungulates and waterfowl. His research at the time of his death, and that of two of his graduate students, was concerned with an evaluation of mink predation on waterfowl.

Throughout his life, Paul Errington was interested in high professional standards, in esthetics in wildlife ecology (as expressed in his much reprinted **"A question of values,"** J. Wildl. Mgmt. 11: 267-272) and in literary writing. His popular book **"Of men and marshes"** (Macmillan, 1957) exemplifies these interests. Several other popular books are in manuscript form and will be completed by his capable wife, Carolyn.

During the academic year of 1958-1959, Errington served as Visiting Professor at Lund University in Sweden and visited several other European countries. There he was able to study the behavior of some European predators and gain insight into the problems associated with introduced mink and muskrats.

During the last year of his life, Errington was awarded the highest award of the Wildlife Society, the Aldo Leopold Medal. No award could have pleased him more and was more fitting since he was one of the first graduate students with whom Leopold came in contact in Wisconsin.

Errington was a member of many professional organizations. He was an Honorary Member of the Wildlife Society and a Fellow of the American Ornithologists' Union, the AAAS, and the Iowa Academy of Sciences. He served the Ecological Society as a member of editoiral boards and on several committees, including those concerned with the development of the Nature Conservancy.

Errington's research kept him in the field much of the time and he did not teach formal coursework until the last two years of his life. These courses, rich in the philosophy of conservation, were extremely popular and rewarding but far too few were able to enjoy them. However, many students and colleagues shared Errington's stimulating discussions by means of joint field trips. A standing invitation existed to join him in the field and, during the 1940's, a group of five neighborhood boys became a regular "following." Everyone of these boys later went on to receive a Ph.D. in some field of science.

Despite his busy career, Errington always found time to share the esthetics of the outdoors with his two sons, Peter and Frederick, and with his ever-helpful wife, Carolyn.

Errington's impact on the trends and thinking in fundamental and applied ecology has been great. Few people have contributed so much in original and well-documented research. Over 200 publications record the growth and contributions of one of our great modern naturalists. (Prepared by Milton W. Weller.)

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