

This Week's Citation Classic™

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Pearson O P. The rate of metabolism of some small mammals.
Ecology 28:127-45, 1947.

[Biological Laboratories, Harvard Univ., Cambridge, MA and Swarthmore College, PA]

Uninterrupted measurements of oxygen consumption during one or more 24-hour periods were made of 15 species of wild small mammals. Twenty-four-hour averages, maxima, minima, and day/night ratios were reported. Each genus consumed oxygen at a rate or in a pattern characteristic of that genus. [The *SCI*® indicates that this paper has been cited in over 110 publications since 1955.]

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"This work was done in cooperation with a fellow graduate student, Peter Morrison. It had nothing to do with either of our PhD theses and so was really the result of grad-student 'moonlighting.' We were propelled by earlier stimulation received from Robert Enders, Laurence Irving, and Pete Scholander when we were undergraduates at Swarthmore College. Morrison designed and built much of the apparatus; I caught and handled the animals and did the measurements. We communicated by mail. He was physiologically oriented, and I was ecologically oriented. This led to problems during the write-up, and we ended up

with two papers aimed at different readers.¹

"The measurement over 24-hour periods of metabolic rates of 'wild' animals under 'natural,' nonbasal conditions gave some interesting insights into daily cycles and into the metabolic impact of individual animals, populations, or even species on the resources in their environment. In a subsequent paper,² I pointed out the fun to be had playing with such numbers to calculate the energy flowing through populations. That article may have inspired some of the International Biological Program studies on terrestrial productivity and ecological energetics carried out later (1964-1974).

"The paper in *Ecology* is cited frequently because it was one of the first to report metabolic rates of nondomesticated species of mammals, and, since it reported on 15 species of relatively common mammals, it had to be cited by subsequent workers doing certain kinds of physiological or ecological studies on each of these species. In addition, the disciplines known as 'comparative physiology' and 'physiological ecology' were just opening up and had only a narrow base of papers to cite. Population ecology and community ecology were growing rapidly also, and workers in those fields found the measurement of energy flow through populations feasible, useful, and interesting."

1. Morrison P R. Oxygen consumption in several small wild mammals.
J. Cell. Comp. Physiol. 31:69-96, 1948.

2. Pearson O P. Metabolism and bioenergetics. *Sci. Mon.* 66:131-4, 1948.