Energy Value of the Shrew, Sorex ornatus

Wartość energetyczna ciała ryjówki, *Sorex ornatus*

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The mean caloric content of the North American insectivore, *Sorex ornatus*, was found to be similar to European insectivores. Small seasonal variation was observed. No sexual difference in energy content was noted.

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Most caloric values estimated for small mammals have been for rodents (Brisbin, 1970; Fleharty *et al.*, 1973: Kaufman *et al.*, 1975) and European insectivores (Górecki, 1965; Myrcha, 1969). This note reports the energy value for a North American insectivore, *Sorex ornatus*.

I measured the caloric content of 21 ornate shrews captured in the salt marshes of San Pablo Bay, California. Animals were collected from three periods of the year: fall (August, September, October), winter (December), and spring (April) during 1969 and 1970. Shrews were killed, sexed, wet-weighed and freeze-dried for nine days to a constant dry weight. Since freeze-dried weight approximated the 1 to 2 gram sample size, complete and intact animals were burned in a Gallenkamp adiabatic bomb calorimeter following the procedures of the Animal Nutrition Laboratory of the University of California, Davis. The burning of the whole shrews eliminates any error resulting from grinding and pelletizing. Several animals from the spring, heavier than the recommended size, were cut in half and burned separately.

The mean annual caloric value for *S. ornatus* was $4.82 \pm .03$ (S. E.) kcal/gm dry weight ($n=21$). The mean annual dry weight was $1.50 \pm .07$ (S. E.) grams. The caloric value of the ornate shrew was not significantly affected by sex. The overall annual mean for males ($n=10$) was $4.83 \pm .06$ (S. E.) kcal/km dry weight and for females ($n=8$) $4.80 \pm .03$ (S. E.) kcal/gm dry weight. No difference was noted in the caloric content of a pregnant female with four embryos (4.75 kcal/gm dry weight). The caloric content of *S. ornatus* showed small seasonal variation. The overall seasonal means were $4.76 \pm .03$ (S. E.) kcal/gm dry weight for fall ($n=8$), $4.80 \pm .10$ (S. E.) kcal/gm dry weight for winter ($n=6$), and $4.88 \pm .05$ (S. E.) kcal/gm dry weight for spring ($n=6$). The water content of the ornate shrew ranged from 65% total body weight in the spring to 71% total body weight in

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the fall. As a result of these seasonal variations in caloric value and water content the caloric value of shrews on a live weight basis varied considerably. It ranged from 1.33 kcal/gm live weight in the fall to 1.71 kcal/gm live weight in the spring.

The caloric content on a dry weight basis for *Sorex ornatus* (range 4.69 to 5.22 kcal/gm) is similar to the estimated caloric contents for European insectivores (range 4.80 to 5.19 kcal/gm for *S. araneus*, range 4.88 to 5.16 kcal/gm for *S. minutus*, and range 4.44 to 5.21 kcal/gm for *Neomys fodiens*; Myrcha, 1969) and for rodents (average ranges for sixteen rodents 4.77 to 5.39 kcal/gm; Kaufman *et al.*, 1975). Live weight caloric values for shrews and rodents are also similar (Górecki, 1965; Myrcha, 1969; Fleharty *et al.*, 1973; Kaufman *et al.*, 1975). Golley (1969—70) found no significant differences in caloric content of cotton rats because of sex or reproductive state. Seasonal differences in caloric content of small mammals have been found in other insectivores (Myrcha, 1969) and in rodents (Golley, 1969—70; Kaufman *et al.*, 1975).

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