ESTIMATION OF BODY CONDITION OF FREE-RANGING CARIBOU IN VIVO

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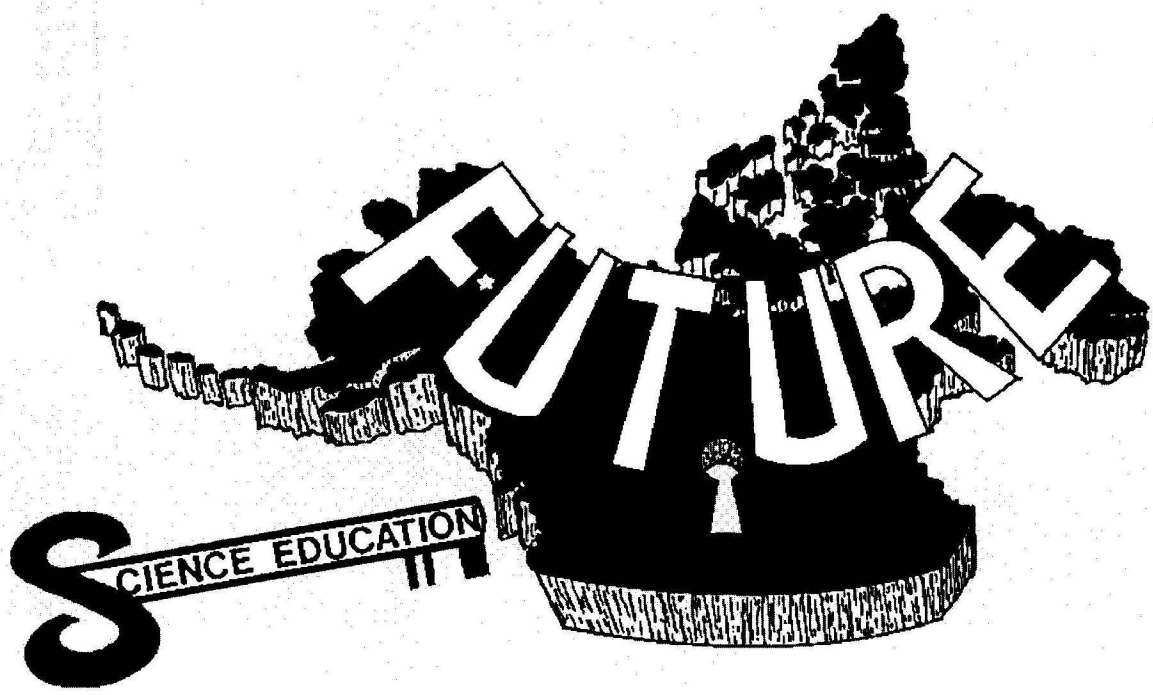
The need to monitor body condition of free-living animals in studies of reproductive success has prompted a reevaluation of existing techniques for estimating body composition and the development of new methods. In caribou (Rangifer tarandus granti) changes in live weight and body fat content are being estimated in radio-collared females that are periodically relocated and tranquilized.

Accurate determinations of body weight are made with a spring scale and tripod or helicopter lift. Body fat is assessed in vivo by estimating a) back fat thickness combined with a measurement of the fat content of a biopsy sample from the loin (longissimus dorsi) and b) the size of the body water pool (BWP) using tritiated water (HTO). The estimation of body fat relies on empirical correlation of the back fat and muscle fat indices with total body fat, while the BWP is inversely related to total body fat. Although the HTO technique yields a more precise estimate of total body fat, its utility in the field is limited by the time required for the injected dose of HTO to equilibrate with the BWP. In separate studies in fall, winter and spring, equilibration time ranged between 2 and 3 h. The single dose of M-99 and Rompun maintained the animal quiet but alert; however, in all cases deep body temperature rose by over 3°C, which has serious implications for reproductively active animals, particularly those that are pregnant. We recommend that future research focus on testing drugs that do not produce hyperthermia and on finding BWP markers that equilibrate more rapidly than HTO.

SCIENCE EDUCATION



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