A Wildlife Mortality Sample and Marrow Fat Assessment During a Record Snowfall Winter, Northwestern Montana[TWS]

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Carcasses (n = 114) killed during winter 1996-97 in the lower Clark Fork River drainage of western Montana were examined and assessed for condition by bone marrow fat index using visual rating and percent fat (dry/wet weight) rating methods. Species examined were bighorn sheep (*Ovis canadensis*) (n = 11), elk (*Cervus elanhas*) (n = 33), mule deer *Odocoileus hemionus*) (n = 3), and white-tailed deer *Odocoileus virginianus*) (n = 97). Sex, age, femur length, diastema, mortality agent, and parasites were recorded when available. Percent marrow-fat was analyzed on 53 specimens. Most (93%, n = 29) white-tailed deer that died before 15 February had > 20% marrow-fat, while 33% (n = 15) of those that died after 15 February had < 20% marrow-fat. There was a significant difference between percent marrow-fat for those deer that died during the first half of winter and those that died in the last half (p = 0.003, t-test). A majority (59%, n = 22) of white-tailed deer carcasses from mid-late winter had an inadequate marrow-fat visual rating. A total of 41 (36%) animals were < I year old (I elk, 2 bighorn sheep, 3 8 white-tailed deer) and 14 (12%) were estimated at > 10 years old (1 elk, 13 white-tailed deer). Females (77%, n = 85) markedly outnumbered males (n = 26) in this sample (3 were unknown). Mortality agents were categorized as hunter wasted (1 %), predator (7%), road kill (87%), train-kill (4%), and unknown (1%). These data document the seasonal physical stress on a sample of wildlife in northwestern Montana during a record snowfall event and support the contention that weather conditions can have a dramatic impact on wildlife populations. Since this type of data have not been collected in this area prior to 1997, no comparisons can be made regarding physical health during less severe winter conditions. Efforts to collect such data in the future will be made when time and resources allow.