

Comparisons and Trends in White-tailed Deer, *Odocoileus virginianus*, Body Fat in Northeastern Minnesota, 1974-1990

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The relationships among locations of body fats have not been thoroughly examined in White-tailed Deer (*Odocoileus virginianus*). We measured bone marrow fat ($n = 2995$), back fat ($n = 1018$), kidney fat ($n = 2076$), and xiphoid fat ($n = 1246$) levels of White-tailed Deer kills from Cook and Lake counties in northeastern Minnesota during 1974-1990. For each dead deer we determined age, sex, date, and causes of mortality. All of the fat measures were correlated to varying degrees. Generally all fat measurements peaked in late autumn and subsequently began declining and reached their lowest levels in May. Fat content was negatively correlated with winter severity. Causes of mortality included predation, poaching, accidental, unknown, and auto-collisions. Predated animals had lower bone marrow (-7.42 ± 3.92) and 0.165 ± 2.30 times lower back fat and had higher amounts of kidney fat than those killed by vehicles (0.86 ± 0.43).

Key Words: White-tailed Deer, *Odocoileus virginianus*, bone marrow, kidney, mobilization, mortality, winter severity, xiphoid, Minnesota.