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Mitigation of Chronic Wasting Disease (CWD) in White-tailed Deer through strategic harvest management regimes

This study examines the effect of culling different demographic groups on the spread of Chronic Wasting Disease (CWD) in White-tailed deer (*Odocoileus virginianus*). CWD is a transmissible spongiform encephalopathy (TSE) with an unknown derivation and no antidote. Without intervention, population growth and resilience of deer populations will be stifled. Management and disease suppression by United States game agencies has ranged from minimal action and surveillance, to widespread culls and restricted interstate transport. Culling is the primary method used for mitigation within established CWD areas, however, there is limited research and implementation of strategic harvest management regimes. Two mathematical models were formulated to study CWD in free ranging White-tailed deer. Qualitative and numerical techniques were used to investigate how culling different demographic groups can influence disease prevalence, and subsequently, this gives insight towards management prescriptions and long term population dynamics.