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*Applications of Mathematical Modelling in Managing the Spread of Chronic Wasting Disease (CWD) in Wild Deer*

We describe the application of a recently developed mathematical model for predicting the spread of chronic wasting disease (CWD) in wild deer under different scenarios where harvesting is employed in disease management. A process-based mathematical model for CWD transmission in wild deer populations was recently developed and parameterized by Al-arydah et al. (2012) to provide a scientific basis for understanding the factors that affect the spread of CWD and to evaluate concomitant disease control strategies. The impact of gender on CWD transmission was shown to have a significant influence on the spread of the disease in the wild. Our model shows a range of harvesting rates in which CWD is controlled and the deer population survives. However, if harvesting rates are too low, the disease remains endemic for decades whereas the Canadian deer population becomes extirpated if harvesting rates are excessive. Future work includes building the model to assess the spread of CWD under different disease management scenarios.