

Management Strategy Evaluation for Informing Decisions About Wolf Management and Conservation

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Decisions about wildlife conservation and management are often challenged by limited information about how potential actions may impact management goals. Adaptive management can reduce this uncertainty and lead to better outcomes by iteratively applying management, monitoring outcomes, updating models, and making management decisions based on the updated information. Management strategy evaluation (MSE) is a simulation approach for evaluating the efficacy of various management actions under different states of the world within an adaptive framework. To demonstrate MSE use, we present a case study of the wolf harvest and management decision problem in Montana. Given the large suite of management objectives articulated for wolves in Montana, we present methods and results as they relate to wolf population objectives. Methods include projection models for the wolf population, simulation of data collection and fitting of estimation and projection models, identifying management decisions based on harvest control rules, and implementation of the decisions. We discuss how additional fundamental management objectives will be incorporated as this work progresses. Our application shows how incorporating social and ecological aspects into a MSE framework, along with all relevant forms of uncertainty, can offer insight into how management goals are likely to be influenced by various management actions over long time scales.