
****APPLICATION OF STRUCTURED DECISION MAKING TO WILDLIFE MANAGEMENT IN MONTANA**

Sarah N. Sells*, Montana Cooperative Wildlife Research Unit, University of Montana, Missoula

Michael S. Mitchell, U.S. Geological Survey, Montana Cooperative Wildlife Research Unit,
University of Montana, Missoula

Justin A. Gude, Montana Fish, Wildlife and Parks, Helena

Neil J. Anderson, Montana Fish, Wildlife and Parks, Bozeman

Good decision-making is essential to conserving wildlife populations. Whereas there may be multiple ways to address a problem, perfect solutions rarely exist. Managers are therefore tasked with identifying optimal decisions that will best achieve desired outcomes. Structured decision making (SDM) is a method of decision analysis used to identify the most effective, efficient, and realistic optimal decisions while accounting for values and priorities of the decision maker. The stepwise process includes identifying the management problem, defining objectives for solving the problem, developing alternative approaches to achieve

the objectives, and formally evaluating which alternative is most likely to accomplish the objectives. The SDM process can be more effective than informal decision-making because it provides a transparent way to quantitatively evaluate decisions for addressing multiple management objectives while incorporating science, uncertainty, and risk tolerance. We illustrate the application of this process to management needs, including an SDM-based decision tool developed to identify optimal decisions for proactively managing risk of pneumonia epizootics in bighorn sheep (*Ovis canadensis*). Pneumonia epizootics are a major challenge for managers, including in terms of knowing how or when to manage risk. The decision tool facilitates analysis of alternative decisions for how to manage herds based on predictions from a risk model, herd-specific objectives, and predicted costs and benefits of each alternative. Managers can be confident resulting decisions are most effective, efficient, and realistic because they explicitly account for important considerations managers implicitly weigh when making decisions, including competing management objectives, uncertainty in potential outcomes and risk tolerance.