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Developing a decision-analytic tool to mitigate wildlife-based conflicts

Differing perspectives among stakeholders generate conflicts about how to manage wildlife species and the habitats they depend on. Nature conservationists would like to maintain natural ecosystem processes and viability of native species at all trophic levels. At the same time, members of the hunting community are concerned about large carnivores depressing wild ungulate populations or making them more difficult to hunt, thus threatening their livelihoods. Browsing and bark-stripping by wild ungulates can affect forest growth and compromise protective functions of mountain forests. These effects may be exacerbated by the retreat of these herbivores from expanding populations of wolves in the Alps. Many landowners in this region are concerned about such impacts of wild ungulates on forests. District authorities responsible for managing these populations are therefore pulled in multiple directions by diverse stakeholders when striving for sustainable wildlife management. To our knowledge, there exists no modeling framework to inform these decisions. Despite the rapid expansion of decision analysis for natural resource management in North America, this approach is rarely applied in Europe and other continents. We use collaborative decision analysis to develop a model for informing resource allocations among management actions while accounting for conflicting views and uncertainty. Through stakeholder workshops in Lower Austria, we constructed a decision-support tool based on a Bayesian decision network. The tool is designed for application by non-technical users across diverse decision-making contexts with particular sets of game-management actions, objectives, and uncertainties. We asked game managers and other stakeholders whether the tool would be effective at addressing hurdles to decision-making through semi-structured interviews and surveys before and after the workshop series. Workshop participants were mostly optimistic about the potential for the tool, and we are now planning further improvements and tests of the tool in actual decision-making. This represents an important step toward developing and evaluating a transparent and replicable approach for mitigating wildlife-based conflicts.