Appendix 3

Explanation of how expert opinion can appropriately be used in structured decision making. Twenty owners of large, forested properties (at least 20 ha in total area with at least 4 ha of forest) in Macon County, North Carolina, participated in a structured decision making (SDM) process consisting of two series of workshops with ten landowners each. In each series, landowners evaluated what they can do to their forest to maximize the achievement of their land use objectives. The decision network was populated with probabilities from experts.

Using expert opinion to generate values in a quantitative analysis may seem of questionable validity to scientists trained in controlled experiments founded on the notion of falsifiability (Gregory and Failing 2002). However, the expert opinions were elicited and used in a rigorous, transparent, and logical way (Martin et al. 2009). Also, it is important to recall the goal of SDM: to use currently available knowledge in a value-focused process to objectively evaluate decision options and identify the decision option with the greatest probability of achieving decision-makers' objectives. Often, a decision must be made regardless of the current state of knowledge, and SDM is a process to support decision-making so that underlying assumptions are made explicit, key uncertainties are identified, decision components are transparent, and, consequently, a desired outcome is more likely to be achieved (Marcot et al. 2001). Also, SDM is complimented by adaptive management in that models can be updated and decisions can be re-evaluated as more data become available (Nyberg et al. 2006, McFadden et al. 2011, Tyre and Michaels 2011). Further, the use of expert opinion is consistent with the call to integrate local knowledge in decision-making (Jasanoff 1990, Irwin and Wynne 1996, Fischer 2000, Failing et al. 2007). When more sources than journal publications are used, knowledge held by people outside of academia, such as land managers, become accessible (Johnson 1999, Raymond et al. 2010). Such an approach can increase knowledge while also cultivating inclusivity and buy-in by stakeholders (Raymond et al. 2010).

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