



# Decision Analysis Seminar

February 22, 2006

## Goal:

To spark awareness and interest in the fields of decision analysis and risk analysis, and to stimulate future development of structured decision making projects, new applications, and coordination among potential and current practitioners in FWS and USGS.

## Objectives:

1. Expose agency managers and biologists to the theories and practices of decision and risk analysis from a variety of perspectives.
2. Learn from the experiences of others with demonstrated expertise in decision analysis and related fields.
3. Increase awareness and discussion about where and how decision and risk analysis applications could be feasible and beneficial to FWS and USGS.
4. Identify opportunities for applying decision analysis concepts and tools within the FWS, including effective use of USGS support capacity.
5. Help foster development of a Decision Analysis Community of Practice among practitioners within FWS and USGS.

## Seminar Schedule and Format:

The seminar is scheduled to be held at the National Conservation Training Center in Shepherdstown, WV, from Monday, June 19 to Thursday, June 22, 2006. The seminar will promote learning through engagement with outside experts. Presentations, case studies, discussions and other interactive formats will be employed to introduce the main concepts and tools from decision and risk analysis and to stimulate thinking about how these approaches may be applicable in natural resource decision-making contexts. This seminar will also assist NCTC in developing formal training in structured decision analysis (ECS3159 - Decision Analysis for Natural Resource Management). The first 2.5 days of the seminar will involve plenary sessions followed by break-out/working sessions the following 1.5 days.

## Expected FWS/USGS Participation:

Staff scientists and managers who are currently or who will be engaging in application of structured approaches to scientific analysis and decision making within or in support of the FWS. Within the FWS, participants and guide future decision-making processes. FWS and USGS staff who have completed the NCTC courses Principles of Modeling for Conservation Planning and Analysis or Scientific Principles for Endangered Species Conservation are encouraged to attend. USGS scientists skilled in decision analysis applications from natural resource and social sciences will be invited presenters.

Maximum 60 participants.

## Invited Outside Participants:

Outside participants have been invited from decision analysis and related fields including risk assessment, information analysis, stakeholder involvement, critical thinking, communication, and computer-based decision support systems. To date, confirmations have been received from Drs. Tony Starfield (Univ. of MN), Lynn Maguire (Duke Univ.), Mark Burgman (Univ. of Melbourne), and Robin Gregory (Decision Research).

## Possible Modules:

This is a preliminary list that may be substantially refined as planning progresses.

Introduction. Why is this important?

1. Introduction to Decision Analysis - theory and elements, main concepts and terms, introduction to problem types, introduction to risk analysis and management.
2. Problem Diagnosis - identifying goals and objectives, information needs and availability, decision space, constraints, developing options.
3. Classical Decision Analysis - single objective decisions under uncertainty, basic decision structuring steps, decision trees, choosing among options, "utility", coping with uncertainty.
4. Multiple objective decisions - identifying options, objectives hierarchies, values and preferences, ranking methods, relationship to conflict/dispute resolution.
5. Risk Management - role of risk tolerance and preferences, risk analysis and public/regulatory decisions, decision standards for treating uncertainty.
6. Scientific Risk Analysis - scientific processes for describing risks and uncertainty, simulation modeling.
7. Expertise and Judgement - issues and limitations of subjective judgement; eliciting expertise.
8. Decision Analysis and Adaptive Management - science and decision-making as an iterative process, monitoring and revision, FWS and related examples of explicit frameworks.
9. Information and Decision Quality - decision analysis under uncertainty in the public policy and regulatory realm.

Summary and Wrap-up. Concluding remarks, recap heuristics, main concepts, next steps.

## How to enroll:

FWS employees can enroll online at the NCTC's webpage by submitting an application for ECS3159 - Decision Analysis for Natural Resource Management - June 2006. USGS employees should contact Lianne Ball at lball@usgs.gov for instructions on how to apply. For additional information please contact Donna Brewer at 304-876-7451 or donna\_brewer@fws.gov.