

# ACERA Project 0904

1. **Project Title:** Uncertainty analysis in qualitative risk assessments

2. **Theme:** Risk analysis methods

3. **Rationale:**

Risk analysis is a common tool used by government to assess and manage biological threats. In addition, there are expectations and often legislative requirements for openness and transparency of the process. In many cases some form of qualitative risk assessment is used. The complexity of the biological and environmental systems under consideration and a frequent lack of scientific data often precludes quantitative, statistical analysis. Instead, the risk assessment uses scientific information to consider a range of possible scenarios (what-if statements) that are characterised in qualitative terms, rather than numeric probabilities. Even semi-quantitative scoring systems (commonly used for comparative weed risk assessment) are still inherently qualitative and handle uncertainty poorly.

Although the importance and nature of uncertainty may be expressly acknowledged in these risk assessments (e.g. the National Post Border Protocol for Weed Risk Management and Risk Analysis Framework, OGTR 2007) there is limited explicit analysis of uncertainty in practice. Yet uncertainty can have potentially wide-ranging impacts on the risk analysis process, including: setting risk criteria and the level of risk acceptability; the degree of effort used in the risk assessment (e.g. the type and amount of data required, and depth of analysis); the reliability, repeatability and defensibility of the risk estimates; meaningful and transparent description of risk assessment conclusions for decision-makers and stakeholders; and confidence of the public in the outputs. However, most tools for uncertainty analysis have been developed for quantitative risk assessments. This project will focus on developing practical guidance on uncertainty analysis that can be applied in a government setting to qualitative risk assessments. This project addresses ACERA strategic objectives relating to the development of state-of-the-art risk analysis methods in biosecurity and communication of these to users of risk analysis (especially national and state government policy analysts undertaking qualitative risk assessments for invasive species). In particular it addresses the ACERA research theme of *risk analysis: Improved transparency and repeatability of qualitative risk analyses through the use of formal, structured approaches to problem solving*. It also has high relevance to the *elicitation and communications and decision-making* themes.

4. **Outputs**

- A review paper on national and international practices in uncertainty analysis relevant to qualitative risk assessments of biological threats, publicly available as a web link.
- A cross-sectoral workshop to canvas the issues surrounding uncertainty analysis in qualitative risk assessments in biosecurity, including barriers to acknowledging and incorporating uncertainty, and identification of the tools and strategies for uncertainty analysis that are applicable in a government setting.
- A generic uncertainty analysis matrix and checklist suitable as an attachment to risk assessments.

- A training module to be made available to government departments and agencies both electronically and hard copy.

5. **Time frame:** Commencing: July 2008; finishing: June 2009

6. **Project leader(s)**

<b>Title</b>	<b>First name</b>	<b>Surname</b>	<b>Location</b>	<b>Organisation</b>	<b>% Time per year</b>
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7. **Resources**

**A. Funds**

Financial years of requested funding	06/07	07/08	08/09
<b>Project Total</b>			<b>\$50,000</b>

**B. Funds obtained from other sources for this project**

(Participant, Industry or Third Party support (cash or in-kind))

Financial years of requested funding	<b>07/08</b>	<b>08/09</b>
<b>Total</b>		<b>\$100,000</b>

8. **End Users**

Government departments and agencies