

Report Cover Page

ACERA Project		
1004		
Title		
Post-border surveillance techniques: review, synthesis and deployment		
Author(s) / Address(es)		
<p>Dr Susie Hester, School of Business, Economics and Public Policy, University of New England, Armidale NSW</p> <p>Dr Evan Sergeant, AusVet Animal Health Services, Orange NSW</p> <p>Dr Karen Herbert, Biosecurity Victoria - Department of Primary Industries, Albury, NSW</p> <p>Dr Andrew Robinson, ACERA and Department of Mathematics and Statistics, University of Melbourne, Parkville, VIC</p>		
Material Type and Status (Internal draft, Final Technical or Project report, Manuscript, Manual, Software)		
Draft Final Report 5 (Stage 6)		
Summary		
<p>Post-border surveillance is used to: give evidence that a pest or disease is absent from a country, region or defined area, thus enabling access to particular export markets; detect new pests and diseases early enough to allow for cost-effective management; establish the boundaries of a known pest or disease; and monitor existing containment or eradication programmes.</p> <p>A variety of tools exists to aid biosecurity managers plan, implement and evaluate post-border surveillance activities. These were reviewed in Stage 1 and 2 of this project. Many of the tools and methods discussed in the review are, however, not easily applied by those involved in post-border surveillance due to both the complexity of the tools and time constraints on surveillance staff.</p> <p>Previous milestone reports outlined two case studies that illustrate the application of two of these tools (Stage 3), described their implementation in ways that would make them accessible to operational staff in Australian government agencies (Stage 4), and described field tests of the tools, recommendations for modifications and developments to suit operational conditions, and (for case study ii) the test version of the software (Project Stage 5). The purpose of this report is to develop guidelines and training materials and for these tools (Project Stage 6) and we do this through the production of a manual for each tool.</p> <p>In summary the manuals explain:</p> <ol style="list-style-type: none"> i. the use of <i>EpiTools</i>, a set of web-based tools, to create a survey strategy for demonstration of freedom from a pest or disease and use citrus canker in the Northern Territory as an example; and ii. the use of an Excel-based eradograph-monitoring tool, <i>MoniTool</i>, to show progress towards regional extirpation of a weed using data from branched broomrape. 		
ACERA Use only	Received By:	Date:
	ACERA / AMSI SAC Approval:	Date:
	DAFF Endorsement: () Yes () No	Date:

Post-border surveillance techniques: review, synthesis and deployment

ACERA Project No. 1004

Susan Hester, University of New England

Final Report 5 (Stage 6)

15 February, 2012



Acknowledgements

This report is a product of the Australian Centre of Excellence for Risk Analysis (ACERA). In preparing this report, the authors acknowledge the financial and other support provided by the Department of Agriculture, Fisheries and Forestry (DAFF), the University of Melbourne, Australian Mathematical Sciences Institute (AMSI) and Australian Research Centre for Urban Ecology (ARCUE).

The authors are grateful to Mark Burgman for advice and support throughout the construction of this report and to the following people for either suggesting case studies or assisting in their design: James Walker, David Miron, Daniel Collins, Andrew Tomkins, Graham Schultz, Cindy Hauser, Fran Hausmann, Karen Herbert, Neil Smith, Rene Villano, Dane Panetta, Carol Cribb, Paul Pheloung and the staff of the NT Department of Resources who spoke at a project meeting on 26 and 27 October 2009, and who participated in an EpiTools workshop on 17 November 2011.

Table of contents

Executive Summary 6

Executive Summary

A variety of tools exists to aid biosecurity managers plan, implement and evaluate post-border surveillance activities. These tools were reviewed in Stage 1 and 2 of this project and range from rules of thumb and formulae to user-friendly interfaces for simulation models. Many of the tools and methods discussed in the review are, however, not easily applied by those involved in post-border surveillance due to both the complexity of tools and the time constraints on surveillance staff who would be required to understand and apply them.

Previous milestone reports outlined two case studies that illustrate the application of two of these tools (Stage 3), described their implementation in ways that would make them accessible to operational staff in Australian government agencies (Stage 4), and described field tests of the tools, recommendations for modifications and developments to suit operational conditions, and (for case study ii) the test version of the software (Project Stage 5). The purpose of this report is to develop guidelines and training materials for these tools (Project Stage 6) and we do this through the production of a manual for each tool.

The first manual explains the use of *EpiTools*, a pre-existing set of web-based tools, to create a survey strategy for demonstration of freedom, using the example of citrus canker in the Northern Territory. *EpiTools* can be used to design surveys that meet market access requirements. This set of tools has been well-applied in the animal sector, but there has been little or no uptake of it in the plant sector despite applicability of the tools to plant-health surveillance problems. The manual takes the user through a series of examples that should cover most survey-design scenarios in the proof-of-freedom context.

The second manual explains the use of an Excel-based eradication-monitoring tool, *MoniTool*, to show progress towards regional extirpation of orange hawkweed in the Australian Alps. This tool allows biosecurity managers to better-monitor the effect of weed management activities and evaluate progress in an eradication programme as a basis for making sound decisions on the future delivery of such programmes.

Both tools are ready to be applied operationally and can improve the capability of agencies tasked with undertaking surveillance, but with limited expertise and resources, to deliver sound and defensible surveillance biosecurity outcomes for Australia.

The use of *EpiTools* is recommended:

1. Where a structured survey is required to prove freedom in a plant-health context, to design surveys that will generate a required level of confidence (e.g., 95%) of detecting a disease/pest at or above a specified prevalence (e.g., 1%);

2. Where the budget for a structured survey is limited, to find the least-cost sample size that would be required in order to generate a particular level of confidence (e.g., 95%) of detecting a disease/pest at or above a specified prevalence (e.g., 1%).

In either case, survey designs could then be reviewed by a statistician if required.

The use of MoniTool is recommended:

1. Where an objective ongoing measure of the progress of a weed eradication programme is needed to assist decision making on future delivery of the programme.

