

# Surveillance Evaluation Framework (SurF)

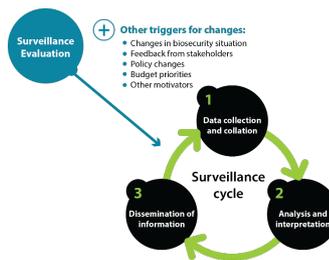
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## Acknowledgements

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- Paul Bingham
- Tim Riding
- Brendan Gould



## Biosecurity surveillance

“Biosecurity surveillance is the process of systematically collecting, analysing and interpreting information about the presence or absence of pests, diseases and unwanted organisms.”

[Pests, diseases, animals, plants and other living things, which either don't belong in New Zealand, or which can cause problems for humans, animals, plants or the environment]



Pine Pitch Cancer



Fruit Fly

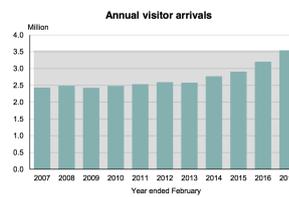
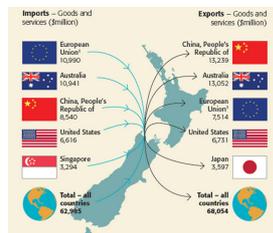


FMD



## Why is biosecurity surveillance so important to New Zealand?

Growing volumes of **tourism and trade** are putting pressure on the biosecurity system.



## Butterfly bounty a great earner for kids

JAMES GREENLAND



Last updated 12:57 25/09/2013

18

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MARTIN DE RUYTER/FAIRFAX NZ

Wanted: Dead, not alive. A bounty has been placed on Nelson's brassica-eating, eco-crime committing great white butterfly.

The Department of Conservation has offered a \$10 reward for every dead adult great white butterfly brought to the Nelson DOC office during the two-weeks school holiday, starting on Monday.

"We want great white butterflies dead not alive," Conservation Minister Nick Smith said, announcing the new initiative at Enner Glynn School this morning.

"They are an unwelcome pest and pose a major threat to endangered native cresses and garden and commercial plants like cabbage and broccoli."



## Aim

"To deliver a structured and adaptable process that enables the systematic and comprehensive evaluation of MPI's surveillance activities, programme, systems or portfolios"

- Should meet the needs of all sectors (plant, terrestrial animal, environment & aquatic)



## Approach

- Literature review of existing approaches
  - Several established frameworks in human/animal health surveillance
    - E.g. CDC, ECDC, EVA, Serval
  - No suitable examples available for the other sectors (plant & environment)



## Key findings

- Importance of terminology
- Need for adaptability vs. frameworks that are specifically tailored to surveillance objectives
- General concepts are transferable to different sectors
- Large number of attributes are already available



## Surveillance Evaluation Framework SurF



### SurF - Aim

“To deliver a structured and adaptable process that enables the systematic and comprehensive evaluation of MPI’s surveillance activities, programme, systems or portfolios”



- Should meet the needs of all sectors

<b>Surveillance activity</b>	A defined surveillance task that is a component of a surveillance programme or system.
<b>Surveillance system</b>	A set of surveillance programmes and resources used to generate information relevant to its objective on the health or biosecurity status of a population.
<b>Surveillance programme</b>	Used in the context of the New Zealand biosecurity system to describe a specific surveillance activity or a group of related activities with a defined set of expected deliverables and outcomes.



## Structured evaluation process

- Brief summary of the system under evaluation
- I Motivation for the evaluation
- II Scope of the evaluation
- III Evaluation design and implementation
- IV Reporting and communication of evaluation outputs



## Attributes

- Total of 29 Attributes
- Core attributes (n=9)
- Accessory attributes (n=20)
  - *Choice of the assessor*
- Traffic light coding

Traffic-light code	Description
●	Excellent or very good
●	Good, though room for improvement
●	In need of attention



## Attributes in functional groups



Functional Attribute Group	Attribute
A. Organisation & Management	1. Flexibility
	2. <b>Organisation and management</b>
	3. <b>Performance indicators and evaluation</b>
B. Processes	4. Data analysis
	5. <b>Data and information collection</b>
	6. Data management and storage
	7. Field and laboratory services
	8. Resource availability
	9. <b>Technical competence and training</b>
C. Technical Implementation	10. Acceptability and engagement
	11. Coverage
	12. <b>Data completeness and correctness</b>
	13. Interoperability
	14. Multiple utility
	15. RARR (Reliability, availability, repeatability, and robustness)
	16. <b>Timeliness</b>



D. Outputs	<hr/> <ul style="list-style-type: none"> <li>17. Historical data</li> <li>18. Negative predictive value</li> <li>19. Positive predictive value</li> <li>20. Precision</li> <li><b>21. Representativeness and bias</b></li> <li><b>22. Sensitivity<sup>5</sup></b></li> <li><b>23. Specificity<sup>5</sup></b></li> </ul> <hr/>
E. Impact	<hr/> <ul style="list-style-type: none"> <li>24. Benefit</li> <li>25. Decision support</li> <li>26. Efficiency</li> <li>27. External communication and dissemination</li> <li>28. Internal communication</li> <li><b>29. Utility</b></li> </ul> <hr/>



## Guidance notes

12	<b>Data completeness and correctness</b>	<b>How complete and correct is the data obtained and recorded by surveillance.</b>	<p>Assessment of the proportion of data that was intended to be collected that actually was, and the proportion of data entries that are complete (i.e. include all variables) and correctly reflect the true value of the data collected. Includes assessment of data quality and documents if data validation is occurring.</p> <p>Completeness of surveillance data is the percentage of complete entries and should be considered at two levels: fields and records. Most commonly data completeness is measured as the proportion of records with complete and valid data in the data fields – where data fields are variables containing (where applicable) demographic, morphometric, taxonomic, clinical, pathologic or epidemiological information recorded for each sample. Key data fields (e.g. animal ID, holding of origin, test result etc.) should be identified and the proportion of completeness measured.</p> <p>Measurement of the proportion of records or observations that have been collated in the data system may also be considered. This will require comparison with an alternative source of data (e.g. the sample frame or paper records of sampling and test results).</p> <p>Poor data completeness may indicate problems in the following attributes: "data and information collection", "data management" or "internal communication" and "acceptability and engagement".</p>
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## Methods catalogue

### BENEFIT

Reference	Abstract	Date used	Name of evaluation	Comments
Dijkhuizen et al. Economic analysis of animal diseases and their control. Preventive Veterinary Medicine, 25: 195-49, 1995	Animal Health Economics is a relatively new discipline, which is progressively developing a solid framework of concepts, procedures, and data to support the decision-making process in optimizing animal health management. Research in this field primarily deals with three interrelated aspects: (1) quantifying the financial effects of animal disease, (2) developing methods for optimizing decisions when individual animals, herds or populations are affected, and (3) determining the costs and benefits of disease control measures. In the paper the four most common economic modeling techniques (i.e. partial budgeting, cost-benefit analysis, decision analysis, and systems simulation) are described and applied on three levels of veterinary decision making: the animal, herd, and national level. Outcomes so far are summarized, and shortcomings indicated and discussed. The importance of a close link between economics and epidemiology is stressed for future development, as well as the need and possibilities for an international exchange of models and procedures.			
Dufour B. Technical and economic evaluation method for use in improving infectious animal disease surveillance networks. Veterinary Research 30: 27-37, 1999	With hope of improving the increasing number of epidemiological surveillance networks for animal diseases set up in recent years, a qualitative and quantitative technical and economic evaluation tool was developed and then applied to three epidemiological surveillance networks: RENESA (a French surveillance network for salmonella and mycoplasma contamination in poultry production units subject to official sanitary controls), the French Foot and Mouth Disease Epidemiology Network and REPMAT (the epidemiological surveillance network in Chad for major cattle diseases). We identified critical points in epidemiological surveillance networks using a modified version of the hazard analysis: critical control point (HACCP) method. An evaluation grid was then developed and validated by experts who were consulted in accordance with the Delphi method. A questionnaire to collect the information required for the evaluation and a scoring guide were then designed. Our evaluation procedure also included a calculation of the annual operating costs for two of the three networks studied. On the basis of the detailed results of the technical and economic evaluation, we formulated specific suggestions for improving the networks. The cost of implementing these proposals was calculated. We then simulated the effects of implementing each of the proposed improvements and a new global evaluation score was determined for each network. The cost per point of each improvement was then calculated and discussed. This tool for the technical and economic evaluation of epidemiological surveillance networks for animal diseases is proposed so that it may be tested on a far wider scale and eventually be used in improving the functioning of such networks and for risk analysis in international trade.			
Häsel et al. Conceptualising the technical relationship of animal disease surveillance to intervention and mitigation as a basis for	This article originates from a research project to develop a conceptual framework and practical tool for the economic evaluation of surveillance. Exploring the technical relationship between mitigation as a source of economic value and surveillance and intervention as sources of economic cost is crucial. A framework linking the key technical relationships is proposed. Three			



## Outputs

- Structured report
- Visual output for attribute assessment

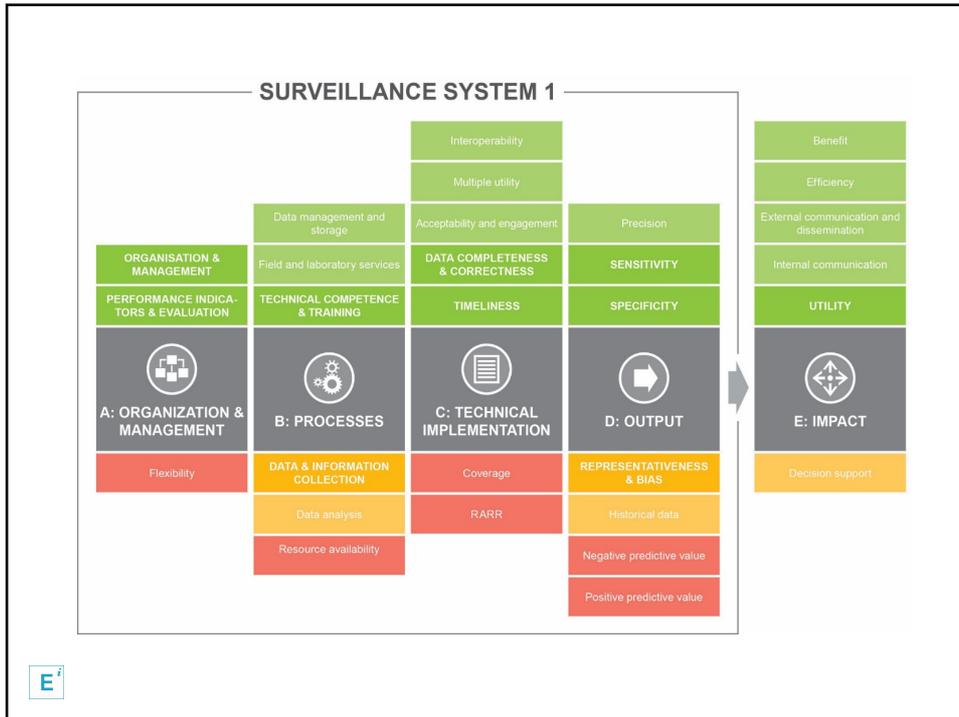
### Surf Evaluation Template

Ministry for Primary Industries  
Manatū Ahu Matua



Evaluation section	Details
<b>Identification of Surveillance System</b>	
Name	
Description <i>(please keep brief)</i>	
<b>I. Motivation for the evaluation</b>	
A. Evaluation trigger(s)	
B. Context	
<b>II. Scope of the evaluation</b>	
A. Evaluation objective	

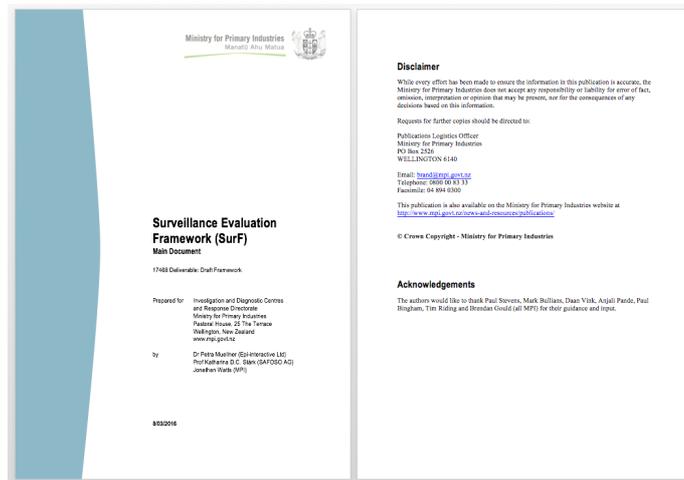




## Conclusions

- Existing frameworks all from animal or human health surveillance – cross-sectorial framework much needed to meet MPI goals
- Terminology
- Hard work to collaborate across sectors but worth it
- It's the little things...

## Mission complete....



## Questions? Thoughts?

