



## MESSAGE FROM THE DIRECTOR

At CEBRA, we aim to foster connections between researchers and stakeholders across academia, government and industry, with the goal of creating opportunities for sharing research and future collaboration. One example of how we do this is through our continued support of the Society of Risk Analysis Australia and New Zealand (SRA-ANZ). Last November, CEBRA hosted the 10th Conference of SRA-ANZ at the new Arts West-North building here at the University of Melbourne, a meeting that brought together researchers and practitioners from a wide range of risk-related disciplines. The conference was a resounding success—read more about it later in the newsletter.

Since our last newsletter, CEBRA researchers have been furthering our research and expertise by participating in a plethora of domestic and international conferences, workshops and meetings. In October, Dr Susie Hester attended a seminar at the Department of Agriculture and Water Resources in Canberra to discuss the 'Carrots and Sticks' project. Also in October, Dr Richard Bradhurst presented at an *Introduction to Infectious Disease Modelling for Veterinarians* workshop in Kuala Lumpur, Malaysia. In November, Professor Tom Kompas spoke about early detection and best responses to an incursion of Foot and Mouth Disease in Australia at a stakeholder gathering at the Department of Agriculture and Water Resources.

In January, Dr Susie Hester taught at an international master class in plant biosecurity on *Risk and Response* in Bali. Also in January, I, together with several of our colleagues from the New Zealand Ministry of Primary Industries and other organisations, participated in a *Better Border Biosecurity* workshop about *Optimising*

*Biosecurity Investment and Effort Across All Invasion Phases* in Sumner, Christchurch. In February, PhD student Victoria Hemming spoke at the Victorian Biosecurity Conference on *The Aggregation of Experts*; Dr Anca Hanea presented a talk on *Structured Expert Judgment: the art of using subjective data as objectively as possible* at a conference for the University of Melbourne School of Government with the theme *A Crisis of Expertise? Legitimacy and the Challenge of Policymaking*; and Professor Tom Kompas travelled to Canberra to give a presentation on *Three Great Myths in Risk Assessment* as part of the *Get-Wise* seminar series at the Department of Agriculture and Water Resources.

We are pleased to announce that projects *1502E Risk maps for optimising biosecurity surveillance* and *1501E Compliance and risk-based sampling for horticulture products* have now been endorsed. Since the last newsletter, we have also had numerous papers published in peer-reviewed journals.

Recently, we have had a few changes to the team. Firstly, I'd like to congratulate our new Deputy Directors: Dr Steve Lane, Dr Aaron Dodd and Dr Susie Hester, who will each play a role in ensuring that CEBRA continues to provide quality, innovative outputs for our partner organisations while sustaining and nurturing the research expertise of the CEBRA team.

We'd also like to welcome Professor Ian Robertson and Dr Jason Whyte to CEBRA. Ian is an emeritus professor of Veterinary Epidemiology at Murdoch University and joined CEBRA as Chair of the Scientific Advisory Committee in July last year. Ian has extensive knowledge and experience in the field of animal disease, including roles at the Queensland Department of Primary

Industries. Jason, a mathematician who joined CEBRA in November, brings with him a wealth of biosecurity-related modelling experience, having worked on computational aspects of malaria modelling and analysis of ethical behaviour in supply chains.

Recently, two of our PhD students have submitted their theses. Last October, Matthew Malishev submitted his thesis: *On the mechanisms of animal movement from first principles*. In December, we farewelled Decky Junaedi, who submitted his PhD thesis *Traits-based approaches for the management of invasive exotic species from tropical botanic gardens: detection and trait-based assessment*. We wish both Matt and Decky all the best in their future endeavours. In March, we will also be saying farewell to Dr Tracey Hollings. To read more about Tracey and the invaluable work she conducted during her time at CEBRA, please see her staff profile in this newsletter. To keep up to date with our work here at CEBRA, connect with us on facebook or twitter.

### Andrew Robinson

*Managing Director,*

Centre of Excellence for Biosecurity Risk Analysis

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## Dr Tracey Hollings - Research Fellow

"I've loved working at CEBRA. I love the people; I love that the work's varied. It's been great—I'm really going to miss it," Tracey said, when asked about her time at CEBRA.

Tracey Hollings joined CEBRA in February 2014. Prior to CEBRA, Tracey completed a PhD at the University of Tasmania, looking at the ecosystem impacts of devil facial tumour disease (DFTD). She explored how the decline of Tasmanian devils due to DFTD impacted other species, in particular mesopredators such as cats and quolls. "Using a long-term spotlighting dataset and a space-for-time field dataset, we looked at population trends following devil decline. We found evidence that feral cats were increasing where devils had declined. There were also some interesting effects on native quolls but these were a little less clear."

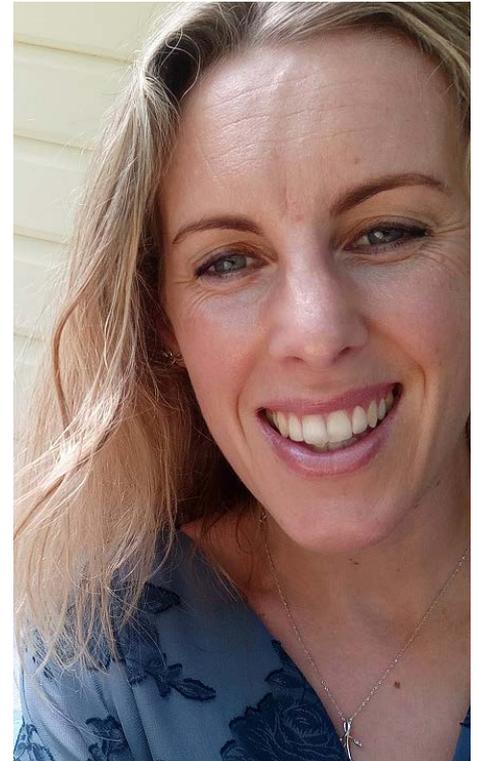
During her time at CEBRA, Tracey worked on a range of projects, including *1402C/1502C Estimation of national-level farm demographic data for preparedness of highly infectious livestock disease epidemics* and *170618 Optimising New Zealand's marine biosecurity surveillance programme*.

For 1402C/1502C, Tracey used species distribution modelling to predict livestock populations across New Zealand, in order

to increase disease preparedness for potential future outbreaks of diseases such as Foot and Mouth. "We focussed on predicting farm-level livestock populations, because we don't have a good handle on that data—particularly for hobby farmers and lifestyle farmers. These types of farms potentially have a higher risk for disease spread because we don't always know how many and what type of animals they have. We used the data available from a commercial livestock database to build the models and to predict to other areas." Tracey worked closely with MPI on this project and the team has so far published three papers from their research.

Tracey is currently wrapping up 170618, which involves looking at how to better choose surveillance sites for marine high-risk species arrivals at New Zealand ports. "We're trying to come up with a model to work out where the highest risk sites are for marine invasive species, based on vessel specifics such as vessel type and ballast water discharge.

Tracey is also involved with a similar project, *170615 Assessing ant pathways to better inform site selection for ant surveillance*, which involves creating a network analysis on foreign ant incursions to New Zealand.



Tracey will soon depart CEBRA to take up a Senior Scientist position at the Arthur Rylah Institute. We will be sorry to lose Tracey but wish her all the best for the future.

## 2017 Best Paper Award

Congratulations to CEBRA Chief Investigator Tom Kompas et al., who received the 2017 Best Paper award from the Australian Journal of Agricultural and Resource Economics for the publication: *Optimal Surveillance against Foot-and-Mouth Disease: The Case of Bulk Milk Testing in Australia*.



## SRA-ANZ 2017 Conference wrap-up

The theme of the conference was *Risk in an Interconnected World*, with talks covering a range of fields including biosecurity, epidemiology and ecology. University of Melbourne Vice-Chancellor Professor Glyn Davis provided an opening address and keynote speakers included Professor Mark Burgman and Dr Emily Nicholson. Also in attendance were President of SRA-International, Dr Margaret MacDonell from Argonne National Laboratory and President of SRA-ANZ, Dr Sandra Seno-Alday from the University of Sydney.



SRA-ANZ president **Sandra Seno-Alday**,  
Best student talk winners **Jessica Rowland** and **Calvin Lee**  
CEBRA director **Andrew Robinson**  
SRA-International president **Margaret MacDonell**

The conference consisted of two days of talks and two days of workshops and was attended by researchers and stakeholders from academia, government and industry, including several of our colleagues from the Department of Agriculture and Water Resources. It was the biggest meeting of SRA-ANZ in recent times.

Talks from CEBRA researchers presented at the SRA-ANZ conference included:

- *Does size matter to biosecurity risk* by Associate Professor Andrew Robinson
- *The 'curse of dimensionality' resolved! Optimal surveillance measures in large dimensional settings for the early detection of pests and diseases* by Professor Tom Kompas
- *Plant invasions in Australia: How can decision-theory inform management?* by Dr Aaron Dodd
- *Simple rules for protecting islands from biological invasions* by Dr Danny Spring
- *Does structured expert elicitation improve judgements?* by Victoria Hemming
- *Naturalised exotic species from the tropical botanic gardens: trait-based assessment* by Decky Junaedi

The conference welcome drinks also included a book launch for *Invasive Species: Risk Assessment and Management*, edited by Associate Professor Andrew Robinson, Dr Terry Walshe, et al.

## The Mathematics of Biological Systems Management Symposium

**When:** 5-6 April 2018 **Where:** Woodward Conference Centre, The University of Melbourne

ACEMS (Centre of Excellence for Mathematical and Statistical Frontiers) will host the Mathematics of Biological Systems Management Symposium in April here at the University of Melbourne. The aim of the symposium is to bring together researchers who work on modelling and managing biological systems to discuss their research and any upcoming challenges. Keynote speakers include CEBRA Deputy Director, Dr Susie Hester. Attendance is free thanks to CEBRA, ACEMS, CEED (Centre of Excellence for Environmental Decisions) and PRISM, but places are limited.

For more information, visit: <https://acems.org.au/events/mathematics-biological-systems-management-symposium>



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