

1. Technologies to Enhance Detection

- Novel diagnostic techniques
- Rapid multiplex detection and characterisation systems

Program Coordinator: Dr David Boyle (CSIRO – AAHL)

- 1.001R **Development of diagnostic capabilities for influenza H5N1 isolates (*completed*)**
Project Leader Dr Hans Heine, CSIRO Livestock Industries, VIC
- 1.003E **Advanced detection platforms: Use of real-time immuno-PCR and conjugated peptide nucleic acid (*withdrawn*)**
Student: Carmel Hancock, Curtin University of Technology, WA
- 1.002RE **Molecular detection systems for emergency diseases (*completed*)**
Project Leader Dr David Boyle, CSIRO Livestock Industries, VIC
- 1.007R **Development of a serological test to detect SARS coronavirus antibody in different animal species (*completed*)**
Project Leader Dr Linfa Wang CSIRO Livestock Industries, VIC
- 1.009R **Enhanced methods of virus detection using biosensors and signal amplification and control via supramolecular chemistry (*completed*)**
Project Leader Prof Gordon Parkinson, Curtin University of Technology, WA
- 1.013RE **Application of new platform technologies for the development of protein-based rapid multi-analyte detection tests (*commercial project*) (*completed*)**
Project Leader: Dr Linfa Wang, CSIRO Livestock Industries, VIC
- 1.020R **Evaluation of rapid molecular detection and characterisation systems for surveillance of arboviruses circulating in northern Australia (*completed*)**
Project Leaders Dr Lorna Melville, Department of Primary Industry, Fisheries and Mines, NT
Dr David Boyle, CSIRO Livestock Industries, VIC
- 1.025RE **Development of tools to improve surveillance for surra (*completed*)**
Project Leaders Dr Simon Reid, Murdoch University, WA
Dr Lee Skerratt, James Cook University, QLD
- 1.028R **Selection and validation of diagnostic assays for the detection of henipaviruses (*terminated*)**
Project Leaders Dr Kim Halpin, CSIRO Livestock Industries, VIC
Dr Alex Hyatt, CSIRO Livestock Industries, VIC
- 1.041R **Development of serological tests for the detection of antibodies of the agent associated with porcine myocarditis virus in pigs and other species (*completed*)**
Project Leaders Dr Peter Kirkland, Department of Primary Industries, NSW
Dr Linfa Wang, CSIRO Livestock Industries, VIC
- 1.049CR **Molecular analysis systems for biosecurity (*commercial project*) (*completed*)**
Project Leaders Dr Stephen Prowse, Australian Biosecurity CRC, QLD
Dr Andrew Geering, Department of Primary Industries & Fisheries, QLD
Dr Gary Kong, CRC National Plant Security, QLD

- 1.052R **Understanding the genotypes of avian influenza viruses circulating in Australia (*completed*)**
Project Leader Dr David Boyle, CSIRO Livestock Industries, VIC
- 1.084R **Developing a MassTag PCR panel for the syndromic detection of encephalitogenic pathogens (*completed*)**
Project Leader Dr David Williams, Curtin University of Technology, WA
- 1.090R **Development of recombinant flaviviral antigens for improved diagnostic specificity in multiplexed microsphere immunoassays (*completed*)**
Project Leader Associate Professor Roy Hall, University of Queensland, QLD
- 1.096R **High-throughput viral genomics: Evaluating high-throughput sequencing technologies for viral genome characterisation, risk assessment and novel pathogen detection and characterisation (*completed*)**
Project Leader Dr David Boyle, CSIRO Livestock Industries, VIC
- 1.098R **Full genome sequencing and its application in viral diagnostic investigations**
Project leader Dr Catherine Ainsworth, Biosciences Research Division (DPI), Vic
- 1.114R **Development of a rapid and sensitive *Trypanosoma evansi* test based on Loop-mediated Isothermal Amplification (LAMP) of DNA (*completed*)**
Project Leader Dr Zablon Njiru, Murdoch University, WA
- H1.46EI **The molecular epidemiology and characterisation of emerging flaviviruses in the Australasian region (*completed*)**
Honours Student Karli Geerlings, Curtin University of Technology, WA
- H1.55EI **Investigating the cellular entry pathways of group A human enteroviruses (HEV-A) (*completed*)**
Honours Student Han Li Khor, Curtin University of Technology, WA
- H1.56EI **Developing a novel PCR-based technology (Mass-Tag PCR) for detection and discovery of emerging viruses (*completed*)**
Honours Student David Menegola, Curtin University of Technology, WA
- H1.59EI **Developing a novel PCR-based technology for detection and discovery of viral causes of human encephalitis**
Honours Student Jessica Issepi, Curtin University of Technology, WA
- P1.002RE **Rapid characterisation of unknown viruses using microarray hybridisation and PCR-Select Subtraction (*completed*)**
PhD Student Chris Cowled, University of Queensland, QLD
- P1.013E **Antigenicity studies and development of multiplex tools for foot-and-mouth disease virus (*completed*)**
PhD Student Janine Muller, University of Melbourne, VIC
- P1.025E **Ecological, behavioural and reproductive aspects of Tabanidae (Diptera) affecting their potential as vectors of *Trypanosoma evansi* in Queensland**
PhD Student Mutizwa Odwell Muzari, James Cook University, QLD
- P1.025PD **A study of selected tabanids of north Queensland and aspects of their vectorial capacity for *Trypanosoma evansi* (*completed*)**
PhD Student Kirsty van Hennekeler, James Cook University, QLD

P1.025RE	Development of tools to improve surveillance for surra (<i>completed</i>)
PhD Student	Celia Smuts, Murdoch University, WA
P1.04EI	Evaluation of rapid molecular detection and characterisation systems for risk evaluation of unknown viruses isolated in Australia
PhD Student	Aneta Gubala, University of Queensland, QLD
P1.06EI	Multiplex macro-array based identification of flaviviruses (<i>completed</i>)
PhD Student	Sheryl Maher, University of Queensland, QLD
P1.09EI	Immunological methods to detect exotic virulent strains of West Nile virus
PhD Student	Jody Hobson-Peters, University of Queensland, QLD
P1.1PD	Functional analysis of the novel genes of J-Virus, a recently characterised paramyxovirus (<i>completed</i>)
PhD Student	Danielle Anderson, Curtin University of Technology, WA
P1.131EI	Innate antiviral mechanisms in bats: A comparative genomics approach to investigating the asymptomatic nature of viral infections in bats
PhD Student	Justin Ng, University of Sydney, NSW
P1.15EI	An evaluation of the efficacy of rabies vaccines to protect against Australian bat lyssavirus
PhD Student	Peter Moore, University of Queensland, QLD
P1.17EI	Porcine circovirus Type 2 and post-weaning multisystemic wasting syndrome in Australian pigs (<i>completed</i>)
PhD Student	Mark O'Dea, Murdoch University, WA
P1.18EI	Developing diagnostic tools for pteropid bat serology (<i>completed</i>)
Masters Student	Antonio Di Rubbo, University of Queensland, QLD
P1.19EI	Development of a multiplexed, Luminex-based approach to diagnosis and serological identification of acute human zoonotic and arboviral infections of public health importance to Australia
PhD Student	Vivienne Fischer, University of Queensland, QLD
P1.3PD	Molecular epidemiology of <i>Trypanosoma evansi</i> in South-East Asia
PhD Student	Linda McInnes, Murdoch University, WA
P1.32EI	Identification of virulence factors for henipavirus infection
PhD Student	Elena Virtue, University of Melbourne, VIC
P1.4PD	Investigation of the pathogenesis and functional studies on structural and non-structural proteins of Beilong virus (<i>withdrawn</i>)
	Nyree Mathe, University of Melbourne, VIC
P1.47EI	Molecular characterisation of Broome virus
PhD Student	Claudia Thalmann, University of Queensland, QLD
P1.6PD	Development and immunological evaluation of a novel DNA vaccine for prevention of avian influenza
PhD Student	Songhua Shan, Murdoch University, WA

2. Ecology of Emerging Infectious Diseases

- Host range and interactions
- Modes of transmission, maintenance and dispersal

Program Coordinator: Dr Hume Field (QDPI&F)

2.012RE **Assessment of the risk of introduction of Nipah virus to Australia via flying foxes (completed)**

Project Leader Dr Hume Field, Department of Primary Industries and Fisheries, QLD

2.014R **West Nile virus susceptibility and transmission studies in Australian avifauna (completed)**

Project Leader Dr John Bingham, CSIRO Livestock Industries, VIC

2.026RE **Investigations of SARS-like coronaviruses in bats (completed)**

Project Leaders Dr Hume Field, Department of Primary Industries and Fisheries, QLD
Dr Linfa Wang, CSIRO Livestock Industries, VIC

2.027RE **Studies of the potential colonisation and establishment of *Aedes albopictus* as an arbovirus vector in Australia (completed)**

Project Leader Dr Andrew van den Hurk, Queensland Health, QLD

2.051R **Molecular and immunological investigations of bat-virus interactions (completed)**

Project Leaders Dr Hume Field, Department of Primary Industries and Fisheries, QLD
Dr Linfa Wang, CSIRO Livestock Industries, VIC

2.054R **Spatial predictive modelling for feral pigs in northern Australia (completed)**

Project Leaders Dr Sam Beckett, Australian Government Department of Agriculture, Fisheries & Forestry, NT

2.065R **An assessment of the establishment of the newly emerging alphavirus chikungunya virus in Australia (completed)**

Project Leader Dr Andrew van den Hurk, Queensland Health, QLD

2.085R **Studies to determine the role of Bungowannah Virus in the Porcine Myocarditis Syndrome (PMC) (completed)**

Project Leader Dr Peter Kirkland – Department of Primary Industries, NSW

2.095R **Preliminary experimental characterisation of HeV (Redland Bay 2008) infection in horses (completed)**

Project Leader Dr Deborah Middleton, CSIRO Livestock Industries, VIC

2.097R **Developing genetic tools to understand the population structure of *Culicoides* species in Australia**

Project Leaders Wee Tek Tay and Peter Kerr, CSIRO Entomology

2.107R **Inducing adaptive immunity and testing for innate immunity to chytridiomycosis to improve the success of reintroduction programs of endangered frogs (completed)**

Project Leader Lee F. Skerratt, James Cook University, QLD

2.116 R **Identifying and mapping Hendra virus strain diversity (completed)**

Project Leader Dr Hume Field, Department of Primary Industries and Fisheries, QLD

- P2.012RE **Assessment of the risk of introduction of Nipah virus to Australia via flying foxes**
PhD Student Andrew Breed, University of Queensland, QLD
- P2.026RE **Investigations of SARS-like coronaviruses in bats (*completed*)**
PhD student Craig Smith, University of Queensland, QLD
- P2.027RE **Studies of the potential colonisation and establishment of *Aedes albopictus* as an arbovirus vector in Australia**
PhD Student Jay Nicholson, University of Queensland, QLD
- P2.133EI **The role of genetic diversity and population structure of mosquito-borne flaviviruses in their transmission, evolution and emergence**
Aziz-ur-Rahman Niazi, Curtin University, WA
- P2.23EI **Patterns of emerging diseases in the Australian region**
PhD Student Rosemary McFarlane, Australian National University, ACT
- P2.29EI **Australian *Leishmania* lifecycle investigation**
PhD Student Annette Dougall, Charles Darwin University, NT
- P2.33EI **Reservoir transmission dynamics of emerging pathogenic *Leptospira* species in northern Australia: Implications for public health management**
PhD Student Suhella Tulsiani, University of Queensland, QLD
- P2.44 EI **A study of the ecology and dynamics of poultry markets in Bali and the role of live bird markets in the epidemiology of avian influenza**
PhD Student Johanna Johnson, Murdoch University, WA
- P2.5PD **Disease in endangered species: ecology of the interaction between frogs and chytrid fungus**
PhD Student Kris Murray, University of Queensland, QLD
- P2.51EI **The role of environmental stress-survival adaptation by *Burkholderia pseudomallei* in disease emergence**
PhD Student: Jeannie Robertson, Curtin University of Technology, WA

3. Advanced Surveillance Systems

- Efficient data collection
- Improved data management
- Better decision-making tools

Program Coordinator: Dr Nigel Perkins (AusVet Animal Health Services)

- 3.004R **Estimation of prevalence from pooled samples** *(completed)*
Project Leader Dr Evan Sergeant , AusVet Animal Health Services, NSW
- 3.005CR **ASEAN: Emerging & Resurging Infections: Surveillance and Response Program**
(completed)
Project Leader Mohamed Patel, Australian National University, ACT
- 3.008R **Using algorithms based on routine surveillance and GIS to identify and monitor outbreaks of human disease** *(completed)*
Project Leader Dr Rochelle Watkins, Curtin University of Technology, WA
- 3.010R **Quantification of confidence in disease freedom** *(completed)*
Project Leader Dr Tony Martin, Department of Agriculture and Food, WA
- 3.011RE **Mosquito-based surveillance systems for Japanese encephalitis virus and West Nile virus, with a risk assessment for West Nile virus in eastern Australia**
(completed)
Project Leader Dr Scott Ritchie, Queensland Health, QLD
- 3.015RE **Advanced surveillance systems – Electronic data collection and decision support** *(completed)*
Project Leaders Dr Richard Shepherd, Gippsland Herd Improvement Cooperative, VIC
Dr Angus Cameron, AusVet Animal Health Services, NSW
- 3.016RE **Peri-urban regional surveillance for biosecurity for the pig industry in eastern Australia** *(completed)*
Project Leaders Dr Trish Holyoake, University of Sydney, NSW
Dr Jenny-Ann Toribio, University of Sydney, NSW
- 3.017R **Improving bluetongue virus surveillance in remote areas** *(completed)*
Project Leaders Dr Lorna Melville, Department of Primary Industry, Fisheries and Mines, NT
Glenn Bellis, Australian Government Department of Agriculture, Fisheries and Forestry, NT
- 3.018R **Adding value to livestock movement data** *(completed)*
Project Leader Dr Tony Martin, Department of Agriculture and Food, WA
- 3.019R **Enhancement of remote area surveillance systems throughout Australia**
(terminated)
Chris Hawkins, Department of Agriculture, WA
- 3.022IK **MLA: Annual seroprevalence survey for bluetongue antibodies in the surveillance zone of the Northern Territory and Queensland** *(completed)*
Project Leaders Dr Lorna Melville, Department of Primary Industry, Fisheries and Mines, NT
Steven Johnson, Department of Primary Industries and Fisheries, QLD

- 3.023IK **MLA: Evaluation of Australis’s ability to rapidly implement surveillance requiring post mortem sampling under a range of conditions, using transmissible spongiform encephalopathies (TSEs) as an example (*completed*)**
Project Leaders Simon Winter, Animal Health Australia, ACT
Dr Ron Glanville, Department of Primary Industries and Fisheries, QLD
- 3.024R **Spatio-temporal assessment of bluetongue virus and Murray Valley encephalitis host and vector dynamics – Proposal Development (*completed*)**
Project Leader Associate Professor Graeme Wright, Curtin University of Technology, WA
- 3.036RE **Spatio-temporal assessment of bluetongue virus and Murray Valley encephalitis host and vector dynamics (*completed*)**
Project Leader Dr Rob Corner, Curtin University of Technology, WA
- 3.039CR **ACIAR: The development of sustainable surveillance systems for endemic and exotic diseases in Indonesia**
Project Leader Dr Ian Robertson, Murdoch University, WA
- 3.040CR **ACIAR: The epidemiology, pathogenesis and control of highly pathogenic avian influenza in ducks in Indonesia and Vietnam**
Project Leader Dr Joanne Meers, University of Queensland, QLD
- 3.042R **Producer perspectives on reporting diseases in Western Australia (*completed*)**
Project Leaders Dr Farida Tilbury, Murdoch University, WA
Dr Max Sully, Murdoch University, WA
- 3.043R **Development of novel detection methods for arboviruses (*completed*)**
Project Leaders Dr Scott Ritchie, Queensland Health, QLD
Dr Andrew van den Hurk, Queensland Health, QLD
Dr Greg Smith, Queensland Health, QLD
- 3.050R **Simulation modelling of urban pandemic influenza in Australia (*completed*)**
Project Leader Dr Graeme Garner, Australian Government Department of Agriculture, Fisheries & Forestry, ACT
- 3.055RE **Epidemiology of avian influenza in aquatic birds in northern Queensland (*completed*)**
Project Leaders Dr Graham Burgess, James Cook University, QLD
Dr Lee Skerratt, James Cook University, QLD
Dr Brad Congdon, James Cook University, QLD
- 3.066R **GIS mapping of cattle market service areas using National Livestock Identification System (NLIS) (*completed*)**
Project Leader Dr Peter Durr, CSIRO Livestock Industries, VIC
- 3.086R **Assessment of the risks to animal biosecurity associated with small landholders**
Project Leader Dr Tony Martin, Department of Agriculture and Food, WA
- 3.094R **Real-time tracking of ruminants using the mobile phone network (*terminated*)**
Project Leaders Dr Angus Cameron and Ben Madin, AusVet Animal Health Services
- 3.102CR **Stochastic Scenario Tree modelling for improved targeting of Notifiable Avian Influenza surveillance**
Project Leaders Dr Tony Martin, Department of Agriculture and Food Western Australia
Dr Evan Sergeant, AusVet Animal Health Services

- 3.130R **A spatial data portal for national climatic and meteorological data for vector-borne disease studies in Australia**
Project Leader Peter Durr, CSIRO Australian Animal Health Laboratory, VIC
- H3.47EI **A preliminary study of the risks of foot-and-mouth disease involving pigs at agricultural shows (completed)**
Honours Student Elva Cha, University of Sydney, NSW
- H3.54EI **Evaluation of post-farm gate disease surveillance activities for pigs in NSW (completed)**
Honours Student Kathrin Schemann, University of Sydney, NSW
- H3.60EI **Survey of farmer knowledge of biosecurity, risk of transmission of transboundary diseases and large ruminant health and production in three provinces of northern Laos.**
Honours Student Sonevilay Nampanya, University of Sydney, NSW
- M3.015RE **Embedded platform for the Bovine Syndromic Surveillance System (completed)**
Masters Student Jingyu Zhang, University of Sydney, NSW
- M3.11EI **The utilisation of remote sensing and spatial modelling for predicting Murray Valley encephalitis activity in Western Australia (completed)**
Master Student Tim Chalke, Curtin University of Technology, WA
- M3.41EI **Spatio-temporal analysis of avian influenza virus exposure in migratory shorebirds and nomadic waterfowl in northern Australia for use in risk analysis of incursion and spread of exotic strains of avian influenza to Australia**
Masters Student John Curran, Murdoch University, WA
- P3.011E **A risk assessment for West Nile virus in eastern Australia (completed)**
PhD Student Cassie Jansen, University of Queensland, QLD
- P3.015RE **Development of a syndromic surveillance system for remote area cattle production systems in Australia (completed)**
PhD Student Richard Shephard, University of Sydney, NSW
- P3.016RE **Peri-urban and remote regional surveillance for biosecurity within the pig industry in eastern Australia (completed)**
PhD Student Nicole Schembri, University of Sydney, NSW
- P3.036RE **Developing spatio-temporal models of bluetongue virus host and vector distribution based on Bio-Climatic Landscape Metrics**
PhD Student Bernhard Klingseisen, Curtin University of Technology, WA
- P3.055RE **Epidemiological investigation of avian influenza in waterfowl in northern Queensland**
PhD Student MD Hoque, James Cook University, QLD
- P3.105EI **Epidemiological investigations into the 2007 equine influenza outbreak in Australia**
PhD Student Simon Firestone, University of Sydney, NSW
- P3.106EI **Epidemiology and risk based approaches to accelerate the achievement of OIE Free Zone Status for Foot and Mouth Disease in Malaysia, Thailand and**

	Myanmar
PhD Student	Polly Cox, Murdoch University, WA
P3.12EI	Development of risk-based strategies for the successful management of animal movement and the subsequent spread of trans-boundary animal diseases in Cambodia and Lao PDR
PhD Student	Ben Madin, Murdoch University, WA
P3.13EI	Using hospital data for syndromic surveillance (<i>completed</i>)
PhD Student	Lynne Dailey, Curtin University of Technology, WA
P3.132EI	The epidemiology and impact of <i>Clostridium difficile</i> – associated disease in pigs in Australia
	Michelle Squires, University of Western Australia, WA
P3.129EI	The risk of bluetongue virus introduction into Northern Australia via the airborne spread of <i>Culicoides</i> midges from Indonesia
PhD Student	Debbie Eagles, University of Queensland, QLD
P3.20EI	Epidemiological studies to support the establishment of a free zone for foot-and-mouth disease and classical swine fever in the lower Mekong region of Cambodia and Vietnam
PhD Student	Sothyra Tum, Murdoch University, WA
P3.21EI	Epidemiological studies to support the establishment of a progressive foot-and-mouth disease zoning approach in Myanmar
PhD Student	Kyaw Naing Oo, Murdoch University, WA
P3.23EI	The development and evaluation of a risk-based strategy for surveillance and rapid response to foot-and-mouth disease in Indonesia
PhD Student	Pebi Purwo Suseno, Murdoch University, WA
P3.24EI	Development of a model for the utilisation of commercial and recreational hunting for surveillance of feral and wildlife species
PhD Student	Abbey Bestall, Murdoch University, WA
P3.25EI	Building capacity to model emerging disease threats in the intensive livestock industries
PhD Student	Sam Hamilton, University of Sydney, NSW
P3.26EI <i>(withdrawn)</i>	Producer perspectives on the management of livestock health and disease
	Toni Cantarella, Murdoch University, WA
P3.27EI	Cultural and social factors affecting the management of sheep health and disease
PhD Student	Sarah Palmer, Murdoch University, WA
P3.28EI	Animal health communication in the control and eradication of epizootic and zoonotic diseases
PhD Student	Elaine Llarena, Murdoch University, WA
P3.30EI	<i>Trypanosoma evansi</i> in Agile Wallabies (<i>Macropus agilllis</i>)
PhD Student	Jonathan Lee, Murdoch University, WA

P3.38EI	Risk assessment of transmission of H5N1 avian influenza by wild birds to domestic animals in Thailand
PhD Student	Jarunee Siengsanant, Murdoch University, WA
P3.39EI	The role of ducks and waterfowl in the epidemiology and ecology of H5N1
PhD Student	Tze Hoong Chua, Murdoch University, WA
P3.40EI	Studies on the epidemiology, pathogenesis and control of highly pathogenic avian influenza (H5N1) in ducks in Vietnam
PhD Student	Kate Henning, University of Queensland, QLD
P3.46EI	Animal health communication in the control and eradication of epizootic and zoonotic diseases in South-East Asia
PhD Student	Domingo Caro, Murdoch University, WA
P3.49EI	The role and significance of the carrier status in the Asian swamp buffalo in the transmissions and control of foot-and-mouth disease in South-East Asia
PhD Student	Blesilda Verin, Murdoch University, WA
P3.50EI	Improving the provision of veterinary services in Cambodia and Laos
PhD Student	John Stratton, University of Sydney, NSW
P3.52EI	Quantitative evaluation of surveillance systems: application to arbovirus surveillance in Australia and enhancement of the methodology
PhD Student	Ivan Housse, Murdoch University, WA
P3.53EI	Improving interoperability of epidemiological systems
PhD Student	Jingyu Zhang, University of Sydney, NSW
P3.57EI	Survey and risk assessment of non-encapsulated forms of <i>Trichinella</i> in mainland Australia
PhD Student	Leigh Cuttell, University of Queensland, QLD
P3.58EI	Risk-based strategies for the control of emerging strains of foot-and-mouth disease in Bhutan
PhD Student	Kinzang Dukpa, Murdoch University, WA
P3.7PD	The epidemiology of foot-and-mouth disease in Malaysia
PhD Student	Siti Ramanoon, Murdoch University, WA
P3.8PD	Epidemiology of FMD in the Upper Mekong FMD Zone with particular emphasis on Yunnan Province of PR China
PhD Student	Chang Cai, Murdoch University, WA
P3.82EI	National Animal Health Information System (NAHIS) 2010
PhD Student	Emma Fuller, University of Sydney, NSW

