



**NOMINEE DETAILS AND SUMMARY OF EXPERTISE:
AUTHORS FOR DIAGNOSTIC PROTOCOLS**

This template must be completed for all nominees and returned to the Secretariat together with the candidate's curriculum vitae.

PERSONAL DETAILS	
Name	Dr Ian Marsh
Country / organisation	Australia, NSW Department of Primary Industries, Elizabeth Macarthur Agricultural Institute
Current position	Research Officer, Microbiology and Parasitology Research
Contact details	Address: Elizabeth Macarthur Agricultural Institute, Woodbridge Road Menangle, NSW 2567, Postal Address: PMB 4008 Narellan NSW 2568 Telephone number: +61 2 4640 6502 Fax: Email address: ian.marsh@dpi.nsw.gov.au
SPECIFIC EXPERTISE REQUIRED (COMPLETE ALL ROWS)	
Diagnostic protocol for which the expert is being nominated (multiple options are possible):	<input type="checkbox"/> <i>Amaranthus palmeri</i> (2019-006) <input type="checkbox"/> <i>Solanum rostratum</i> (2019-007) <input type="checkbox"/> <i>Moniliophthora roreri</i> (2019-005) <input type="checkbox"/> <i>Meloidogyne mali</i> (2018-019) <input type="checkbox"/> <i>Cronartium comandrae</i> (2018-015) <input type="checkbox"/> <i>Microcyclus ulei</i> (2019-003) <input checked="" type="checkbox"/> Revision of DP 03: <i>Trogoderma granarium</i> Everts (2021-001) <input type="checkbox"/> Revision of DP 05: (<i>Phyllosticta citricarpa</i> (McAlpine)) Aa (2019-011) <input type="checkbox"/> Revision of DP 09: <i>Genus Anastrepha</i> (2021-002) <input type="checkbox"/> Revision of DP 25: <i>Xylella fastidiosa</i> (2021-003) <input type="checkbox"/> Revision of DP 27: <i>Ips</i> spp. (2021-004)
Specific expertise in taxonomy and/or molecular diagnostics of the relevant pest	Taxonomy – Not applicable Molecular diagnostics – For the last six months I have been working the New South Wales, Department of Primary Industries, Biosecurity Collections, Plant Biosecurity (Orange Agricultural Institute) and national technical working group on the review of molecular biology-based diagnostics for Khapra beetle (<i>Trogoderma granarium</i>). This has involved working closely with technical staff to introduce several real-time and SYBR green based PCR assays, validating analytical and diagnostic sensitivity and specificity, data analysis and reporting findings back to these groups.
Practical expertise related to the pest (detection, identification, isolation etc.)	I have over 25 years of experience in the development of molecular-based diagnostics for animal pathogens in both terrestrial and aquatic environments. Most of my research has focused on Johne's disease (JD) but other areas he has been active in include; viral diseases of finfish, parasitic diseases of oysters and epidemiological modelling the effects of exotic disease outbreaks which has resulted in many peer-reviewed journal articles in journals. I have also contributed to the development of the ANZ Standard Diagnostic Procedures for JD and has made significant contributions to the World Organisation of Animal Health (OIE) chapters on JD and Epizootic haematopoietic necrosis virus (EHNV).



Expertise with quarantine diagnostics, including using diagnostic protocols for regulated pests	<p>My recent involvement with Khapra beetle diagnostics (the last six months) has been my first involvement in insect biosecurity. However, the majority of my working career, research and diagnostic experience has been undertaken on nationally and internationally notifiable diseases including Johne's Disease in livestock, viral diseases (EHNV) of finfish and parasitic diseases of oysters (QX Disease). Consequently I am well associated with implications of biosecurity, the requirements for test validation and documentation.</p>
Expertise with drafting diagnostic protocols (e.g. regional diagnostic protocols)	<p>Apart from working closely with Australian and New Zealand Standard Diagnostic Procedures for numerous diseases of livestock, finfish and oysters as part of my research and diagnostic roles. I have also been actively involved in reviewing and updating the ANZSDP for Johne's Disease (https://www.agriculture.gov.au/animal/health/laboratories/procedures/anzsdps/johnes-disease-july-2015).</p> <p style="text-align: center;">Johne's Disease</p> <p style="text-align: center;">Paratuberculosis (Johne's Disease)</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>GJ Eamens IM Marsh</p> <p>KM Plain RJ Whittington</p> </div> <div style="width: 45%; text-align: right;"> <p>Elizabeth Macarthur Agricultural Institute NSW Department of Primary Industries PMB 4008 Narellan NSW 2567 geamens1@bigpond.com ian.marsh@dpi.nsw.gov.au</p> <p>Faculty of Veterinary Science The University of Sydney Werombi Road, Camden NSW 2570 karren.plain@sydney.edu.au richard.whittington@sydney.edu.au</p> </div> </div>
Expertise with development of novel diagnostic methods	<p>Over the last 25 years I have undertaken research into the development of many diagnostic tests including some that are now included in the ANZSDP for Johne's Disease and national and international (OIE) diagnostic procedures for aquatic pathogens, all notifiable diseases. I have a good publication record of reporting my research or the research of work teams and students under my supervision.</p> <p>More recently I have been the Co-Principal Researcher on a project targeting the development of multiple multiplex true quantitative PCR for both laboratory and deployable (Point of Care) predictive and diagnostic tests for bovine respiratory disease (BRD). This has integrated the use of single point calibration-based efficiency corrected quantitative PCR to accurately determine the concentration of six BRD pathogens in two tests, overcoming the limitations of standard curve based quantitative PCR.</p>
Elements demonstrating a strong working knowledge of English	<p>Over the last 25 years I have published, as first author or as a contributing author, numerous scientific publications, including many in association with local, national and international conferences. I have also contributed to Chapters in Scientific Reference books on <i>Mycobacterium avium</i> Subsp. <i>paratuberculosis</i>, more specifically on the molecular biology and its role in diagnostics.</p> <p>I regularly review research articles for many and varied scientific journals.</p> <p>I have also supervised both Honours and PhD students.</p>

PROFESSIONAL BACKGROUND - SUMMARY OF WORK EXPERIENCE

(Add more rows as necessary. Do not include full details here, details can be included in the CV)

	Year started	Year finished	Job title	Organisation	Key duties (list only the duties most relevant to the nomination)
1	1991	1994	Undergraduate Degree	Western Sydney University	An immunomagnetic ELISA for the detection of EHNV from large water samples. University of Western Sydney, Faculty of Science (Thesis)
2	1995	1996	Technical Officer	NSW DPI	1. Development of EHNV ELISA 2. PCR introduction, John's Disease 3. PCR introduction EHNV
3	1996	2001	Research Officer	NSW DPI	1. Molecular diagnostics John's disease 2. Culture development John's Disease 3. EHNV diagnostics
4	2001	2004	PhD	Sydney University	Genomic and proteomic comparative study of the sheep and cattle strains of Mycobacterium avium subsp. paratuberculosis (Thesis)
5	2004	Now	Research Officer	NSW DPI	Development many and varied molecular-based diagnostics as described throughout.


RELEVANT EDUCATION AND TRAINING

Education/ Academic qualifications/ Professional training (list only those relevant to the nomination)	<ul style="list-style-type: none"> • 2006 Doctorate of Philosophy (University of Sydney, Faculty of Veterinary Science) • 1993 Bachelor of Technology Management (Biotechnology) (First Class Honours) University of Western Sydney, Macarthur) • 25 years' experience in molecular biology-based research and diagnostics at the Elizabeth Macarthur Agricultural Institute, NSW Department of Primary Industries
Other language skills	Fluent in English only

PUBLICATIONS


List publications and keynote speaking engagements (list only those relevant to the nomination and do not include copies of publications)

Google Scholar Metrics



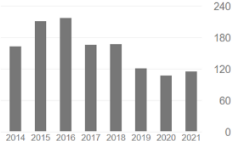
Ian Bruce Marsh

Research Officer
No verified email
Veterinary pathogens and ...



Cited by

	All	Since 2016
Citations	3433	892
h-index	28	18
i10-index	34	25



Journal Articles

1. Efficiency Correction Is Required for Accurate Quantitative PCR Analysis and Reporting JM Ruijter, RJ Barnewall, **IB Marsh**, AN Szentirmay, JC Quinn, ...Clinical Chemistry 67 (6), 829-842
2. Developing point of decision diagnostics for bovine respiratory disease J Quinn, **I Marsh**, R Barnewall, T Williams, N Sales, P Cusack VetFest 2020: Thriving in Today's World
3. Diagnosis of paratuberculosis by PCR. KM Plain, **I Marsh**, AC Purdie Paratuberculosis: organism, disease, control, 305-332
4. Longitudinal study of winter mortality disease in Sydney rock oysters *Saccostrea glomerata* ZB Spiers, M Gabor, SA Fell, RB Carnegie, M Dove, WO Connor, ... Diseases of aquatic organisms 110 (1-2), 151-164
5. High-throughput direct fecal PCR assay for detection of *Mycobacterium avium* subsp. paratuberculosis in sheep and cattle KM Plain, **IB Marsh**, AM Waldron, F Galea, AM Whittington, VF Saunders, ... Journal of clinical microbiology 52 (3), 745-757
6. Detection of *Aphanomyces invadans* and epizootic ulcerative syndrome in the Murray-Darling drainage J Go, **I Marsh**, M Gabor, V Saunders, RL Reece, J Frances, C Boys, ... Australian veterinary journal 90 (12), 513-514
7. Integrating survey and molecular approaches to better understand wildlife disease ecology BD Cowled, MP Ward, SW Laffan, F Galea, MG Garner, AJ MacDonald, ... Public Library of Science 7 (10), e46310
8. Epizootic haematopoietic necrosis virus: epidemiology and uncertainty. R Whittington, R Dixon, L Li, T Nguyen, A Hyatt, **I Marsh** Asian Fisheries Science 22 (4), 1235-1255
9. Genomic diversity in *Mycobacterium avium*: single nucleotide polymorphisms between the S and C strains of *M. avium* subsp. *paratuberculosis* and with *M. a. avium* **IB Marsh**, RJ Whittington Molecular and cellular probes 21 (1), 66-75
10. Rapid differentiation of Australian, European and American ranaviruses based on variation in major capsid protein gene sequence **IB Marsh**, RJ Whittington, AD Hyatt, O Chisholm Molecular and Cellular Probes 16 (2), 137-151

Conference Presentations

1. **Ian Marsh**, Jessica Kate Boyes, Paul Hick and Karren Plain. The molecular paradigms – who came up with them anyway? 2017 Gene Target Solutions qPCR Symposium, Sydney Australia.
2. **Ian Marsh**, Katie Eager, Jessica Boyes, Karren Plain, Martina Jelocnik, Adam Polkinghorne, Leah Stroud and Narelle Sales. Molecular diagnostics from the veterinary laboratory perspective, to sequence or not to sequence. 2018 Gene Target Solutions qPCR Symposium, Sydney Australia.
3. **I.B. Marsh**, K.M. Plain and R.J. Whittington. Molecular diagnostic tests for Johne's disease; time to standardise. In Proceedings of the Twelfth International Colloquium on Paratuberculosis, Parma, Italy. (Eds: E. J. B Manning & S. S. Nielsen). Madison: International Association for Paratuberculosis.
4. **Marsh, IB**, Plain, KM, Galea, F, Waldron, AM, Whittington, AM., and Whittington, RJ. New and improved direct faecal PCR test for Johne's disease. In *Proceedings of the Eleventh International Colloquium on Paratuberculosis, Sydney, Australia*. (Eds: E. J. B Manning & S. S. Nielsen). Madison: International Association for Paratuberculosis.
5. **Ian Marsh** and Francesca. Galea (2009). Molecular-based testing to identify genetic diseases or undesirable traits in domesticated livestock, Australian Wagyu Association Annual Conference, 2009, Coffs Harbour, NSW
6. **Marsh, I.**, Galea, F., Porter, N., Corcoran, A., Mercieca, K., Berg T. and O'Rourke, B. (2008) Molecular-based testing to identify genetic diseases or undesirable traits in domesticated livestock. In *Proceedings of the Fourth Australian Association of Veterinary Laboratory Diagnosticians Symposium, Brisbane* (Eds: Kirkland).
7. **Marsh, I.**, Go, J., Austin, S., Fell, S., Saunders V. and Reddacliff, L. (2007) An improved PCR-based test for QX disease confirmation in Sydney Rock Oysters. In Proceedings of the Thirteenth International World Association of Veterinary Laboratory Diagnosticians, Melbourne. (Eds: M. Jeggo & P. Kirkland). Pp. 36.
8. **Marsh, I. B.**, J. P. Bannantine, M. L. Tizard, and R. J. Whittington. (2005). Genomic and proteomic comparative study of the sheep and cattle strains of *Mycobacterium avium* subsp. *paratuberculosis*. In *Proceedings of the Eighth International Colloquium on Paratuberculosis, Copenhagen*. (Eds: E. J. B Manning & S. S. Nielsen). Pp. 381-392. Madison: International Association for Paratuberculosis.



	<p>Dissertations</p> <ol style="list-style-type: none">1. Honours I. B. Marsh (1994). An immunomagnetic ELISA for the detection of EHNV from large water samples. University of Western Sydney, Faculty of Science.2. PhD I. B. Marsh (2006). Genomic and proteomic comparative study of the sheep and cattle strains of <i>Mycobacterium avium</i> subsp. <i>paratuberculosis</i>. University of Sydney, Faculty of Veterinary Science.
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