

# Curriculum Vitae

David J. PANNELL

Professor, Department of Agricultural and Resource Economics, UWA School of Agriculture and Environment, University of Western Australia, Crawley WA 6009, Australia

Co-Director, Centre for Environmental Economics and Policy, UWA

UWA Public Policy Institute Fellow

Visiting Fellow, Leibniz Centre for Agricultural Landscape Research (ZALF) 2021-2023

Fellow of the Academy of Social Sciences in Australia

Distinguished Fellow of the Australian Agricultural and Resource Economics Society

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## Degrees

B.Sc.(Agric) (H1), University of Western Australia, 1984

B.Ec., University of Western Australia, 1989

Ph.D, University of Western Australia, 1991

## Research

### *Research areas*

- (a) *Resource and environmental economics and policy:* policy design; policy evaluation; Benefit: Cost Analysis; project prioritisation; policy mechanism selection; bioeconomic modelling of management options; economics of monitoring sustainability indicators. Issues covered include urban water, green infrastructure, biodiversity, water quality, groundwater, dryland salinity, environmental pests, herbicide resistance, climate change. Tools: INFFEWS, INFFER, SIF<sub>3</sub>, Public: Private Benefits Framework.

- (b) *Risk and uncertainty*: tactical responses to risk; risk in weed management; risk and uncertainty in farmer's adoption decisions. Tools: Risky Business.
- (c) *Adoption and diffusion of innovations*: understanding and predicting drivers of adoption and diffusion and related policy. Tools: ADOPT.
- (d) *Evaluation and prioritisation of research*: the balance between basic and applied agricultural research; estimation of farm-level benefits of research; the value of information generated in research.
- (e) *Farming systems economics*: rotation selection; legumes in the farming system; economics of perennials; technology evaluation. Tools: MIDAS.
- (f) *Economics of weed management*: three times invited to present reviews at international conferences and three times to the Australian Weed Science Society. Tools: RIM.
- (g) *Mathematical programming*: book, "Introduction to Practical Linear Programming"; journal articles on methods and practical application of MP.

### Publications

Books (authored or edited), major reports	8
Articles and notes in journals	226
Book chapters	44
Invited conference papers	35
Contributed conference papers: published	35
Contributed conference papers: unpublished	77
Book reviews	6
Other	40

### Citations

- Scopus.com: 7,570 citations, *h* index = 43 (as of 3 July 2023).
- Web of Science: 6,704 citations, *h* index = 41 (as of 3 July 2023). ResearcherID is B-4476-2008
- Google Scholar (as of 3 July 2023) <http://scholar.google.com/citations?user=6l6eii8AAAAJ&h>

	All	Since 2018
Citations	17,520	6,618
h-index	65	37
i10-index	217	115

### Editorial duties

- Co-editor of *Australian Journal of Agricultural and Resource Economics* (2004-2007).
- Associate Deputy Editor of *Climatic Change* (2019-present)
- Special issue co-editor for *Applied Economic Perspectives and Policy* (2018-2020)
- Special issue co-editor for *Environmental Science and Policy* (2008-2009).

- Special issue co-editor for *Ecological Economics* (2012-13)
- Editorial board member for *Applied Economic Perspectives and Policy* (2009-2013, 2015-present).
- Editorial board member for *Journal of Agricultural and Applied Economics* (2010-2012).
- Editorial board member for *Agricultural Systems* (2003-present).
- Editorial board member for *Canadian Journal of Agricultural Economics* (2004-2012).
- Editorial board member for *Land Use Policy* (2010-present).
- Editorial Council member for *Journal of Agricultural and Resource Economics* (2015-2017)
- Editorial board member for *Australian Journal of Agricultural and Resource Economics* (2003-2004, 2014-present).

### *Research funding and research leadership*

- \$22 million of external funding in 55 projects since 1983.
- Chief Investigator on successful proposal for ARC Centre of Excellence for Environmental Decisions, \$11.9 million over 7 years, 2011-17.
- Chief Investigator on successful proposal for NESP Hub for Threatened Species Recovery, \$30 million over 7 years, 2015-2021
- Chief Investigator on successful proposal for NESP Hub for Northern Australia Environmental Resources Recovery, \$24 million over 7 years, 2015-2021
- Chief Investigator on successful proposal for NERP Hub for Environmental Decisions, \$11 million over 3.5 years, 2011-2014
- Established and led Centre for Environmental Economics and Policy at UWA, 2008-
- Named investigator in CRC for Water Sensitive Cities, \$30 million over 9 years, 2012-2020.
- Co-developed the successful proposal for \$34 million for the Future Farm Industries Cooperative Research Centre, 2007-2014.
- Co-developed the successful proposal for \$25 million for the Cooperative Research Centre for Plant-Based Management of Dryland Salinity, 2001-2007 and the successful "Supplementary Bid" for \$5 million expansion of the CRC in 2003-2006.
- Leader of the Economic Modelling program of CLIMA (Cooperative Research Centre for Legumes in Mediterranean Agriculture), 1992-1997.
- Obtained a large grant from GRDC for project "Sustainability and Economics in Agriculture" (SEA), 1997-2002. Built and led a team of 5 core researchers in the project, with numerous external collaborators.

### *Affiliations with research centres*

CRC for Water-Sensitive Cities (2012-20)

ARC Centre of Excellence for Environmental Decisions (2011-2018)

National Environmental Science Program – Threatened Species Recovery Hub (2015-2020)

National Environmental Science Program – Northern Australia Environmental Resources Hub (2015-2020)

Bushfire and Natural Hazards CRC (2013-2020)

Bushfire CRC (2012-13)

National Environmental Research Program – Environmental Decisions Hub (2011-14)

National Environmental Research Program – Marine Biodiversity Hub (2011-14)

National Centre for Groundwater Research and Training (2010-14)

Future Farm Industries CRC (2007-14)

CRC for Plant-Based Management of Dryland Salinity (2001-07)

CRC for Legumes in Mediterranean Agriculture (1992-97)

### **Service and impact**

#### *Within the University*

CRC for Plant-Based Management of Dryland Salinity, 2001-2007.

- Member of Management Committee
- Chair of Research Evaluation Committee
- Program Leader, People, Land and Water
- Sub-program Leader, Economic and Social Assessment

Member of Management Committee and Sub-program Leader, CLIMA, 1993-1997.

Future Farm Industries CRC, 2007-2010.

- Program Leader 2007-2008
- Chair of Project Evaluation Committee 2007-2010

#### *Outside the University*

Established web-based newsletter *SEA News* (<http://welcome.to/seanews>) as a communication vehicle to industry, the community and other researchers. Nineteen issues distributed 1998-2006. 1000 subscribers. Over 50,000 hits per year.

Since 2004 I have written regular "Pannell Discussions" – brief articles on issues and ideas in economics, science, the environment, natural resource management, politics,

people, and agriculture – similar to a blog. 384 articles published online. Around 2000 followers and around 50,000 web site hits per year.

Served on 15 government committees and boards in Australia related to natural resource management.

Member of the Research Advisory Committee, Alberta Land Institute, University of Alberta, Canada, 2012-2016.

Member of Policy Advisor Group (PAG) to Vietnam's Minister of Agriculture and Rural Development, 2021.

Contributor to a number of research funding bodies and R&D Corporations nationally, most notably through being a Director on the Board of Land and Water Australia, 2002-2005. Also have contributed to the National Dryland Salinity Program, the Joint Venture Agroforestry Program, the Social and Institutional Research Program of LWA, Rural Industries Research and Development Corporation, ACIAR and Grains Research and Development Corporation, providing advice on the economics of research and on technology transfer/adoption of innovations.

Member of the ACIAR Monitoring, Evaluation and Learning (MEL) Advisory Panel, 2021-22.

Served on organising committees for two international conferences, five national conferences, an international workshop, and seven national symposia and workshops.

Contribution to the Australian Agricultural and Resource Economics Society (AARES) through the following roles.

- President-Elect, President, Past-President, 1999-2001.
- Member of National Council, representing WA, 1993-1998, 2017.
- President, AARES (WA), 1996-1998.
- Secretary, AARES (WA), 1992-1994.
- Treasurer, AARES (WA), 2009.
- Chair of Masters Thesis Prize assessment Committee, 1998 and 1999.
- Nominations Committee (for Distinguished Fellowships, and President-Elect), 2000-01.
- Member of Local Organising Committee for national conferences: 1996, 2003, 2012.

## Contributions to Policy for the Environment and Natural Resource Management

- Based on integration of latest science and economics, my research has provided a strong and influential critique of existing policies on land degradation, particularly by dryland salinity, and a constructive diagnosis of new policy needs. The findings have been influential at the national level and in all states. The peak national policy committee in this area prepared recommendations to ministers for policy changes based on my research. The following quotes from policy makers (from the final report for my project "Sustainability and Economics in Agriculture" (SEA) indicate the degree of influence achieved.
- "Your research provided the sound economic and social principles that underpin the State's Salinity Investment Framework, that has recently been endorsed by Cabinet. ... Your articulate and powerful presentations to the State Salinity Council were instrumental in achieving the necessary shift in policy thinking that will enable more strategic, cost-effective investment." Dr Paul Vogel, Director, Environmental Policy Unit, Dept Premier and Cabinet, WA.
- "You provided the committee with a big-picture view of the issues which was challenging but at the same time easily understood. ... Your input will be a significant contribution to the Committee's parliamentary report." Hon. Pam Allen MP, Chairman, NSW Parliamentary Select Committee, Salinity.
- "The work was influential at the highest levels of policy as well as with natural resource managers in the field. Overall, the SEA Project was one of the most successful that I have ever known." Dr Don McFarlane, Director, Resource Management, Water and Rivers Commission, WA.
- "New South Wales Treasury has found the work published under this project, by yourself and others, extremely valuable in developing our thinking on natural resource management issues. The Project has injected much needed objectivity, practicality and realism into the discussion. The project has been particularly successful in conveying the available scientific, economic and social information on these issues together with associated policy implications in a manner that is readily accessible to decision makers." Mr Kevin Cosgriff, Executive Director, Resource Allocation, NSW Treasury.
- "Your wise counsel while participating in innovative policy development committees and inquiries for Government and community action will have a long-term impact on salinity management and Natural Resource Management in Western Australia." Mr Garry English, WA Farmers Federation (also State Salinity Council, NRM Council).
- "I have no doubt that your group, through the SEA Project, has influenced not only industry attitudes towards sustainability, but also national policy agendas, particularly with respect to dryland salinity." Mr Richard Price, National Manager, National Dryland Salinity Program.

## *Usage of Tools*

The following are practical tools I developed or co-developed that have been widely used.

*MIDAS* (Model of an Integrated Dryland Agricultural System). Developed in 1983. Still in active use in multiple versions around Australia (WA, SA, Vic and NSW). Used in three Cooperative Research Centres (CLIMA, Salinity CRC, Future Farm Industries CRC) to evaluate technologies and guide research and extension. Inspired development of models in Portugal and Syria. Key reference: Kingwell, R.S. and Pannell, D.J. (Eds) (1987). *MIDAS, A Bioeconomic Model of a Dryland Farm System*, Pudoc, Wageningen.

*RIM* (Resistance and Integrated Management): Released in 1999. Almost 2,000 copies sold to farmers. Over 1,000 farmers attended RIM workshops. Re-launched in 2013. Versions developed for South Africa and The Phillipines. Key reference: Pannell, D.J., Stewart, V., Bennett, A., Monjardino, M., Schmidt, C. and Powles, S.B. (2004). RIM: A Bioeconomic Model for Integrated Weed Management of *Lolium rigidum* in Western Australia. *Agricultural Systems* 79(3): 305-325.

*SIF<sub>3</sub>* (Salinity Investment Framework III). Developed in 2004. Used by several Catchment Management Bodies in WA and Victoria. Influential on salinity policy makers. Senate Committee Report (2006): "The Committee was particularly impressed by SIF<sub>3</sub>, which appears to offer a sound framework for making informed, objective and transparent investment decisions in a systematic way." (p. 205). Key reference: Ridley, A., and Pannell, D.J. (2005). The role of plants and plant-based R&D in managing dryland salinity in Australia, *Australian Journal of Experimental Agriculture* 45: 1341-1355.

*INFFER* (Investment Framework for Environmental Resources). Developed in 2008: Trialled or used by more than 20 environmental management bodies in Australia: regional NRM bodies, private consultants, NGOs and government departments. Has been instrumental in securing major funding for some projects. Influential on government policies and programs in Victoria and Canberra. Applied in Italy, New Zealand and Canada. Key reference: Pannell, D.J., Roberts, A.M., Park, G., Alexander, J., Curatolo, A. and Marsh, S. (2012). Integrated assessment of public investment in land-use change to protect environmental assets in Australia, *Land Use Policy* 29(2): 377-387.

*ADOPT* (Adoption and Diffusion Outcome Prediction Tool): Developed 2010-13. 700 downloads to Oct 2014. ACIAR funding to develop a developing-country version. Key reference: Kuehne, G., Llewellyn, R.S., Pannell, D.J., Wilkinson, R., Dolling, P. and Ewing, M.A. (2011). ADOPT: a tool for predicting adoption of agricultural innovations, Paper presented at the 55th Annual Conference of the Australian Agricultural and Resource Economics Society, Melbourne, 8-11 February 2011.

*Risky Business*: First developed in 1992. Training tool on risk in farm management. Delivered to 2100 people around Australia 1992-2014, including university students, farmers and government agencies. Adapted to Future Farm Business, incorporating sustainability aspects. Key reference: Stewart, V., Marsh, S., Kingwell, R., Pannell, D.,

Abadi, A. and Schilizzi, S. (2000). Computer games and fun in farming systems education? A case study. *Journal of Agricultural Education and Extension* 7(2): 117-128.

## Awards and Recognition

- 2023 Appointed AAEA Fellow by the Agricultural and Applied Economics Association
- 2020 Ranked at #22 out of 5795 researchers globally in the category "Agricultural Economics and Policy" based on citations.<sup>1</sup>
- 2019 INFFER project assessed as High for Impact and High for Approach to Impact in the ARC's 2018 Engagement and Impact Assessment.
- 2019 Best poster, Australian Agricultural and Resource Economics Society annual conference, with Maksym Polyakov, Sayed Iftekhar, Asha Gunawardena and James Fogarty
- 2018 Best poster, Australian Agricultural and Resource Economics Society annual conference, with Maksym Polyakov and Fiona Gibson
- 2015 Vice Chancellor's Award in Research Mentorship, University of Western Australia.
- 2015 Australian Agricultural and Resource Economics Society, Quality of Research Communication award for paper on marine protected areas (with co-authors).
- 2014 Vice-Chancellor's Senior Research Award, University of Western Australia
- 2014 Australian Agricultural and Resource Economics Society, Quality of Research Communication award for paper on non-market valuation use in policy (with coauthors).
- 2013 INFFER project selected as one 24 "best" for impact (out of 165 submissions) in 'Excellence in Innovation for Australia' trial, by the Group of Eight (Go8) and Australian Technology Network of Universities (ATN) universities.
- 2012 Elected as a Fellow of the Academy of Social Sciences in Australia
- 2012 Included in journal article identifying the 100 most 'influential authors in the field of environmental and ecological economics (2000-2009)'<sup>2</sup>
- 2012 Best paper of the year authored by researchers of the Department of Primary Industries, Victoria.
- 2012 Pest Management Council of the Philippines, best paper award (weed science category), at Annual Scientific Conference
- 2012 Australian Agricultural and Resource Economics Society, Quality of Research Communication award for [www.PannellDiscussions.net](http://www.PannellDiscussions.net) blog
- 2011 Distinguished Fellow of the Australian Agricultural and Resource Economics Society
- 2009 ARC Eureka Prize for Excellence in Interdisciplinary Research
- 2009 Australian Agricultural and Resource Economics Society, Quality of Research Discovery award

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<sup>1</sup> Ioannidis, J.P.A., Boyack, K.W. and Baas, J. (2020). Updated science-wide author databases of standardized citation indicators. *PLoS Biol* 18(10): e3000918. <https://doi.org/10.1371/journal.pbio.3000918>

<sup>2</sup> Hoepner, A.G.F., Kant, B., Scholtens, B. and Yu, P.-S. (2012). Environmental and ecological economics in the 21st century: An age adjusted citation analysis of the influential articles, journals, authors and institutions, *Ecological Economics* 77: 193–206.



- 2009 Australian Agricultural and Resource Economics Society, Quality of Research Communication award
- 2008 Finalist, Eureka Prize for Environmental Research
- 2007 Australian Research Council Federation Fellowship
- 2007 Invited by the Gates Foundation to *RoundTable* and a meeting of *HarvestChoice* to advise on analysis for agricultural research priorities for the poor
- 2007 Australian Agricultural and Resource Economics Society, Best article in *Connections: Farm, Food and Resource Issues*.
- 2007 Outstanding journal reviewer for 2006, *Agricultural Systems*
- 2007 Australian Agricultural and Resource Economics Society, Prize for best PhD thesis in Australia or New Zealand awarded to my student, Graeme Doole.
- 2006 Australian Agricultural and Resource Economics Society, AARES Fellowship to attend IAAE 2006 conference.
- 2005 Named as one of 500 "Western Australian Leaders" by the Sunday Times newspaper.
- 2004 National Dryland Salinity Program, W.E. Wood Award for Excellence in Salinity Research and Development.
- 2004 Finalist, Eureka Prize for Research to Improve the Environmental Sustainability of Graingrowing (GRDC).
- 2003 Landcare Research Award (Western Australia), awarded by the National Landcare Program.
- 2003 American Agricultural Economics Association, Outstanding Journal Article in the *Review of Agricultural Economics* for 2002, for "Farm-Level Modeling for Bigger Issues," with Alfons Weersink and Scott Jeffrey.
- 2001 Canadian Agricultural Economics Society, outstanding journal article award for 2000, for "The economics of crop hail insurance," with Jim Vercaemmen.
- 1997. Australian Agricultural and Resource Economics Society, Best Article in the *Review of Marketing and Agricultural Economics* during 1996: "Debugging mathematical programming models: Principles and practical strategies."
- 1996. University of Western Australia "Excellence in Postgraduate Supervision" (Commendation).
- 1994. University of Western Australia "Excellence in Teaching" award. One of eight awards made by the University for undergraduate teaching.
- 1992. Australian Agricultural Economics Society PhD Thesis Prize, for best PhD thesis in agricultural and resource economics in Australia and New Zealand, 1990-1991.
- 1990. PhD Thesis passed with "special congratulations" (awarded to about 5 percent of successful PhDs at UWA) and with no amendments.
- 1990. Agricultural Economics Society (UK) Prize Essay Competition. "Responses to risk in weed control decisions under expected profit maximisation".

## Teaching

### *Supervision of student research*

Research students: Supervised to completion

Undergraduate student projects: 21

Postgraduate Diplomas: 2

Masters: 5

PhDs 28 (plus 5 ongoing).

Number of refereed journal papers published by research students based on the research I supervised: 71

- 2015 Vice Chancellor's Award in Research Mentorship, University of Western Australia.
- 2008 UWA award: Higher Degree by Research Achievement to student Graeme Doole, for Doole and Pannell (2008) *Journal of Agricultural Economics* 59(1): 188-206.
- 2007 Award of "Distinction" granted by UWA to PhD student Graeme Doole under my supervision.
- 2004 Australian Agricultural and Resource Economics Society, Prize for best PhD thesis in Australia or New Zealand awarded to my student, Rick Llewellyn.
- 1998. Australian Agricultural and Resource Economics Society, Prize for best masters thesis in Australia or New Zealand awarded to my student, Sally Marsh.
- 1996. University of Western Australia "Excellence in Postgraduate Supervision" (Commendation).

### *Classroom/online teaching*

Undergraduate teaching in the Faculty of Agriculture at the University of Western Australia in the areas of agricultural policy, farm management, mathematical programming, farming systems, environmental economics, resource economics, extension and communication.

Won UWA "Excellence in Teaching" award (1994).

Nominated for UWA "Excellence in Teaching" award (2020 and 2021).