

CURRICULUM VITAE

- Name:** Richard Marchant
- Born:** Birmingham, U.K., 5 May 1951
- Citizenship:** Australian
- Education:** 1969-72, A.N.U., B.Sc. (Hons), Zoology. Honours Supervisor: Dr W.L.Nicholas.
1973-76, Monash University and University of Adelaide, Ph.D, Zoology. Supervisor: Prof. W.D.Williams.
- Positions held:** 1977-78: Post-doctoral fellow at the University of Waterloo, Ontario, with Prof. H.B.N.Hynes (funded by the National Research Council of Canada).
1978-80: Post-doctoral fellow at the University of Adelaide, but based at the Office of the Supervising Scientist, Jabiru, Northern Territory.
1981-present: Freshwater ecologist (1981-87, contract position); Curator (1988-1998) and Senior Curator(1999-present), Department of Terrestrial Invertebrates, Museum Victoria.

Research Interests:

- (a) Community ecology of invertebrates in running waters.
- (b) Predictive modelling of stream invertebrate communities.
- (c) Life histories, population dynamics and secondary production of aquatic insects, in particular Trichoptera.
- (d) Influence of anthropogenic disturbances on stream invertebrate communities.

Grants Received:

1986-89: (with Dr P.S. Lake, Dept of Biology, Monash University) Australian Water Research Advisory Council (AWRAC): "Physical disturbance of stream communities".

1988-90: (with Dr B. Chessman, EPA Vic) AWRAC and the Dept Water Resources (DWR Vic): "Classification and prediction of macroinvertebrate communities in Victorian streams".

1991: (with Dr J.Doolan, DWR Vic.) Land and Water Resources Research and Development Corporation (LWRRDC) and DWR Vic: "Identification of indicators of physical and environmental conditions of streams".

1992: Antarctic Science Advisory Committee: "A survey of freshwater macroinvertebrates in streams and lakes of Macquarie Island".

1995-1997: (with Dr P.S.Lake, Monash University and Dr B.Downes, Melbourne University) Co-operative Research Centre for Freshwater Ecology (CRCFE): "Flow variability, habitat patchiness and diversity of stream communities".

1995-1997: (with Dr R.Brinkhurst, USA) Australian Biological Resources Study (ABRS): Taxonomy and distribution of Australian Freshwater Oligochaeta".

1993-2005: (with Dr R.Norris, CRC for Freshwater Ecology, University of Canberra) CRCFE: "Biological assessment of river health".

2008: (with Dr B. Kefford and A/Prof. D. Nugegoda, Applied Biology RMIT) Australian Antarctic Division: "Have stream invertebrate communities of Macquarie Island changed over 15 years and are they likely to respond to climate changes or other environmental factors?"

University Teaching Experience:

- (a) Dept of Biological Sciences, Monash University, Victoria: demonstrator for vertebrate and invertebrate zoology practical classes and for field course in limnology (1974); demonstrator in third year aquatic science camp for Monash and Melbourne University students (1995-1999); lecturer in aquatic ecology courses (1999-2007) and demonstrator in freshwater ecology camp for third year students.

Biology Dept, University of Waterloo, Ontario: lectures on invertebrate zoology to third year undergraduates (1978).

Dept Environmental Management, Victoria University of Technology, Victoria: lecturer and organiser of course in Introductory Environmental Science for a Graduate Diploma in Environmental Management (1993); lecturer on multivariate analysis of ecological communities to honours students (1995) and to third year students (2001, 2002); lecturer and organiser of course on univariate and multivariate statistics to honours students (1996).

- (b) Thesis examiner: nine M.Sc. theses, ten Ph.D theses and four Honours theses for various Australian universities.
- (c) Supervision of students carrying out freshwater ecological projects in the Biological Sciences Department, Monash University: 1990 (with P.S.Lake) Ms J.Smith, honours student (awarded honours degree); 1991-1999 (with P.S.Lake) Mr M.Douglas, Ph.D student (awarded Ph.D); 1994-2002 (with I.C.Campbell) Ms K.Finlay, Ph.D student (awarded Ph.D); 1995-2003 (with P.S.Lake) Ms R.Butcher, Ph.D student (awarded Ph.D).
- (d) Member of the PhD supervision committee (1996-1999) for Mr M.Stewardson in the Dept of Civil and Environmental Engineering, University of Melbourne. Ph.D awarded in 1999.

- (e) Member of PhD supervision committee (2001 –2005) for Mr B.Kefford in the Dept of Applied Biology and Biotechnology at RMIT University. PhD awarded in 2005.
- (f) Member of Ph.D supervision committee (2006-2007) for Mr E. Turak in the Dept of Biology at the University of Technology, Sydney. PhD awarded in 2007.

Other Relevant Experience:

- (a) Referee for various scientific journals e.g. Canadian Entomologist, Marine and Freshwater Research, Australian Journal of Ecology, New Zealand Journal of Marine and Freshwater Research, Regulated Rivers, Hydrobiologia, Biological Conservation, Ecological Applications, Journal of the North American Benthological Society, Journal of Aquatic Ecosystem Stress and Recovery, Freshwater Biology, Canadian Journal of Fisheries and Aquatic Sciences, Archiv für Hydrobiologie; and for a number of edited books.
- (b) Associate editor of Marine and Freshwater Research (published by CSIRO), 2007 - present; editor of the Memoirs of Museum Victoria, 2007 – present.
- (c) Assessor of grant proposals for funding agencies e.g. Australian Research Council, LWRRDC, ABRS, NERC (UK), Israel Science Foundation, NSERC (Canada).
- (d) Secretary of the Australian Society for Limnology (1985- present).
- (e) Australian National Representative of the International Association of Theoretical and Applied Limnology (SIL) (1995-present). Co-chair (with I.C.Campbell, Biological Sciences, Monash University) of the 28th Congress of SIL, Monash University, Feb 2001.
- (f) Member of technical working group for the Monitoring River Health Initiative of Department of Environment and Heritage (Commonwealth Government). Member of the invertebrate technical committee for the Murray-Darling Basin Commission.
- (g) Research associate, CRC for Freshwater Ecology (1993-2005).

Society Membership:

Australian Society for Limnology
 International Association of Theoretical and Applied Limnology (SIL)
 Freshwater Biological Association
 British Ecological Society
 North American Benthological Society

Referees:

Professor P.S. Lake
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Refereed Papers:

1. R. Marchant and W.L. Nicholas (1974). An energy budget for the free-living nematode *Pelodera* (Rhabditidae). *Oecologia (Berl)* **16**, 237-52.
2. R. Marchant and W.D. Williams (1977). Organic content of some saline lake sediments in western Victoria. *Australian Journal of Marine and Freshwater Research* **28**, 269-75.
3. R. Marchant and W.D. Williams (1977). Population dynamics and production of a brine shrimp *Parartemia zietziana* Sayce (Crustacea: Anostraca) in two saline lakes in western Victoria. *Australian Journal of Marine and Freshwater Research* **28**, 417-38.
4. R. Marchant and W.D. Williams (1977). Field estimates of oxygen consumption for the brine shrimp *Parartemia zietziana* Sayce (Crustacea: Anostraca) in two salt lakes in Victoria, Australia. *Freshwater Biology* **7**, 535-44.
5. R. Marchant and W.D. Williams (1977). Field measurements of ingestion and assimilation for the Australian brine shrimp *Parartemia zietziana* Sayce (Crustacea: Anostraca). *Australian Journal of Ecology* **2**, 379-90.
6. R. Marchant (1978). The energy balance of the Australian brine shrimp, *Parartemia zietziana* (Crustacea: Anostraca). *Freshwater Biology* **8**, 481-89.
7. R. Marchant and H.B.N. Hynes (1981). Field estimates of feeding rate for *Gammarus pseudolimnaeus* (Crustacea: Amphipoda) along a reach of the Credit River, Ontario. *Freshwater Biology* **11**, 27-36.
8. R. Marchant and H.B.N. Hynes (1981). The distribution and production of *Gammarus pseudolimnaeus* (Crustacea: Amphipoda) along a reach of the Credit River, Ontario. *Freshwater Biology* **11**, 169-182.
9. R. Marchant (1982). The life spans of two species of tropical mayfly nymphs (Ephemeroptera) from Magela Creek, Northern Territory. *Australian Journal of Marine and Freshwater Research* **33**, 173-9.
10. R. Marchant (1982). Seasonal variation in the macroinvertebrate fauna of billabongs along Magela Creek, Northern Territory. *Australian Journal of Marine and Freshwater Research* **33**, 329-42.
11. R. Marchant, P. Mitchell and R. Norris (1984). A distribution list for the aquatic invertebrates in the lowland region of the La Trobe River, Victoria. *Occasional Papers of the Museum of Victoria* **1**, 63-79.
12. L. Metzeling, A. Graesser, P. Suter and R. Marchant (1984). The distribution of aquatic macroinvertebrates in the upper catchment of the La Trobe River, Victoria. *Occasional Papers of the Museum of Victoria* **1**, 1-62.

13. R. Marchant, P. Mitchell and R. Norris (1984). The distribution of benthic invertebrates along a disturbed section of the La Trobe River, Victoria: an analysis based on numerical classification. *Australian Journal of Marine and Freshwater Research* **35**, 355-74.
14. R. Marchant, A. Graesser, L. Metzeling, P. Mitchell, R. Norris and P. Suter (1984). Life histories of some benthic insects from the La Trobe River Victoria. *Australian Journal of Marine and Freshwater Research* **35**, 793-806.
15. R. Marchant, L. Metzeling, A. Graesser and P. Suter (1985). The organization of macroinvertebrate communities in the major tributaries of the La Trobe River, Victoria, Australia. *Freshwater Biology* **15**, 315-33.
16. R. Marchant (1986). Estimates of annual production for some aquatic insects from the La Trobe River, Victoria. *Australian Journal of Marine and Freshwater Research* **37**, 113-20.
17. R. Marchant (1988). Seasonal and longitudinal patterns in the macroinvertebrate communities of cobbles from the upper La Trobe River, Victoria, Australia. *Verhandlungen der Internationalen Vereinigung für Limnologie* **23**, 1389-1393.
18. R. Marchant (1988). The vertical distribution of benthic invertebrates in the bed of the Thomson River, Victoria. *Australian Journal of Marine and Freshwater Research* **39**, 775-85.
19. R. Marchant (1989). A subsampler for samples of benthic invertebrates. *Bulletin of the Australian Society for Limnology* **12**, 49-52.
20. R. Marchant and P. Lillywhite (1989). A freeze-corer for sampling stony river beds. *Bulletin of the Australian Society for Limnology* **12**, 41-48.
21. T.J. Doeg, P.S. Lake and R. Marchant (1989). Colonization of experimentally disturbed patches by stream invertebrates in the Acheron River, Victoria. *Australian Journal of Ecology* **14**, 207-220.
22. R. Marchant (1989). Changes in the benthic invertebrate communities of the Thomson River, southeastern Australia, after dam construction. *Regulated Rivers* **4**, 71-89.
23. P.S. Lake, T.J. Doeg and R. Marchant (1989). Effects of multiple disturbance on macroinvertebrate communities in the Acheron River, Victoria. *Australian Journal of Ecology* **14**, 507-514.
24. T.J. Doeg, R. Marchant, M. Douglas and P.S. Lake (1989). Experimental colonization of sand, gravel and stones by macroinvertebrates in the Acheron River, southeastern Australia. *Freshwater Biology* **22**, 57-64.
25. P.S. Lake and R. Marchant (1990). Australian upland streams: ecological degradation and possible restoration. *Proceedings of the Ecological Society of Australia* **16**, 79-91.

26. R.Marchant (1990). The robustness of classification and ordination techniques applied to macroinvertebrate communities from the La Trobe River, Victoria. *Australian Journal of Marine and Freshwater Research* **41**, 493-504.
27. R.Marchant, P.S.Lake and T.J.Doeg (1991). Longitudinal variation in recolonization rates of macroinvertebrates along an upland river in south-eastern Australia. *Freshwater Biology* **25**, 349-356.
28. R.Marchant and G.J.Scrimgeour (1991). Correction to an estimate of production for Deleatidium. *New Zealand Journal of Marine and Freshwater Research* **25**, 355-357.
29. P.O'Leary, P.S.Lake, R.Marchant and T.J.Doeg (1992). Macroinvertebrate activity in the water column of backwaters in an upland stream in Victoria. *Australian Journal of Marine and Freshwater Research* **43**, 1403-7.
30. R.Marchant and P.Lillywhite (1994). A survey of stream invertebrate communities on Macquarie Island. *Australian Journal of Marine and Freshwater Research* **45**, 471-81
31. R.Marchant and L.Barmuta (1994). The ordination of macroinvertebrate communities from streams in Victoria, Australia. *Verhandlungen der Internationalen Vereinigung für Limnologie* **25**, 1835-1836.
32. R.Marchant, L.Barmuta and B.Chessman (1994). Preliminary study of the ordination and classification of macroinvertebrate communities from running waters in Victoria, Australia. *Australian Journal of Marine and Freshwater Research* **45**, 945-62.
33. R.Marchant, L.Barmuta and B.Chessman (1995). The influence of sample quantification and taxonomic resolution on the ordination of macroinvertebrate communities from running waters in Victoria, Australia. *Marine and Freshwater Research* **46**, 501-506.
34. R.Marchant (1995). Seasonal variation in the vertical distribution of hyporheic invertebrates in an Australian upland river. *Archiv für Hydrobiologie* **133**, 441-457.
35. R.Marchant and C.M.Yule (1996). A method for estimating larval life spans of aseasonal aquatic insects from streams on Bougainville Island, Papua New Guinea. *Freshwater Biology* **35**, 101-107.
36. R.Marchant, A.Hirst, R.H.Norris, R.Butcher, L.Metzeling and D.Tiller (1997). Classification and prediction of macroinvertebrate communities from running waters in Victoria, Australia. *Journal of the North American Benthological Society* **16**, 664-681.
37. R.Marchant, A.Hirst, R.H.Norris and L.Metzeling (1999). Classification of macroinvertebrate communities across drainage basins in Victoria, Australia: consequences of sampling on a broad spatial scale for predictive modelling.

Freshwater Biology **41**, 253-268.

38. R.Marchant and G.Hehir (1999) A method for quantifying hand-net samples of stream invertebrates. *Marine and Freshwater Research* **50**, 179-182.
39. R.Marchant and G.Hehir (1999) Growth, production and mortality of two species of *Agapetus* (Trichoptera: Glossosomatidae) in the Acheron River, southeast Australia. *Freshwater Biology* **42**,655-671.
40. R.Marchant (1999) How important are rare species in aquatic community ecology and bioassessment? A comment on the conclusions of Cao et al. *Limnology and Oceanography* **44**,1840-41.
41. R.Marchant, F.Wells and P.Newall (2000) Assessment of an ecoregion approach for classifying macroinvertebrate assemblages from streams in Victoria, Australia. *Journal of the North American Benthological Society* **19**, 497-500.
42. R.Marchant and G.Hehir (2000) How efficient is extraction of stream insect larvae from quantitative benthic samples? *Marine and Freshwater Research* **51**, 825-6.
43. R.Marchant and G.Hehir (2002) The use of AUSRIVAS predictive models to assess the response of lotic macroinvertebrates to dams in south east Australia. *Freshwater Biology* **47**, 1033-1050
44. R.Marchant (2002) Do rare species have any place in multivariate analysis for bioassessment? *Journal of the North American Benthological Society* **21**, 311- 313.
45. L.Metzeling, D.Robinson, S.Perriss and R.Marchant (2002) Temporal persistence of benthic invertebrate communities in south-eastern Australian streams: taxonomic resolution and implications for the use of predictive models. *Marine and Freshwater Research* **53**, 1223-1234.
46. A.J.Barlow, R.Marchant and R.Norris (2005) The effect of dams on macroinvertebrate recolonization in the Cotter River, Australia. *Verhandlungen der Internationalen Vereinigung für Limnologie* **29** , 895-898.
47. R. Marchant, D. Ryan and L.Metzeling (2006) Regional and local species diversity patterns for lotic invertebrates across multiple drainage basins in Victoria. *Marine and Freshwater Research* **57**, 675-684.
48. R.Marchant and D.Ryan (2006) Distribution maps for aquatic insects from Victorian rivers and streams: Ephemeropteran and Plecopteran nymphs and Trichopteran larvae. *Museum Victoria Science Reports* **8**, 1-171.
49. R.H.Norris, R.Marchant, and A.Milligan (2006) Guest Editors: 'Evaluation and Application of Methods for Biological Assessment of Streams'. *Hydrobiologia* **572**, 1-299.
50. R.Marchant, R.H.Norris and A.Milligan (2006) Evaluation and application of

methods for biological assessment of streams: summary of papers. *Hydrobiologia* **572**, 1-7.

51. R.Marchant (2007) The use of taxonomic distinctness to assess environmental disturbance of insect communities from running water. *Freshwater Biology* **52**, 1634-1645.
52. A.S.Schultheis, R.Marchant and J.M.Hughes (2008) Contrasting patterns of genetic structure and disequilibrium in populations of a stone-cased caddisfly (Tasimiidae) from northern and southern Australia. *Marine and Freshwater Research* **59**, 235-245.

Book Chapters:

1. R. Marchant (1981). The ecology of *Gammarus* in running water. In "*Perspectives in Running Water Ecology*" (Eds. M.A. Lock & D.D. Williams); pp. 225-49. Plenum Press: New York.
2. R. Marchant (1986). Some quantitative aspects of the life history of aquatic insects in temperate Australian rivers. In "*Limnology in Australia*" (Eds P. DeDecker & W.D. Williams); pp: 151-158. CSIRO: Melbourne.
3. L.A.Barmuta, R.Marchant and P.S.Lake (1992). Degradation of Australian streams and progress towards conservation and management in Victoria. In "*River Conservation and Management*" (Eds: P.Boon, G.Petts and P.Calow); pp. 65-79. John Wiley: Chichester.
4. R.Marchant (2003) Aquatic Values. In "*An Assessment of the Values of Kosciuszko National Park*" (Report from the Kosciuszko Independent Scientific Committee); pp 47-54. NSW National Parks and Wildlife Service: Sydney.
5. R.Marchant (2006) Freshwater Insects (and parts of other chapters). In "*Melbourne's Wildlife: A Field Guide to the Fauna of Greater Melbourne*"; pp 55-62. CSIRO Publishing and Museum Victoria: Melbourne.

Non-refereed Articles:

1. R. Marchant and B.C. Chessman (1989). Assessing the "health" of biological communities in rivers and streams in Victoria. In "Australian Water and Wastewater Association 13th Federal Convention"; pp 508-511. The Institution of Engineers, Australia: Canberra.
2. R.Marchant (1990). Freshwater invertebrate survey methods and analytical techniques. *Victorian Entomologist* **20**, 133-138.
3. R.Marchant, S.Talman and R.Norris (1995). Invertebrate communities in Victorian running waters. *Water* **22**, 28-29.

4. R. Marchant (2001) Dams and diversity – disturbing the balance. *Watershed*, March 2001, 5-6.
5. R. Marchant (2006) One dam thing after another – invertebrates in impounded Australian rivers. *FBA news* No. 34, 6-7.

Reports:

1. R. Marchant (1982). The macroinvertebrates of Magela Creek, Northern Territory. Research Report 1, Supervising Scientist for the Alligator Rivers Region.
2. R. Marchant, P. Mitchell, and R. Norris (1982). The distribution of macroinvertebrates along the lower reach of the La Trobe River and its response to disturbance. Volume V, La Trobe Valley Water Resources Biological Studies, State Electricity Commission of Victoria.
3. L. Metzeling, A. Graesser, P. Suter and R. Marchant (1982). The distribution of aquatic macroinvertebrates in the upper catchment of the La Trobe River. Volume IV, La Trobe Valley Water Resources Biological Studies, State Electricity Commission of Victoria.
4. R. Marchant (1987). Changes in the benthic communities of the Thomson River, Victoria, after dam construction. Thomson River Post-Construction Monitoring Program, Department of Water Resources, Victoria.
5. N.A.O'Connor and R. Marchant (1992). Identification of indicators of physical and environmental condition of streams. Report to LWRRDC.
6. C.J. Gippel, R. Marchant, M.J. Stewardson, S.O. Brizga, I.C. Campbell, J. Woodfull, B.L. Finlayson, and T.A. McMahon (1992). A review of environmental water requirements of the Thomson River from Thomson Dam to Cowwarr Weir. Report to Melbourne Water Corporation by Unimelb Ltd.
7. C.J. Gippel, R. Marchant, M.J. Stewardson, I.C. Campbell, D.N. Hall, B.L. Finlayson, and T.A. McMahon (1993). A review of the environmental water requirements of the Thomson River from Cowwarr Weir to the Macalister River junction. Report to Melbourne Water Corporation and Rural Water Corporation by Unimelb Ltd.
8. G.C.B. Poore, R. Marchant, R. Wilson and C. Handreck (1993) Biological classification of Victoria's coast. Report to the Land Conservation Council of Victoria.
9. M. Douglas, P.S. Lake and R. Marchant (1994) Tropical savanna woodland streams: their seasonal dynamics and response to disturbance. Report to LWRRDC.
10. A. Hirst and R. Marchant (1995) Ordination of lotic macroinvertebrate communities from six Victorian river basins. Report to the Environment Protection Authority of Victoria.

11. R.S.Wilson, R.Marchant and I.McCardle (1996) Monitoring marine intertidal communities in Port Hedland harbour, NW Australia. Report by Halpern Glick Maunsell Pty Ltd for BHP.
12. R.Marchant (1997) Macroinvertebrates of the upper Murrumbidgee River. In “Expert Panel Environmental Flow Assessment of the Upper Murrumbidgee River”, pp 82-85. NSW Environment Protection Authority.
13. R.Marchant (1997) Macroinvertebrate report. In “Scientific Panel Environmental Flow Assessment of the Coliban River below Malmsbury and the Campaspe River below Redesdale”, pp 37-41. Victoria Department of Natural Resources and Environment.
14. A.L.Yen, R.Marchant, B.D.Van Praagh and S.Hinkley (2000) Macro-invertebrates of conservation significance survey at Hazelwood Power. Unpublished report to Hazelwood Power. 11 pp.
15. P.Cullen, R.Marchant and R.Mein (2003) Review of Science Underpinning the Assessment of the Ecological Condition of the Lower Balonne System. Report to the Queensland Government. 54 pp.
16. R.Marchant (2005) Aquatic Macroinvertebrates. Appendix D in “Assessment of Environmental Flow Requirements for the La Trobe River and Wetlands of the Lower La Trobe River - Issues Paper”, 5 pp. Earth Tech Engineering Pty. Ltd.
17. R.Marchant (2007) Aquatic Macroinvertebrates. In “Assessment of Environmental Flow Requirements for the Kiewa River – Issues Paper”, Earth Tech Engineering Pty. Ltd.