

# New Zealand Science Review

Vol 71 (4) 2014



NZAS history 1974–1991  
New Zealand's freshwater disaster  
Science Fair participation  
Using R



Official Journal of the New Zealand Association of Scientists

# New Zealand Science Review

## Vol 71 (4) 2014

Official Journal of the New Zealand Association of Scientists  
P O Box 1874, Wellington  
www.scientists.org.nz

A forum for the exchange of views on science and science policy.

Editor: Allen Petrey  
Production Editor: Geoff Gregory

## Contents

<b>In this issue</b> .....	81
<b>President's report 2013/14 – Nicola Gaston</b> .....	82
<b>Articles</b>	
Tackling issues and initiating public debate: New Zealand Association of Scientists 1974–91 – <i>Geoff Gregory</i> .....	84
New Zealand's freshwater disaster – <i>Michael K. Joy</i> .....	97
Participation in the Science Fair: A call for data – <i>Priscilla Wehi, Barbara J. Anderson and Esther Haines</i> ....	104
Using R for data analysis and research – <i>David Lillis</i> .....	108
<b>Abstract</b>	
Advantages and limitations of the Five Domains model for assessing welfare impacts associated with vertebrate pest control – <i>NJ Beausoleil and DJ Mellor</i> .....	121
<b>Treasurer's Report, 2013/14 Financial Year</b> .....	122
<b>News</b>	
Global Conference on Science Advice to Governments: Final report available .....	124
<b>NZAS Annual conference</b>	
<i>Going Public: Scientists speaking out on difficult issues</i> .....	see inside of back cover

---

Cover: Pukeko. Credit Dave Allen, NIWA.

---

## Instructions to Authors

*New Zealand Science Review* provides a forum for the discussion of science policy. It also covers science education, science planning, and freedom of information. It is aimed at scientists, decision makers, and the interested public. Readability and absence of jargon are essential.

Manuscripts on the above topics are welcome, and should be emailed to the editor (editor@scientists.org.nz).

As well as full papers, short contributions, reports on new developments and conferences, and reviews of books, all in the general areas of interest detailed above, are invited. The journal may also accept reviews of a general nature and research reports.

Full manuscripts (with author's name removed) will be sent for peer review, and authors will be sent copies of the reviewer's comments and a decision on publication. Manuscripts should not normally have appeared in print elsewhere, but already published results discussed in the different, special context of the journal will be considered.

Manuscripts should be accompanied by biographies of not more than 100 words on each author's personal history and current interests. Authors are also expected to supply a suitable

high-definition passport-size photograph of themselves. This will be published with the article.

Articles may be submitted in MS Office Word, rich text format, or plain text. Diagrams and photographs should be on separate files (preferably eps, tif, jpg, at 300 dpi), not embedded in the text.

All tables and illustrations should be numbered separately – Tables 1, 2, 3, 4, etc., and Figures 1, 2, 3, 4, etc. – and be referred to in the text. Footnotes should be eliminated as far as possible. Diagrams and photographs will be printed in black and white, so symbols should be readily distinguishable without colour, and hatching should be used rather than block shading. However, colour may be used if the author or the author's institute is willing to pay for the added cost.

References should preferably be cited by the author–date (Harvard) system as described in the Lincoln University Press *Write Edit Print: Style Manual for Aotearoa New Zealand* (1997), which is also used as the standard for other editorial conventions. This system entails citing each author's surname and the year of publication in the text and an alphabetical listing of all authors cited at the end. Alternative systems may be acceptable provided that they are used accurately and consistently.