

The last *Conservation Advisory Science Note*

Nine years of published science advice

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Abstract

The origin and rationale of the *Conservation Advisory Science Notes* series is explained along with its relationship to the external unprogrammed science advice fund of the Department of Conservation. The series will cease publication in June 2001. The full series of 346 titles is listed with an index to authors.

1. Introduction

The Department of Conservation (DOC) asserts the need for conservation management to be underpinned by good science. Many programmes within the Department have day-to-day needs for science advice to underpin, support and explain management needs and actions. Often these arise unexpectedly and have not been programmed into the annual budget.

When the Department was formed in 1987, its in-house science unit was recognised as having capacity covering only part of the broad-spectrum needs of the Department. Accordingly, bulk funding was provided to secure external science research and advice. During the first five years of the Department the advice funding was limited to 4 agencies primarily within the then Department of Scientific and Industrial Research (DSIR).

DOC staff requiring science advice were able to consult with staff in these agencies, and the cost of such consultations were charged against the advisory component of the external science funds. During the first 5 years of the Department's operations some \$1.2 million were expended in obtaining such science advice or services. Much of the advice was to individuals and verbal. While such individuals and the Department may have benefited, there was little residual evidence of what advice was received and by whom. Similar advice was often requested by different parts of the Department.

With the formation of various Crown Research Institutes from the previous DSIR in 1992 the Department introduced new procedures for obtaining external Unprogrammed Science Advice and Services (UPSAs). The network of Conservation Advisory Scientists (CAS) had recently been extended so that a scientist was generally provided in each Conservancy. A paper allocation of advisory funding was made to each Conservancy, and management staff requests to use the fund were channelled through the relevant CAS.

The usual scenario entails a manager with a problem. The CAS or Science & Research Unit (SRU) of the Department is consulted for assistance in defining the problem and in finding a prompt answer. In many cases this consultation reveals that relevant

information or methods are already known and available within the Department, or the published literature, and can be applied to the problem. If this is not the case, then a search is made for a suitable contractor within the local or national scientific community. In some cases the search needs to be made world-wide.

The funds for purchasing external advice were retained by the SRU, which ultimately arranged for payment of the external contractor. Crucially, the decision was made to, where possible, publish the advice received. This would enable others to not only see and make use of the advice received, but to see who was able to provide advice, and potentially solve a science problem within their own programmes.

These published items were gathered in a registered series entitled *Conservation Advisory Science Notes* (ISSN 1171-9834). Their defined brief has been printed on the cover of all publications in the series:

Short Answers in Conservation Science

This report is published by Head Office, Department of Conservation, and presents the results of scientific services or advice purchased from a consultant outside the Department or provided by Departmental scientific staff.

The unprogrammed science advice fund process was designed to be a simple one, with the prime requirement being a written question, which clearly states the management or scientific problem, requiring a written answer which *may* be published in *Conservation Advisory Science Notes* (CASNotes). Answers which were not published include chemical analyses, raw data for inclusion in other reports, and reviewers comments on other advice or reports, where the CASNote reader does not have access to the original document under review.

There have been some primary rules covering access to the fund (see also Appendices A and B):

1. All unprogrammed science advice paid for by SRU must be received as written advice to a written question or request for laboratory or other approved technical service.
2. As a general rule these funds are only for the payment of costs (including overheads) for written advice-a report. Travel and other expenses such as survey or field investigation are the responsibility of the Conservancy or part of the Department needing the advice or service.
3. **Funding does not cover** oral advice, routine survey, routine analysis of materials, appearance at tribunals or hearings on behalf of the Department, or services which are obtainable from SRU or other Conservation Service Units. Advisory tasks associated with a contracted DOC funded external research investigation must be charged to that investigation and not UPSA. No new UPSA on the same topic or extension of a topic is allowed in another financial year - it should then have been programmed. All contracts let to universities must be to a permanent staff member (who may use a supervised student of their choice to provide a report, which should also include the contracted staff member as an author).

Initially the advice was published as it was received, with only the addition of a standard series cover. This was the most economic form of distribution, but did produce a variable image according to the visual quality of the material provided by the contractor. In spite of this visual quality, it did show the scientific quality of the advisory product being purchased.

The introduction of the DOC publication standards in 1996 required that CASNotes adhere as far as possible to this standard. A compromise was allowed, in that while text should be formatted according to the standard, tables and illustrations could remain in the format provided by the contractor and would be treated as appendices. Adherence to this design standard, however, introduced the costs of typesetting, formatting and an increased amount of proofing and administration, which ultimately reduced the amount of money available for advice. In 1999, the fund was increased to cover these costs plus the costs of printing previously borne by SRU. In 2000/2001, some 21 % of the fund was used for these production costs.

In 2001, SRU decided that the CASNote series should cease, and that material previously channelled to the series would in future be subsumed within the *DOC Science Internal Series*. Their publication from July 2001 would initially be on the DOC intranet, and hard copies of groups of reports would be published as compendia later. This final CASNote provides a commentary on the origins, operational summary and index of the full series.

2. Discussion

CASNotes have proven to be an efficient method of ensuring accountability and the visibility of urgent science advice during the past nine years. Designed to provide rapid responses to specific questions, the processes of formatting and publication have in recent years tended to slow the immediacy of the advice to other than those with the original problem.

They have provided a significant pool of generally reliable advice to the Department in a manner which has enabled the wider general and scientific community to view what advice has been given. I have searched without success for a similar system world-wide and can find no equivalent. As a publicly available advisory series it enabled this part of the scientific underpinning of the Department to be assessed alongside other DOC series which directly report on scientific research results.

Advice based on the best available knowledge, advance results of research, or the contractor's experience can often provide more immediacy for the manager than the results of a closely focussed research programme which may not directly address the specific problem faced, while still needing further interpretation to enable a useful scenario and "advice" for the manager.

However, advice does have caveats. It may represent only a narrow point of view, and in some cases there are alternative points of view and wider questions for the manager to consider. There are examples of this within this series, some published as separate pieces of advice, while others have the results of other consultations included.

Ultimately the manager must make a decision, while recording how that decision was made, the range of advice received, and reasons for its acceptance or rejection.

The benefit to science and the Department has been a growing understanding by managers that science, scientific methods and advice, can help to solve management needs, and especially the small day-to-day problems which may arise. This is a continuing problem in any organisation which has to operate in an applied science environment. Often, advice based on the best available knowledge and experience may be the only material which a manager can use. A result from a specific research programme and its peer-reviewed journal publication may be years away.

Publication of advice provides an important science transfer and advocacy tool for the Department, in that the advice published is often received from independent sources and provides views which complement or criticise proposed actions. This has assisted and should continue to assist in providing healthy and informed debate. The advice received is also a window in time and represents the best answers when given. This is not to presume that advice will always remain constant and will not change as knowledge increases.

Another important result of the unprogrammed science funding and the publication of this series has been the significant number of topics which have later developed into more closely focussed research projects, or to report methods or trials leading to further research work. As such, the USPA fund and the publication series have in themselves provided an important underpinning to conservation science, as well as management.

Appendix C gives a full listing of the CASNote series. The advice they contain has been required by, and affected, most of the statutory functions of the Department over a nine-year period. This role will now be promulgated through the *DOC Science Internal Series*

4. Acknowledgements

I wish to acknowledge the initial support and contribution of Rob McColl in the formulation of processes for the Unprogrammed Science Advice fund and the principle of publishing the results; the responsibility of administering the fund and the CASNote series referred to me by Richard Sadleir, the late John Holloway and Geoff Hicks as the Managers of Science & Research in the Department of Conservation and as the final arbiters of approval for publication; the Conservation Advisory Scientists who over the years have committed the USPA funds wisely, and struggled at the interface of management and science to find answers to some interesting and provoking questions; Miriam Dangerfield of Hutcheson Bowman & Stewart who successfully matched the publication standard layouts; Geoff Gregory of Word Therapy who provided some of the formatting as well as a smooth transfer process and proofing from original to final copy; Kaye Green and Sue Wilkins have managed the production of the final product. Since May 2000, Ian West has provided me with the administrative and managerial link to the departmental processes; Ian West and Kaye Green reviewed a draft of this report.

Appendix A

DEPARTMENT OF CONSERVATION

SCIENCE & RESEARCH UNIT

ORDER FOR EXTERNAL UNPROGRAMMED SCIENCE ADVICE/SERVICES

Conservancy: HO Division:	Year	Ref.No.
TO (Supplier) Name:		
Address		
Telephone	Fax.No	Email
FROM (Client) Name:		
Address		
Telephone	Fax.No.	Email
<ol style="list-style-type: none"> 1. Please provide written science advice report/services on the topic/question(s) listed, and at the price quoted below. 2. Please provide one typed copy of the advice/service to the originator of this order. 3. Please provide one typed original (see over for instructions) of the advice/service with your GST Invoice to: CAS Co-ordinator, SRU, PO Box 10-420, Wellington. 		
Supplier Quotation Provided by (Name):		
Date Written Advice/Service required:	Date Quotation provided: Quote Ref.:	Quoted cost (excluding GST): \$
Question(s) for which advice/service is required (Please type or print clearly). Use extra page if needed.		
Name & Signature of person authorised to order advice/service:- Not valid unless signed.	SRU Alloc. \$ _____	Other Authority No. _____ Amount \$ _____
CAS Co-ordinator Signature if Bid for unallocated funds approved.		
Extra Amount Approved from SRU \$ _____		

Appendix B

ORDERS FOR EXTERNAL UNPROGRAMMED SCIENCE ADVICE SERVICES ALL PARTIES TO READ CAREFULLY AND FOLLOW REQUIREMENTS

PROCEDURES TO BE FOLLOWED BY DOC STAFF

1. DOC Client to prepare written question(s)/request for services/advice for action by Conservancy Advisory Scientist (CAS), or Head Office Director (HOD), or CAS Co-ordinator, SRU.
2. Client, CAS or HOD to obtain verbal or written quotation (excluding GST) from supplier. **Please ensure that any supplier is aware of the conditions for delivery and payment as set out below, before a quotation is given or an order made.**
3. CAS or HOD complete advice/service request form (see attached). Provide local Reference No. (top right).
- 4a. If allocated funds still available, forward **original to supplier and copy to CAS Co-ord.** CAS or HOD to keep copy.
- 4b. If allocated funds are wholly or partly exhausted, but Conservancy or HO policy division is able to provide the extra funds needed - add payment authorisation codes plus dollar amount and send original to supplier and a copy to CAS Co-ord. CAS or HOD to keep copy. **PLEASE NOTE the instructions to suppliers (1) below. Agreed additional costs (not funded by SRU) over and above the cost of the required report should be added by Client authorisation code so that the supplier only incurs the cost of one invoice.**
- 4c. If allocated funds exhausted and Conservancy or HO policy division cannot pay locally, submit the original order and two copies to CAS Co-ord as a bid for unallocated funds. If approved CAS Co-ord. submits order. Copy is returned to CAS or HOD if successful in bid. All copies returned if the bid is not successful.
5. CAS and HOD to keep register of all authorities given as a check on use of allocations.

PROCEDURES TO BE FOLLOWED BY SUPPLIERS OF SERVICES/ADVICE

1. Provide quotation on request for written services/advice. Please note that if supplier is not registered for GST the amount quoted will be the maximum amount paid. Suppliers not registered for GST will have withholding tax deducted from any final payment except reimbursement of an approved and listed expense. Unless previously agreed and written in the order specifications, payment will only be made for the provision of a written report. **PLEASE NOTE. Charging for any oral advice, or travel and other expenses will not be accepted by SRU. Suppliers giving extensive oral advice to DOC clients and/or incurring travel or other expenses may need to make their own arrangements with the Client for payment that is separate from amounts agreed to in this order. See also Note in 4b above.**
2. Advise whether the task can be completed by the required date. Give adequate notice if an extension of time is required at any time.
3. Written advice to be provided as specified below with a covering letter on official letterhead of the supplier.
Please show in the report:-
 - a) a short, clear descriptive title and up to 10 Keywords
 - b) name and address of person(s) and organisation(s) supplying advice
 - c) question/service sought by client
 - d) reported information and references
 - e) statement recording any restrictions on the use of the information
4. Send copy of report to the client.
5. **Send original copy of report plus GST Invoice for payment to CAS Co-ordinator, SRU, PO Box 10-420, Wellington. No invoice will be paid unless copy of written advice is provided. Please note that Invoices sent anywhere else will incur delays in payment.**
6. Most reports received will be automatically considered for publication in the series Conservation Advisory Science Note. Accordingly all final reports should be in a format submitted to the CAS Co-ordinator as follows:
 - 1) One original hard copy on one side of A4 sheets.
 - 2) Disk copies as (a) WordPerfect/Word file and (b) DOS ASCII file. No Macintosh files please.
 - 3) All original figures, tables, and other illustrations must be provided in final hard copy form to fit without change in final presented material within an A4 page (maximum margins 2.5 cm top and bottom; 1.5 cm left and right of page). Ideally all text printed within or on figures (not captions) to be in Helvetica/Arial typeface. **Fold out pages not accepted.**
 - 4) All tables, figures and illustrations to be presented and referred to as Appendices to the text of the report and placed after the completed text.
 - 5) Photographic illustrations will be dot screened for printing purposes and printed in Black&White. No material for colour printing will be accepted except in exceptional circumstances and only with prior approval from CAS Co-ordinator.
 - 6) Suppliers may order up to 20 copies of their published report free of charge.

C J R Robertson. (CAS Co-ordinator SRU). 25 July 1995

Appendix C

SERIES LIST, CONSERVATION ADVISORY SCIENCE NOTES (ISSN 1171-9834)

- 1 Marrett, R. 1992. Underwater noise from tourist operations.
- 2 Eason, C.T.1992. Questions on brodifacoum.
- 3 Spurr, E.B. 1992. Feeding by captive kaka on baits used in 1080-poisoning operations.
- 4 Allen, R.B.1992. Forest and scrub vegetation, east branch Tokomairiro river.
- 5 Atkinson, IAE 1992. Ecological restoration of Mana island: threatened plants.
- 6 Bartram,D.A.1993.Matai Bay Department of Conservation camp: Defoliation of amenity plantings.
- 7 Thom, N. 1993. ECNZ Marsden `A' power station: Assessment of environmental effects: October 1992.
- 8 Allen, R.B. 1993. Gorse and wilding pine management, proposed additions, Maungatua scientific reserve.
- 9 Johnson, P.N.1993. Pingao on Otago Peninsula: Botanical report.
- 10 Spurr, E.B. 1993. Comment on proposed experimental control of wasps on Tuhua island using 1% 1080 in water.
- 11 MolloyB. 1993. Management of native orchids, Lake Ohia, Northland.
- 12 Miller, N.1993. Recommendations for managing Northland kokako.
- 13 Lallas, C.1993. Status and monitoring of marine shags in Otago Conservancy, with recommendations on research needs.
- 14 Barratt,B.LP.1993.*Mecodemachiltoni* Broun: An assessment of the priority for conservation.
- 15 Gardiner, ANJ 1993. Possum control operations in Northland in the 1970s and 1980s and their impacts on kiwi.
- 16 Johnson, P.N.1993.Oreti-Von kettleholes:Botanical report.
- 17 Thrush, S.F.1993. Shellfish monitoring: Maketu Estuary.
- 18 Rowe,D.1993.Management options for dwarf inanga.
- 19 Rowe, D.1993. Monitoring and survey methodology for black mudfish
- 20 Clarkson, B.1993. An assessment of the current status of kamahi forest in the Kaitake Range, Egmont National Park.
- 21 Wilcock,R.J.1993.Effects of Roundup@ and Pulse@ on aquatic ecosystems.
- 22 Woods, P.W.1993.Ruapekapeka Pa management.
- 23 Lambert, D. 1993. DNA fingerprinting studies of teals and ducks.
- 24 Johnson, P.N.1993. Heath rush, an unwanted weed in Fiordland.
- 25 Mallinson, F.; Hickling, G.1993. Assessing the palatability of threatened plant species to possums.
- 26 Hamilton, S. 1993. Breeding colonies of titi, *Puffinus griseus*, on the Otago coast in 1992/93.
- 27 Mitchell, C.,1993. Management of riparian margins of the lower Rangitaiki River to enhance whitebait spawning.
- 28 Bartram, D. 1993. Trounsen Park kauri dieback 1993.

- 29 Atkinson, IAE 1993. The kiore threat to kakapo.
- 30 Ecroyd, C.E. 1993. Testing whether wild short-tailed bats will consume non-toxic carrot bait.
- 31 Mitchell, C. 1993. Fish surveys in Northland.
- 32 Clunie, N.M.U. 1993. Death of mangroves: upper Whangarei harbour.
- 33 Spurr, E.B. 1993. A review of the effects of pesticides on lizards.
- 34 Rose, A.B. 1993. Long-term possum control: Getting the framework right.
- 35 Nugent, G. 1993. Recalibration of the regression model used to predict deer densities in the Blue Mountains recreational hunting area.
- 36 Johnson, P.N. 1993. Okaia flat, Otago Peninsula: Botanical values and grazing.
- 37 Lee, WG 1993. 1992/93 Assessment and reorganisation of the tussock flowering line in Takahue Valley, Fiordland National Park.
- 38 Stephenson, G. 1993. Macroinfauna of Wainui beach south of the Hamanatua stream: an assessment of changes associated with beach erosion.
- 39 Haddon, M.; Anderlini V. 1993. Evaluation of southern Hawkes Bay coast intertidal data.
- 40 Grange, K.R. 1993. An analysis of fish abundance and distribution data, Mayor I. (Tuhua) marine reserve baseline survey, 1993.
- 41 Herbert, J.M.; Dowding, J.E.; Daugherty C.H. 1993. Genetic variation and systematics of the New Zealand dotterel.
- 42 Robertson, CJR 1993. Assessment of tinted glass for public observatory, Taiaroa Head nature reserve.
- 43 Patrick, B. 1993. Use of CCA tanalised timber in or near waterways.
- 44 Babcock, R.C.; Cole, R. G. 1993. The extent of die-back of the kelp *Ecklonia radiata* in the Cape Rodney to Okakari Point Marine Reserve.
- 45 Mark, A.F. 1993. Assessment of recommended areas for protection from Morven hills pastoral lease, Lindis ecological district.
- 46 Keesing, V.F. 1993. Nitrogen content of soils, *Calluna vulgaris*, and some native plants in Tongariro National Park (1992-1993).
- 47 Thompson, K.; Champion, P. 1993. Esplanade reserve recommendations for Lakes Serpentine, Mangahia, Rotomanuka, Ruatuna and Cameron (Warpa District).
- 48 Robertson, C.J.R.; Richdale, L.E. 1993. The breeding phenology of the royal albatross (*Diomedea epomophora sanfordi*) 1937-1974.
- 49 Johnson, P.N. 1993. Emerald Creek, Nenthorn: Botanical report on wetlands.
- 50 Robertson, CJR 1993. Timing of egg laying in the royal albatross (*Diomedea epomophora*) at Taiaroa Head 1937-1992.
- 51 Miller, C. 1993. Fire for conservation management of pakihi.
- 52 Mitchell, C. 1993. Monitoring impacts of water abstraction from the Takahue River.
- 53 Patrick, B. 1994. The importance of invertebrate biodiversity: an Otago Conservancy review.
- 54 Simpson, P. 1994. Local cabbage tree surveys: the Wairau valley, Marlborough.
- 55 Ombler, J. 1994. Forestry and environmental issues.
- 56 Doak, W. 1994. Management of a solitary, sociable dolphin situation.
- 57 Hamel, J. 1994. Map of archaeological sites on Pukekura Pa.
- 58 Lambert, D.; Millar, C. 1994. Genetic tools and conservation problems.
- 59 Haddon, M. 1994. Evaluation of southern Hawkes Bay coast intertidal data: 2. The use of presence/absence data.
- 60 Walmsley, B. 1994. Turf management report.

- 61 Hall, J.V. 1994. Accelerated life environmental tests of various outdoor signs.
- 62 Walls, G. 1994. Community involvement in conserving biodiversity in the south Pacific.
- 63 Allen, R. B. 1994. Taieri Island vegetation.
- 64 Johnson, P.N. 1994. Threatened and local plants in Southland and Otago: including national distribution.
- 65 Rook, H. 1994. Sperm whale jaw removal and preparation.
- 66 Hosking, G. 1994. Northern Rata dieback-Minginui faces.
- 67 Jones, J.B. 1994. Mortality of native fish from Waikato tributary: disease diagnosis.
- 68 Forbes, S. 1994. Nomination of the Tongariro National Park for inclusion in the World Heritage Cultural List.
- 69 Chisnall, B.L. 1994. An unexploited mixed species eel stock (*Anguilla australis* and *A. dieffenbachii*) in a Waikato pastoral stream, and its modification by fishing pressure.
- 70 Robertson, C.J.R.; Sawyer S. 1994. Albatross research on (Motuhara) Forty-Fours islands: 6-15 December 1993.
- 71 Walls, G. 1994. The New Zealand hydrilla problem: a review of the issues and management options.
- 72 Elliott, G. 1994. Methodology for examining the relationship between skink density and habitat features.
- 73 Nicholls, D.G. 1994. Satellite tracking of large seabirds- a practical guide.
- 74 Barratt, BIP 1994. *Mecodema laeviceps* Broun: An assessment of the priority for conservation.
- 75 McDiarmid, A. 1994. Kina sampling and marine reserve monitoring.
- 76 Bourner, T.C.; Syrett, P. 1994. The suitability of New Zealand moss species and heather litter as oviposition sites for the heather beetle, *Lochmaea suturalis* (Coleoptera: Chrysomelidae).
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- 78 Eward, D.; Putz R.; McLellan, I.D. 1994. Aquatic insects from Westland National Park.
- 79 Walls, G. 1994. Kaweka mountain beech - animal pest problem.
- 80 Duncan, K.W. 1994. Susceptibility of terrestrial amphipods, especially *Tara taranaki*, to possum control operations.
- 81 Spurr, E.B.; Hough, S. J. 1994. Behaviour of stoats to trapping tunnels.
- 82 Simpson, P. 1994. Seeking away to conserve fragments of native bush on private land: "Curtis Bush", Wainuiomata valley, Wellington.
- 83 Buxton, R.P. 1994. Ages of six kahikatea (*Dacrycarpus dacrydioides*) seedlings from Whataroa, South Westland.
- 84 Wardle, P. 1994. Botanical inspection of Birch Hill flats, Mount Cook National Park.
- 85 Wardle, P. 1994. A locality for *Pittosporum obcordatum* in Catlins Forest Park.
- 86 Craw, J. 1994. *A geratina* at Waipoua and Taranga/Marotene Islands.
- 87 Pierce, R.; Moorhouse, R. 1994. Survival of kaka following aerial poisoning with Talon on Whatupuke Island.
- 88 Jowett, I.G. 1994. Native fish and minimum flows in the Kakanui River.
- 89 Jackson, R.J. 1994. Hydrological management of three wetlands.
- 90 Bergin, D.O. 1994. Performance of transplanted indigenous salt marsh species, Maketu estuary.
- 91 Mitchell, C. 1994. Recommendations for a fish pass on the Braemar lagoon water level control weir.
- 92 Laird, K. 1994. Colouration and visibility of track markers.
- 93 Hodges, W. 1994. Maori conservation ethic: A Ngati Kahungunu perspective.

- 94 McShane, P.E.; Mercer, S.F.; Naylor, J.R., 1994. Surveys of paua (*Haliotis iris*) off Nugget Point, south-east New Zealand.
- 95 Johnson, P.N. 1994. Black Head: vegetation condition after quarrying.
- 96 Rook, H. 1994. Preliminary protection of whitebait (inanga) spawning areas in Hawkes Bay.
- 97 Hamel, J. 1994. Otago central rail trail: an archaeological assessment.
- 98 Ecroyd, C. E. 1994. Location of short-tailed bats using *Dactylanthus*.
- 99 Ecroyd, C. E. 1994. Regeneration of *Pittosporum tumeri*
- 100 Simpson, P. G. 1994. Pohutukawa and biodiversity.
- 101 Dowding, J. 1994. Evaluation of techniques for management of NZ dotterels.
- 102 Cawthorn, M.W. 1994. Seal finger and mycobacterial infections of man from marine mammals: occurrence, infection and treatment.
- 103 Moore, P.J. 1994. What is a bad season for yellow-eyed penguins?
- 104 Henderson, I.M. 1994. Population viability analysis of blue duck (*Hymenolaimus malacorhynchos*).
- 105 Rogers, G. 1994. Kaimanawa feral horses: recent environmental impacts in their northern range.
- 106 Lloyd, B. D. 1994. A report on a brief trip to assess the status of short-tailed bats in the Rangitaua, Ohakune Area, April 1994.
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- 108 Lloyd, B.D. 1994. Evaluating the potential hazard of aerial 1080 poison operations to short-tailed bat populations.
- 109 Rogers, G. 1995. *Calluna vulgaris* Pouakai Range, Egmont National Park.
- 110 Jones, K.; Carson, D. 1995. Civil war sites in the United States: management lessons for New Zealand.
- 111 Barrier, R.; West, D.; Boubee, J. 1995. Fish passage over the Whangamarino weir.
- 112 Parsons, M.J. 1995. Status of the introduced brown seaweed *Undaria* in New Zealand.
- 113 Jacobs, R.J.; Lewes, C.; Laird, L.K. 1995. Track markers: improving their visibility.
- 114 Davis, P. 1995. The domestic fuelwood sector in Whangarei and Northland and the role of manuka as a fuelwood and a forest.
- 115 Booth, A. M. 1995. The little shearwater in the 1994 breeding season on lady Alice Island: breeding success, and timing and causes of breeding failure.
- 116 Chapman, M. 1995. A geological assessment of the Moss Creek track, Kauaeranga valley, Thames.
- 117 Simpson, P. 1995. Alongside the water - Parewai: a concept to restore ecological health to riverbanks and similar places.
- 118 Shaw, T. 1995. Population census, habitat assessment and management of the endangered fern, *Davallia puketi*.
- 119 Douglas, M.E. 1995. Alkaline single cell batteries and rechargers: results of preliminary tests.
- 120 Walls, G.; Scheele, S. 1995. Collapse or recovery: Pitt island vegetation 1980-1993, with reference to Chatham Island.
- 121 Hovius, N. 1995. A geological hazard assessment for the lower Fox valley, anno 1994.
- 122 Dowding, J.E. 1995. Research on New Zealand dotterels during the 1994/95 season.
- 123 Townsend, J. I. 1995. A search for *Mecodema laeviceps* Broun.
- 124 Simpson, P. 1995. Provenance variation in cabbage trees on a round trip from Blenheim to Greymouth, Christchurch and Kaikoura.
- 125 Benson, M. 1995. Pohutukawa in North Taranaki.
- 126 Mitchell, C. 1995. Fish passage past the Lake Wairarapa control structure.

- 127 Hayes, J.W. 1995. Observations of unusual feeding behaviour and habitat use by koaro.
- 128 Lambert, D.; Robins, J. 1995. Testing for evidence of philopatry: minisatellite DNA variation in Auckland Island teals.
- 129 Burrows, C. J. 1995. Cherry trees in Mount Cook National Park.
- 130 Walls, G. Y.; Baird, A. 1995. Winds of change: monitoring vegetation condition and trend in the Chatham islands.
- 131 Israel, S.A.; Fyfe, J.E. 1996. Determining the sensitivity of SPOT XS imagery for monitoring intertidal and sublittoral vegetation of Otago Harbour.
- 132 Collins, C. 1996. Forest and the carbon cycle: Emerging opportunities for native forest protection and afforestation in New Zealand.
- 133 Webb, C.J. 1996. Seed production in *Gunnera hamiltonii*.
- 134 Mitchell, C. 1996. Modification of the floodgates and drainage patterns into Lake Pounui: implications for fish passage.
- 135 Johnson, P.N. 1996. Manorburn Conservation Area: vegetation assessment.
- 136 Crosby, T.K. 1996. Motu-o-Kura (Bare Island): report on invertebrates in pitfall traps.
- 137 Hamel, J. 1996. Archaeological assessment of the Otago Central rail trail: the line today.
- 138 Ratz, H.; Moller, H. 1997. Identification of predators of royal albatross chicks at Taiaroa Head in February 1994.
- 139 Freeman, A.B.; Hickling, G.J.; Bannock, C.A. 1997. Responses of the native skink *Leiopisma maccanni* to two pest control baits.
- 140 Watt, J.P.C. 1997. Inglis Bush Scenic Reserve (Central Hawkes Bay): Impact of water race on native vegetation.
- 141 Wigley, P.J. 1997. Elimination of microsporidian infections from quarantined heather beetle populations.
- 142 Mitchell, C. 1997. Fish passage issues at Lake Tuakitoto.
- 143 McShane, P.E. 1997. Environmental effects of sea-based farming of paua (*Haliotis* spp.) and kina (*Evechinus chloroticus*).
- 144 Miskelly, C.M. 1997. Biological notes on the Western Chain, Snares Islands, 1984/85 and 1985/86.
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