

SCIENCE COMMUNICATIONS

October 2003-December 2003

Science Division Mission: The provision of up-to-date and scientifically sound information to uphold effective conservation and land management in Western Australia
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Science Communications lists titles of publications, reports etc prepared by Science Division staff. This issue is for the period October to December 2003.

If you require a copy of a **submitted** paper please contact the author. For all other titles please contact Lisa Wright at Woodvale.

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Distributions 9. pp. 469-484.

Books

Burrows, N. (2003). Using and sharing indigenous knowledge. *In: Australia Burning: Fire Ecology, Policy and Management Issues* (eds G. Cary, D. Lindenmayer & S. Dovers). CSIRO, Collingwood. pp. 205-210.

May, J.E. and McKenzie, N.L. (2003). A biodiversity audit of Western Australia's biogeographical subregions in 2002. Department of Conservation and Land Management, Western Australia, 724 p.

McKenzie, N.L., May, J.E. and McKenna, S. (2003). Bioregional summary of the 2002 biodiversity audit for Western Australia. Department of Conservation and Land Management, Western Australia, 112 p.

Conference/Workshop Papers

Barrett, S., Shearer, B.L. and Hardy, G.E. St. J. (2003). Control of *Phytophthora cinnamomi* by the fungicide phosphite in relation to *in planta* phosphite concentrations and phytotoxicity in native plant species in Western Australia. *In: Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. pp. 138-143.

Bellgard, S., Crane, C. and Shearer, B. (2003). Variation exhibited by isolates of *Phytophthora megasperma* causing seedling and tree decline in south-western Australian coastal national parks. *In: Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A.

(Continued on page 2)

Journal Publications

Byrne, M., Macdonald, B. and Brand, J. (2003). Phylogeny and divergence in the chloroplast genome of Western Australian sandalwood (*Santalum spicatum*). *Heredity* 91. pp. 389-395.

Byrne, M., Macdonald, B., Broadhurst, L. and Brand, J. (2003). Regional genetic differentiation in Western Australian sandalwood (*Santalum spicatum*) as revealed by nuclear RFLP analysis. *Theoretical and Applied Genetics* 107. pp. 1208-1214.

Coates, D.J., Carstairs, S. and Hamley, V.L. (2003). Evolutionary patterns and genetic structure in localized and widespread species in the *Stylidium caricifolium* complex (Stylidiaceae). *American Journal of Botany* 90. pp. 997-1008.

Hobbs, R.J. and Yates, C.J. (2003). Impacts of ecosystem fragmentation on plant populations: generalising the idiosyncratic. *Australian Journal of Botany* 51. pp. 471-488.

Radke, L.C., Juggins, S., Halse, S.A., De Deckker, P. and Finston, T. (2003). Chemical diversity in south-eastern Australian saline lakes. II, biotic implications. *Marine and Freshwater Research* 54. pp. 895-912.

Ruthrof, K.X., Loneragan, W.A. and Yates, C.J. (2003). Comparative population dynamics *Eucalyptus cladocalyx* in its native habitat and as an invasive species in an urban bushland in south-western Australia. *Diversity and*

(Continued from page 1)

McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. pp. 144-147.

Collins, S., Shearer, B., McComb, J., Colquhoun, I. and Hardy, G. (2003). Survival of *Phytophthora cinnamomi* in plant material under different soil and moisture conditions. In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. pp. 154-158.

Keighery, G. (2003). Composition and conservation of the flora of the Western Australian agricultural zone. In: *Conference Papers: State Landcare Conference for Agricultural Sustainability, 7-10 October 2003, Katanning, Western Australia* Conference Organising Committee, Katanning. pp. 1-6.

Shearer, B.L. (2003). The contribution of research in the Forest Department of Western Australia and the Department of Conservation and Land Management to the fight against *Phytophthora* species in native vegetation of south-western Australia over the last two decades. In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. pp. 235-242.

Shearer, B.L. (2003). Time course studies of the effect of temperature and stimulation of soil at different depths on sporangium production by *Phytophthora cinnamomi* (POSTER). In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. p. 266

Shearer, B.L. and Crane, C.E. (2003). The influence of soil from a topographic gradient in the Fitzgerald River National Park on mortality of *Banksia baxteri* following infection by *Phytophthora cinnamomi* (POSTER). In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management,

Murdoch. p. 268

Shearer, B.L., Crane, C.E., Dillon, M. and Cochrane, A. (2003). How susceptible is the flora of the south-western Australia to *Phytophthora cinnamomi*? In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. pp. 57-60.

Shearer, B.L., Crane, C.E. and Fairman, R.G. (2003). Phosphite reduces disease extension and the rate of extension of *Phytophthora cinnamomi* in banksia woodland, even after fire (POSTER). In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. p. 271

Abstracts

Chapman, A.R. (2003). Australia's Virtual Herbarium and its links with global initiatives in biodiversity information management (ABSTRACT). In: *150, National Herbarium of Victoria: Celebrating 150 Years of Plant Research in Australia: Conference Abstract Book: Australian Systematic Botany Society and the Australasian Mycological Society with the 7th Australasian Bryophyte Workshop, 29 September-3 October 2003, Melbourne, Victoria University of Melbourne, Melbourne*. p. 39

Collins, S., Shearer, B., McComb, J.A., Colquhoun, I. and Hardy, G.E. St. J. (2003). Long term survival of *Phytophthora cinnamomi* in mature *Banksia grandis* trees in remnant jarrah forest (ABSTRACT). In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. p. 249

Craven, L.A., Lepschi, B.J., Broadhurst, L. and Byrne, M. (2003). Sweeping away the confusion: broombush in Western Australia (ABSTRACT). In: *150, National Herbarium of Victoria: Celebrating 150 Years of Plant Research in Australia: Conference Abstract Book: Australian Systematic Botany Society and the Australasian Mycological Society with the 7th Australasian Bryophyte Workshop, 29 September-3 October 2003, Melbourne*,

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Victoria University of Melbourne, Melbourne. p. 33

D'Souza, N.K., Colquhoun, I.J., Shearer, B.L. and Hardy, G.E. St. J. (2003). Biological control of *Phytophthora cinnamomi*: the potential of five Western Australian native *Acacia* species to protect *Banksia grandis* (POSTER ABSTRACT). In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. p. 252

D'Souza, N.K., Colquhoun, I.J., Shearer, B.L. and Hardy, G.E. St. J. (2003). Biological control of *Phytophthora cinnamomi*: the potential of Western Australian native legume species to reduce inoculum levels in soil (POSTER ABSTRACT). In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. p. 252

Dobrowolski, M.P., Hardy, G.E. St. J., Tommerup, I.C., Shearer, B.L., Colquhoun, I. and O'Brien, P.A. (2003). Will *Phytophthora cinnamomi* become resistant to phosphite with its increasing use? (POSTER ABSTRACT). In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. p. 251

Dobrowolski, M.P., Tommerup, I.C., Shearer, B.L. and O'Brien, P.A. (2003). Continent-wide clonal lineages of *Phytophthora cinnamomi* show frequent mitotic recombination (ABSTRACT). In: *Phytophthora in forests and natural ecosystems: 2nd International IUFRO Working Party 7.02.09 Meeting, Albany, W. Australia, 30th Sept-5th Oct, 2001* (eds J.A. McComb, G.E. St. J. Hardy & I.C. Tommerup). Centre for Phytophthora Research and Management, Murdoch. p. 251

Hopper, S.D., Coates, D.J., Byrne, M. and Maslin, B.R. (2003). Hidden variation revealed : molecular techniques and species problems in Australian acacias (ABSTRACT). In: *150, National Herbarium of Victoria: Celebrating 150 Years of Plant Research in Australia: Conference Abstract Book: Australian Systematic Botany Society and the Australasian Mycological Society with the 7th Australasian Bryophyte Workshop, 29 September-3 October 2003, Melbourne,*

Victoria University of Melbourne, Melbourne. p. 47

Keighery, G. (2003). Restoration and completion criteria (ABSTRACT). In: *Environmental Consultants Association (WA) Seminar Abstracts: Restoration, When to Walk Away: the 8th Annual Half Day Seminar and Social Dinner, 29th August 2003 at AQWA, Hillarys Boat Harbour, WA Environmental Consultants Association, Perth.* pp. 4-5.

Keighery, G. (2003). Taxonomy and ecology of *Darwinia* and allies (Myrtaceae) in Western Australia (ABSTRACT). In: *150, National Herbarium of Victoria: Celebrating 150 Years of Plant Research in Australia: Conference Abstract Book: Australian Systematic Botany Society and the Australasian Mycological Society with the 7th Australasian Bryophyte Workshop, 29 September-3 October 2003, Melbourne, Victoria University of Melbourne, Melbourne.* p. 30

Keighery, G., Gibson, N. and Lyons, M. (2003). Conservation and composition of the flora of the Western Australian agricultural zone (ABSTRACT). In: *State Landcare Conference: Conference Program & Abstracts: 7-10 October 2003, Katanning Leisure Centre, Western Australia Conference Organising Committee, Katanning.* p. 31

Pinder, A.M., Halse, S.A. and Eberhard, S. (2003). Oligochaetes in groundwater habitats of Western Australia: a preliminary overview (ABSTRACT). In: *9th International Symposium on Aquatic Oligochaeta: Programme & Abstracts, 6-10 October 2003, Wageningen, The Netherlands Wageningen University, Wageningen.* p. 62

Shepherd, K.A., Waycott, M. and Macfarlane, T.D. (2003). A systematic analysis of the Australian salt-loving samphires (subfamily Salicornioideae: Chenopodiaceae) (ABSTRACT). In: *150, National Herbarium of Victoria: Celebrating 150 Years of Plant Research in Australia: Conference Abstract Book: Australian Systematic Botany Society and the Australasian Mycological Society with the 7th Australasian Bryophyte Workshop, 29 September-3 October 2003, Melbourne, Victoria University of Melbourne, Melbourne.* p. 35

Reports

Harris, A. and Yates, C. (2003). Population characteristics of *Eremophila scaberula* (rough emu bush): a framework for monitoring change: unpublished report to the Western Australian Threatened Species and

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- Communities Unit, June 2003. Department of Conservation and Land Management, Western Australia, 28 p.
- Harris, A. and Yates, C. (2003). Population characteristics of *Gastrolobium hamulosum* (hook point poison): a framework for monitoring change: unpublished report to the Western Australian Threatened Species and Communities Unit, June 2003. Department of Conservation and Land Management, Western Australia, 23 p.
- Harris, A. and Yates, C. (2003). Population characteristics of *Grevillea batrachioides* (Mt Lesueur grevillea): a framework for monitoring change: unpublished report to the Western Australian Threatened Species and Communities Unit, June 2003. Department of Conservation and Land Management, Western Australia, 16 p.
- Harris, A. and Yates, C. (2003). Population characteristics of *Grevillea humifusa* (spreading grevillea): a framework for monitoring change: unpublished report to the Western Australian Threatened Species and Communities Unit, June 2003. Department of Conservation and Land Management, Western Australia, 22 p.
- Hearn, R., Stoneman, G.L., Keighery, G., Burrows, N., Yates, C. and Hopper, S. (2003). Management of significant flora values in south-west forests and associated ecosystems. Department of Conservation and Land Management, Western Australia, 71 p.
- Science Division, Department of Conservation and Land Management, Western Australia (2003). Environmental Services Program: 2002/2003 research report to Forest Products Commission. Department of Conservation and Land Management, Western Australia, 60 p.
- Science Division, Department of Conservation and Land Management, Western Australia (2003). Environmental Services Program: 2002/2003 research report to Nature Conservation Division. Department of Conservation and Land Management, Western Australia, 27 p.
- Shearer, B.L., Crane, C.E., Spadek, Z.E., Auckland, C., Saw, R., Scott, P. and Hardy, G.E. St. J. (2003). Optimising phosphite prescriptions for the protection of threatened communities from *Phytophthora cinnamomi*: final report to the National Heritage Trust and Environment Australia for project 24328. Department of Conservation and Land Management, Western Australia, 88 p.
- Black, S. (2003). CALM north Kimberley mammal survey. *Great Escape* **Sep.** p. 2
- Burrows, N. (2003). Fire for life. *Landscape* **18(4)**. pp. 21-26.
- Friend, T. (2003). Even more dibblers released at Peniup!. *Conservation News* **Oct.** p. 4
- Friend, T. (2003). New potoroo find. *Landscape* **19(1)**. pp. 6-8.
- Johnson, B. and Costello, V. (2003). Heath mouse eludes searchers. *Landscape* **18(4)**. pp. 6-8.
- Keighery, G. (2003). Floral trappings. *Landscape* **18(4)**. pp. 48-54.
- Pearson, D. (2003). Giant pythons of the Pilbara. *Landscape* **19(1)**. pp. 32-39.
- Pearson, D. and Benshemesh, J. (2003). Mysterious sand swimmers. *Landscape* **18(4)**. pp. 27-31.
- Thomas, N. and Friend, T. (2003). The western barred bandicoot: warts and all!. *Landscape* **19(1)**. pp. 50-56.
- Williams, A. (2003). Status of the western form of the arid bronze azure butterfly: *Ogyris subterrestris petrina*. *Newsletter of the Western Australian Insect Study Society* **Aug.** pp. 3-4.
- Williams, M. (2003). Effect of fire on butterflies. *Newsletter of the Western Australian Insect Study Society* **Oct.** pp. 5-7.
- Williams, M. (2003). Effect of fire on butterflies. *Western Wildlife: Newsletter of the Land for Wildlife Scheme* **7(4)**. pp. 1, 4-5.
- Wright, L. (2003). Western Australian special library contributes to the National Catalogue. *Gateways* **64**. pp. 6-7.

Management plans (Prescriptions, Guidelines, Recovery Plan Reports)

- Mutter, L., Kuchling, G., Burbidge, A., Burford, D. and Marlow, N. (2003). Western swamp tortoise recovery plan: annual report, 2002. Department of Conservation and Land Management, Western Australia, 21 p.

(Continued on page 5)

Popular (Landscape, Newsletters, Letters, etc.)

Pearson, D. (2003). Lancelin Island Skink Recovery Team: annual report, 2002. Department of Conservation and Land Management, Western Australia, 25 p.

Submitted

Abbott, I. Feral animals. *In: Historical Encyclopedia of Western Australia*

Broadhurst, L., Byrne, M., Craven, L. and Lepschi, B. Bayesian admixture analyses infer hybridisation among co-occurring species of the *Melaleuca uncinata* R.Br. (Myrtaceae) complex. *Molecular Ecology*

Byrne, M. Genetic issues in the development of woody perennials for revegetation (ABSTRACT). *In: Salinity CRC Conference, Bendigo*

George, N., Byrne, M. and Yan, G. *Acacia saligna*, a new crop plant to manage dryland salinity (ABSTRACT). *In: Salinity CRC Conference, Bendigo*

Hamilton, N. and Algar, D. Assessment of feral cat abundance and control options at Plutonic Gold Mine: a report to Barrick Gold of Australia.

Keighery, G. Coppercups: the genus *Pileanthus* (Myrtaceae). *Australian Plants*

Keighery, G.J. Exotic plants/weeds in Western Australia. *In: Historical Encyclopedia of Western Australia*

Pearson, G., Rosenberg, L. and Storey, A. Community based research on the intertidal mudflats of Roebuck Bay and Eighty-Mile Beach (ABSTRACT).

Pearson, G., Storey, A., Rosenberg, L., Piersma, T. and Hickey, R. Community based research on the intertidal mudflats of Roebuck Bay and Eighty-Mile Beach.

Ritson, P., Dumbrell, I., Brand, B.M., Copeland, B. and McGrath, J.F. Biomass partitioning to fine- and coarse-roots and above-ground components of *Pinus radiata* trees in response to nitrogen fertilisation (ABSTRACT). *Tree Physiology*

Smith, J. and Morris, K. Animal ethics. *Landscape*

Sochacki, S., Ritson, P. and Brand, B. The Sochacki Corer: specialised equipment for sampling tree roots (ABSTRACT).

Start, A.N. Western Shield: reviewed. *Western Wildlife: Newsletter of the Land for Wildlife Scheme*

Whelan, J., Garkaklis, M.J., Friend, J.A., Dell, B., Willson, B.A. and Hardy, G.E. St. J. The impact

of

Science Project Plans

The following were recently approved:

Supervising Scientist: Ian Dumbrell
Project: Can fire-induced changes in forest leaf area and forest floor litter, affect soil water movement into karst systems of the Leeuwin-Naturaliste ridge?

Supervising Scientist: Nicky Marlow
Project: Assessing the distribution and status of the Wambenger (*Phascogale nov. sp.*)

Phytophthora dieback on the distribution of bush rats (*Rattus fuscipes*) in the Mediterranean heaths of Western Australia. *In: MEDECOS Conference, April 2004*

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