

**University of Cape Town**  
**Research Report 2003**  
**Faculty of Science**  
**Department of Botany**

(Including the Bolus Herbarium and the Institute for Plant Conservation)

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**Articles in Peer-reviewed Journals**

Anderson, B.C. and Midgley, J.J. 2003. Digestive mutualism, an alternate pathway in plant carnivory. *Oikos*, 102(1): 221-224.

Anderson, B.C., Midgley, J.J. and Stewart, B.A. 2003. Facilitated selfing offers reproductive assurance: A mutualism between a hemipteran and carnivorous plant. *American Journal of Botany*, 90(7): 1009-1015.

Archibald, S. and Bond, W.J. 2003. Growing tall vs. growing wide: Tree architecture and allometry and *Acacia karoo* in forest, savanna, and arid environments. *Oikos*, 102: 3-14.

Bond, W.J. and Archibald, S. 2003. Confronting complexity: Fire policy choices in South African savanna parks. *International Journal of Wildland Fire*, 12: 1-9.

Bond, W.J. and Midgley, J.J. 2003. The evolutionary ecology of sprouting. *International Journal of Plant Sciences*, 164: S103-S114.

Bond, W.J., Midgley, G.F. and Woodward, F.I. 2003. The importance of low atmospheric CO<sub>2</sub> and fire in promoting the spread of grassland and savannas. *Global Change Biology*, 9: 973-982.

Bond, W.J., Midgley, G.F. and Woodward, F.I. 2003. What controls South African vegetation-climate or fire? *South African Journal of Botany*, 69: 79-91.

Bruyns, P.V. 2003. A revision of *Astephanus* (Apocynaceae). *Kew Bulletin* 58: 867-887.

Bruyns, P.V. 2003. Three new succulent species of Apocynaceae (Asclepiadoideae) from Southern Africa. *Kew Bulletin*, 58: 427-435.

Chimphango, S.B., Musil, C.F. and Dakora, F.D. 2003. Response of purely symbiotic and NO<sub>3</sub>-fed nodulated plants of *Lupinus luteus* and *Vicia atropurpurea* to ultraviolet-B radiation. *Journal of Experimental Botany*, 54(388): 1771-1784.

Cox, C.J. and Hedderson, T.A.J. 2003. Phylogenetic relationships within the moss family Bryaceae based on chloroplast DNA evidence. *Journal of Bryology*, 25: 31-40.

Craine, M.J., Bond, W.J., Lee, W.G., Reich, P. and Ollinger, S. 2003. The resource economics of chemical and structural defenses across nitrogen supply gradients. *Oecologia*, 442: 547-556.

- February, E.C. and Gagen, M. 2003. A dendrochronological assessment of two South African *Widdiringtonia* species. *South African Journal of Botany*, 69(3): 428-433.
- Hedderson, T.A., Letts, J.B. and Payne, K. 2003. Bryophyte diversity and community structure on thatched roofs of the Holnicote Estate, Somerset. *Journal of Bryology*, 25: 49-60.
- Hedderson, T.A., Letts, J.B. and Payne, K. 2003. The rare thatch moss, *Leptodontium gemmascens*, on the Holnicote Estate, Somerset, UK: Distribution and abundance in relation to roof variables. *Lindbergia*, 28(2): 113-119.
- Hoffman, M.T. 2003. 'Nature's method of grazing': Non-Selective Grazing (NSG) as means of veld reclamation in South Africa. *South African Journal of Botany*, 69(1): 92-98.
- Hoffman, M.T. and Cowling, R.M. 2003. 'Enough to be considered useful': John Acocks' contribution to South African botany. *South African Journal of Botany*, 69(1): 1-6.
- Kirkwood, D. and Midgley, J.J. 2003. Response to Matthews *et al.* (2001) vegetation of the Tembe Elephant Park, Maputaland, South Africa. *South African Journal of Botany*, 69(2): 1-2.
- Klak, C. 2003. New combination, a new genus and five new species in the Aizoaceae. *Bradleya*, 21: 107-120.
- Klak, C., Hedderson, T.A. and Linder, H.P. 2003. A molecular systematic study of the *Lampranthus*-group (Aizoaceae) based on the chloroplast trnL-trnF, and nuclear ITS and 5s NTS sequence data. *Systematic Botany*, 28(1): 70-85.
- Klak, C., Khunou, A., Reeves, G. and Hedderson, T.A. 2003. A phylogenetic hypothesis for the Aizoaceae (Caryophyllales) based on four plastid DNA regions. *American Journal of Botany*, 90: 1433-1445.
- Meadows, M.E. and Hoffman, M.T. 2002. The nature, extent and causes of land degradation in South Africa: legacy of the past, lessons for the future? *Area*, 34.4: 428-437.
- Meadows, M.E. and Hoffman, M.T. 2003. Land degradation and climate change in South Africa. *Geographical Journal*, 169(2): 168-177.
- Midgley, J.J. 2003. Determinants of basal area in indigenous forests: Reply to Lusk *et al.* *Austral Ecology*, 28: 219-220.
- Milton, S.J., Dean, W.R.J. and Richardson, D.M. 2003. Economic incentives for restoring natural capital in southern African rangelands. *Frontiers in Ecology and the Environment*, 1(5): 247-254.
- Niklas, K.J., Midgley, J.J. and Enquist, B.J. 2003. A general model for mass-growth-density relations across tree-dominated communities. *Evolutionary Ecology*, 5: 459-468.
- Niklas, K.J., Midgley, J.J. and Rand, R.H. 2003. Tree size frequency distributions, plant density, age, and community disturbance. *Ecology letters*, 6: 1-7.
- Riginos, C. and Hoffman, M.T. 2003. Changes in population biology of two succulent shrubs along a grazing gradient. *Journal of Applied Ecology*, 40: 615-625.

Rouget, M. and Richardson, D.M. 2003. Inferring process from pattern in plant invasions: A semimechanistic model incorporating propagule pressure and environmental factors. *American Naturalist*, 162(6): 1-14.

Rouget, M., Richardson, D.M., Cowling, R.M., Lloyd, J.W. and Lombard, A.T. 2003. Current patterns of habitat transformation and future threats to biodiversity in terrestrial ecosystems of the Cape Floristic Region, South Africa. *Biological Conservation*, 112: 63-85.

Skowno, A.L. and Bond, W.J. 2003. Bird community composition in an actively managed savanna reserve, importance of vegetation structure and vegetation composition. *Biodiversity and Conservation*, 12: 2279-2294.

Spriggs, A.C., Stock, W.D. and Dakora, F.D. 2003. Influence of mycorrhizal associations on foliar  $\delta^{15}\text{N}$  values of legume and non-legume shrubs and trees in the fynbos of South Africa: Implications for estimating  $\text{N}_2$  fixation using the  $^{15}\text{N}$  natural abundance method. *Plant and Soil*, 255: 495-502.

Swanborough, P.W., Lamont, B.B. and February, E.C. 2003.  $\delta^{13}\text{C}$  and water-use efficiency in Australian grass trees and South African conifers over the last century. *Oecologia*, 136: 205-212.

Tronchin, E.M., Freshwater, D.W. and Bolton, J.J. 2003. A re-evaluation of the genera *Beckerella* and *Ptilophora* (Gelidiales, Rhodophyta) based on molecular and morphological data. *Phycologia*, 42(1): 80-89.

Verboom, G.A., Linder, H.P. and Stock, W.D. 2003. Phylogenetics of the grass genus *ehrharta*: evidence for radiation in the summer-arid zone of the South African Cape. *Evolution*, 57(5): 1008-1021.

## **Books**

Trinder-Smith, T.H. 2003. *The Levyns guide to the plant genera of the South Western Cape*: 1-355. Cape Town: Red Roof Design.

## **Chapters in Books**

Foxcroft, L.C. and Richardson, D.M. 2003. Managing alien plant invasions in the Kruger National Park, South Africa. In L.E. Child, J.H. Brok, G. Brundu, K. Prach, P. Pysek, P.M. Wade and M. Williamson (eds) *Plant invasions: Ecological Threats and Management Solutions*: 385-403. Netherlands: Backhuys Publishers.

Griffiths, C.L., Richardson, D.M., Cambray, J.A., Chapman, A.R., Dean, W.R.J., Le Maitre, D.C., Newton, D.J. and Winstanley, T.J. 2003. Vectors and Pathways of Biological Invasions in South Africa- Past, Present, and Future, *Invasive Species*: 292-349. Washington: Island Press.

Pammenter, N.W., Midgley, G.F. and Bond, W.J. 2003. Xylem hydraulics and angiosperm success: a test using broad-leaved species. In A.R. Hemsley and I. Poole (eds) *The evolution of Plant Physiology*: 263-276. London: Academic Press.

Rouget, M. and Richardson, D.M. 2003. Understanding patterns of plant invasion at different spatial scales: Quantifying the roles of environment and propagule pressure. In L.E. Child, J.H. Brok, G. Brundu, K. Prach, P.M. Wade and M. Williamson (eds) *Plant Invasions: Ecological Threats and Management Solutions*: 3-15. Netherlands: Backhuys Publishers.

Scholes, R.J., Bond, W.J. and Eckhardt, H.C. 2003. The Kruger experience: Ecology and management of savanna heterogeneity. In K.H. Rogers and S.T.A. Pickett (eds) *Vegetation dynamics in the Kruger National Park ecosystem*: 242-262. London: Island Press.

#### **Peer-reviewed Published Conference Proceedings**

Anderson, R.J., Bolton, J.J., Molloy, F.J. and Rotmann, K.W.G. 2003. Commercial seaweeds in southern Africa. *Proceedings of the XVIIth International Seaweed Symposium, Cape Town*.

Bolton, J.J., Levitt, G.J. and Morley, T. 2003. Population biology and experimental harvesting of Gigartinaceae (Rhodophyta) on the west coast of South Africa. *Proceedings of XVIIth International Seaweed Symposium, Cape Town*.

Engledow, H.R. and Bolton, J.J. 2003. Factors affecting seaweed biogeographical and ecological trends along the Namibian coast. *Proceedings of the XVIIth International Seaweed Symposium, Cape Town*.

Morley, T., Bolton, J.J. and Anderson, R.J. 2003. Phase dominance and reproductive characteristics in two co-occurring Rhodophyta from the west coast of South Africa. *Proceedings of the XVIIth International Seaweed Symposium, Cape Town*.

Richardson, F.D., Hahn, B.D. and Hoffman, M.T. 2003. Modelling the dynamics of a Namaqualand pastoral system. *Proceedings of the VIIth International Rangeland Congress, Durban*, 142.

Tronchin, E.M., Anderson, R.J. and Bolton, J.J. 2003. A socio-ecological investigation of the Gelidium (Gelidiales, Rhodophyta) harvesting industry of the Eastern Cape Province, South Africa. *Proceedings of the XVIIth International Seaweed Symposium, Cape Town*.

#### **Non Peer-reviewed Published Conference Proceedings**

Bolton, J.J., De Clerck, O. and John, D.M. 2003. Marine Biodiversity in Sub-Saharan Africa: The known and the unknown. *Proceedings of Marine Biodiversity in Sub-Saharan Africa, Cape Town*, 229-241.

Bond, W.J., Woodward, F.I. and Midgley, G.F. 2003. Does elevated CO<sub>2</sub> play in bush encroachment? *Proceedings of Symposium on Forests and Woodlands, Knysna*.

Gabriels, N., Allsopp, N. and Hoffman, M.T. 2003. Seedling establishment under livestock pressure in succulent karoo systems: An impossible scenario? *Proceedings of VIIth International Rangeland Congress, Durban*, 69-79.

Hoffman, M.T. 2003. Poverty as a cause of land degradation in South Africa. *Proceedings of VIIth International Rangelands Congress, Durban*, 445-451.

Hoffman, M.T., Dean, W.R.J. and Allsopp, N. 2003. Landuse effects on plant and insect diversity in Namaqualand. *Proceedings of VIIth International Rangelands Congress, Durban*, 166-176.

Jones, G.W., Chanda, R., Hoffman, M.T., Majoro, M., Thomas, R. and Young, E. 2003. Reconciling Ecological and Human Welfare objectives on semi-arid subsistence rangelands. *Proceedings of VIIth International Rangelands Congress, Durban*, 1620-1627.

Richardson, D.M., Hahn, B.D. and Hoffman, M.T. 2003. Modelling the dynamics of a Namaqualand pastoral system. Proceedings of VIIth International Rangeland Congress, Durban, 142.

#### **Published Conference Abstracts**

Hahn, B.D., Richardson, F.D. and Hoffman, M.T. 2003. Modelling the dynamics of a Namaqualand pastoral system. African Journal of Range and Forage Science, 20(2): 142.

#### **Unrefereed Journal Articles**

Klak, C. 2003. An introduction to brownnathus. Mesemb study group bulletin, 2: 24.

#### **Extension and Development Work**

Woodborne, S., Robertson, I. and February, E.C. 2003. The use of isotope  $\delta^{13}\text{C}$  techniques to define the riparian zone in commercially afforested catchments. Water Research commission. Water Affairs.

#### **Theses and Dissertations Passed for Higher Degrees**

Anderson, B.C. 2003. The ecology, evolution and persistence of an obligate, one-on-one mutualism: 1-147. PhD thesis, University of Cape Town

Archibald, S. 2003. Effects of frequent burning on grass-grazer interactions in a mesic savanna: 1-133. MSc dissertation, University of Cape Town.

Brereton-Stiles, R. 2002. The role of human disturbance in the dynamics and distribution of sand forest in and around Tembe Elephant Park, KwaZulu-Natal: 1-133. MSc dissertation, University of Cape Town.

Golding, J. 2002. An ecological and conservation planning study of the plant biodiversity on natural and semi-natural: 1-90 MSc dissertation, University of Cape Town.

Henning, J. 2003. A molecular phylogeny, evolutionary patterns of diversification in the genus and pollinator syndromes. 1-100 MSc dissertation, University of Cape Town.

Kirkwood, D. 2002. Floristics and dynamics of Sand Forest, a subtropical dry forest type in South Africa: 1-147. PhD thesis, University of Cape Town.

Loffell, D. 2002. Aspects of the physiology of the resurrection plant *Xerophyta Humilis* under different environmental conditions: 1-100. MSc dissertation, University of Cape Town.

Mandiwana, T. 2003. Taxonomy, phylogenetic and biogeographical relationships of African grassland *Francolins* (Genus: *Scleroptila*): 1-31. MSc dissertation, University of Cape Town.

Mapaya, R. 2003. Molecular and morphological phylogenetic analyses of *Euphorbia* L. (*Euphorbiaceae*) with an emphasis on southern African representatives: 1-120. MSc dissertation, University of Cape Town.

Morrow, C. 2002. The effects of elevated atmospheric  $\text{CO}_2$  on below-ground processes in Fynbos and  $\text{C}_4$  ecosystems: 1-148. PhD thesis, University of Cape Town.

Mwafongo, E. 2003. Phylogeographic patterns in three South African forest mosses: 1-97, MSc dissertation, University of Cape Town.

Nangammbi, T.C. 2003. Taxonomy and phylogeny of red-tailed francolins (Genus *Peliperdix*): 1-39. MSc dissertation, University of Cape Town.

Prins, N. 2002. The restoration of riparian plant communities following alien plant clearing in the Western Cape: 1-118. MSc dissertation, University of Cape Town.

Tronchin, E. 2003. The systematics, biology and distribution of the Gelidiaceae (Rhodophyta) of South Africa and related taxa: 1-214. PhD thesis, University of Cape Town.

Vetter, S. 2003. What are the costs of land degradation to communal livestock farmers in South Africa? The case of the Herschel District, Eastern Cape: 1-205. PhD thesis, University of Cape Town.

Whitehouse, C. 2002. Systematics of the genus *Cliffortia* L. (Rosaceae): 1-174. PhD thesis, University of Cape Town.