

**University of Cape Town**  
**Research Report 2007**  
**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**

Allsopp, N., Gaika, L., Knight, R., Monakisi, C.M. and Hoffman, M.T. 2007. The impact of heavy grazing on an ephemeral river system in the succulent Karoo, South Africa. *Journal of Arid Environments*, 71: 82-96.

Anderson, B. and Midgley, J.J. 2007. Density-dependent outcomes in a digestive mutualism between carnivorous *Roridula* plants and their associated hemipterans. *Oecologia*, 152: 115-120

Anderson, P. and Hoffman, M.T. 2007. The impacts of sustained and heavy grazing on plant diversity and composition in lowland and upland habitats across the Kamiesberg mountain range in the Succulent Karoo, South Africa. *Journal of Arid Environments*, 70: 686-700.

Anderson, R.J., Rand, A., Rothman, M., Share, A. and Bolton, J.J. 2007. Mapping and quantifying the South African kelp resource. *African Journal of Marine Science*, 29(3): 369-378.

Baker, L.E. and Hoffman, M.T. 2006. Managing variability: herding strategies in communal rangelands of semiarid Namaqualand, South Africa. *Human Ecology*, 34: 765-784.

Barker, N., Galley, C., Verboom, G.A., Mafa, P., Gilbert, M. and Linder, P. 2007. The phylogeny of the austral grass subfamily Danthonioideae: Evidence from multiple data sets. *Plant Systematics and Evolution*, 264: 135-156.

Bergh, N., Hedderson, T.A., Linder, P. and Bond, W.J. 2007. Palaeoclimate-induced range shifts may explain current patterns of spatial genetic variation in renosterbos (*Elytropappus rhinocerotis*, *Asteraceae*). *Taxon*, 56: 393-408.

Blockeel, T.L., Hedderson, T.A., Enroth, J., Ertz, D. and Holz, I. 2006. New national and regional bryophyte records, 14. *Journal of Bryology*, 28: 271-275.

Bolton, J.J. 2007. Do we have the vision to integrate our marine aquaculture? *South African Journal of Science*, 102: 507-508.

Bolton, J.J., Oyieke, H. and Gwada, P. 2007. The seaweeds of Kenya: Checklist, history of seaweed study, coastal environment, and analysis of seaweed diversity and biogeography. *South African Journal of Botany*, 73: 76-88.

Bond, W.J. and Silander, J. 2007. Springs and wire plants: anachronistic defences against Madagascar's extinct elephant birds. *Proceedings of the Royal Society B-Biological Sciences*, 274: 1985-1992.

Byarugaba, D., Ndemere, P. and Midgley, J.J. 2006. The vulnerability and resilience of *Dioscorea* species in utilized and nonutilized zones of Bwindi Impenetrable National Park. *African Journal of Ecology*, 45: 258-264

Chase, M., Hedderson, T.A., Cowan, R., Hollingsworth, P., Madrinan, S., Petersen, G., Seberg, O., Jorgensen, T., Cameron, K., Carine, M., Niklas, P., Salazar, G., Richardson, J., Hollingsworth, M., Barraclough, T., Kelly, L., Van der Berg, C. and Wilkinson, M. 2007. A proposal for a standardised protocol to barcode all land plants. *Taxon*, 56: 295-299.

Chimphango, S.B., Brown, C., Musil, C. and Dakora, F. 2007. Effects of UV-B radiation on seed yield of *Glycine max* and an assessment of F1 generation progeny for carryover effects. *Physiologia Plantarum*, 131: 378-386

Cousins, B., Hoffman, M.T., Allsopp, N. and Rohde, R. 2007. A synthesis of sociological and biological perspectives on sustainable land use in Namaqualand. *Journal of Arid Environments*, 70: 834-846.

Cramer, M.D. and Mazel, A. 2007. The past distribution of giraffe in KwaZulu-Natal. *South African Journal of Wildlife Research*, 37(2): 197-201.

Cramer, M.D., Chimphango, S.B., Van Cauter, A., Waldram, M. and Bond, W.J. 2007. Grass competition induces N2 fixation in some species of African *Acacia*. *Journal of Ecology*, 95: 1123-1133.

Cramer, M.D., Kleizen, C. and Morrow, C. 2007. Does the prostrate-leaved geophyte *Brunsvigia orientalis* utilize soil-derived CO2 for photosynthesis? *Annals of Botany*, 99: 835-844.

De Roo, R., Hedderson, T.A. and Soderstrom, L. 2007. Molecular insights into the phylogeny of the leafy liverwort family *Lophoziaceae* *cavers*. *Taxon*, 56: 301-314.

Duncan, J., Hoffman, M.T., Rohde, R., Powell, E. and Hendricks, H. 2006. Long-term population changes in the Giant Quiver Tree *Aloe pillansii* in the Richtersveld, South Africa. *Plant Ecology*, 185: 73-84.

Foden, W., Midgley, G., Hughes, G., Bond, W.J., Thuiller, W., Hoffman, M.T., Kaleme, P., Underhill, L.G., Rebelo, A. and Hannah, L. 2007. A changing climate is eroding the geographical range of the Namib Desert tree *Aloe* through population declines and dispersal lags. *Diversity and Distributions*, 13: 645-653.

Forest, F., Hedderson, T.A., Grenyer, R., Jonathan Davies, T., Rouget, M., Cowling, R., Faith, D., Balmford, A., Manning, J., Proches, S., Van der Bank, M., Reeves, G. and Savolainen, V. 2007. Preserving the evolutionary potential of floras in biodiversity hotspots. *Nature*, 445: 757-760.

Gillson, L. and Duffin, K.I. 2007. Thresholds of potential concern as benchmarks in the management of African savannahs. *Philosophical Transactions of the Royal Society B-Biological Sciences*, 362: 309-319.

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Gillson, L. and Hoffman, M.T. 2007. Rangeland Ecology in a changing world. *Science*, 315: 53.

Grundlingh, M., Von St Ange, U.B., Bolton, J.J., Bursey, M., Compagno, L., Cooper, R., Drapeau, L., Griffiths, C.L., Bel Hassen, B., Herbert, D.G., Kirkman, S.P., Ohland, D., Robertson, H.G., Trinder-Smith, T.H., Van der Westhuysen, J., Verheye, H., Coetzer, W. and Wilke, C. 2007. AfrOBIS: A marine biogeographic information system for sub-Saharan Africa. *South African Journal of Science*, 103: 91-93.

Hawkins, H.-J., Hettasch, H. and Cramer, M.D. 2007. Putting back what we take out, but how much? Phosphorus and nitrogen additions to farmed *Leucadendron* 'Safari Sunset' and *Leucospermum* 'Succession' (Proteaceae). *Scientia Horticulturae*, 111: 378-388.

Hedderson, T.A. and Blockeel, T. 2006. *Oncophorus dendrophilus*, a new moss species from Cyprus and Crete. *Journal of Bryology*, 28: 357-359.

Hedderson, T.A. and Nowell, T. 2006. Phylogeography of *Homalothecium sericeum* (Hedw.) Br. Eur.; toward a reconstruction of glacial survival and postglacial migration. *Journal of Bryology*, 28: 283-292.

Hedderson, T.A. and Zander, R. 2007. *Ludorugbya springbokorum* (Pottiaceae) a new moss genus and species from the Western Cape Province of South Africa. *Journal of Bryology*, 29: 222-227.

Hedderson, T.A. and Zander, R. 2007. *Triquetrella mxinwana*, a new moss species from South Africa, with a phylogenetic and biogeographic hypothesis for the genus. *Journal of Bryology*, 29: 151-160.

Hemborg, A.M. and Bond, W.J. 2007. Do browsing elephants damage female trees more? *African Journal of Ecology*, 45(1): 41-48.

Hempson, G., February, E.C. and Verboom, G.A. 2007. Determinants of savanna vegetation structure: Insights from *Colophospermum mopane*. *Austral Ecology*, 32: 429-435.

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Higgins, S., February, E.C., Bond, W.J., Bronn, A., Euston-Brown, D., Enslin, B., Govender, N., Rademan, L., O'Regan, S., Potgieter, A., Scheiter, S., Sowry, R., Trollope, W. and Trollope, L. 2007. Effects of four decades of fire manipulation on woody vegetation structure in savanna. *Ecology*, 88: 1119-1125.

Hoffman, M.T. and Rohde, R. 2007. From pastoralism to tourism: The historical impact of changing land use practices in Namaqualand. *Journal of Arid Environments*, 70: 641-658.

Hoffman, M.T., Allsopp, N. and Rohde, R. 2007. Sustainable land use in Namaqualand, South Africa: Key issues in an interdisciplinary debate. *Journal of Arid Environments*, 70: 561-569.

Hylander, K. and Hedderson, T.A. 2007. Does the width of isolated ravine forests influence moss and liverwort diversity and composition? A study of temperate forests in South Africa. *Biodiversity and Conservation*, 16: 1441-1458.

James, I.P., Hoffman, M.T., Munro, A., O'Farrell, P. and Smart, R. 2007. The economic value of flower tourism in the Namaqua National Park, South Africa. *South African Journal of Economic and Management Sciences*, 10(4): 442-456.

- Klak, C., Bruyns, P.V. and Hedderson, T.A. 2007. A phylogeny and new classification for Mesembryanthemoideae (Aizoaceae). *Taxon*, 56: 737-756.
- Klak, C., Nowell, T. and Hedderson, T.A. 2006. Phylogeny and revision of *Brownanthus* and its close allies *Aspazoma* and *Dactyloopsis* (Aizoaceae) based on morphology and four DNA regions. *Kew Bulletin*, 61: 353-400.
- Knight, A., Smith, R.J., Cowling, R., Desmet, P.G., Faith, D., Ferrier, S., Gelderblom, C.M., Grantham, H., Maze, K., Nel, J., Parrish, J.D., Pence, G.Q.K., Possingham, H.P., Reyers, B., Rouget, M., Roux, D. and Wilson, K.A. 2007. Improving the key biodiversity areas approach for effective conservation planning. *Bioscience*, 57(3): 256-261.
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- Le Kalamandeen, M. and Gillson, L. 2007. Demything "wilderness": Implications for protected area designation and management. *Biodiversity and Conservation*, 16: 165-182.
- Mann, M., Mkwanzani, H., Antunes, E., Whibley, C.E., Hendricks, D.T., Bolton, J.J. and Beukes, D. 2007. Halogenated Monoterpene Aldehydes from the South African Marine Alga *Plocamium corallorhiza*. *Journal of Natural Products*, 70: 596-599.
- Mao, A., Rouget, M., Balmford, A., Thuiller, W., Kleynhans, C.J., Day, J.A. and Nel, J. 2007. Predicting freshwater habitat integrity using land-use surrogates. *Water SA*, 33(2): 215-221.
- Muasya, A.M., Simpson, D. and Smets, E. 2007. *Isolepis levynsiana*, a new name for *Cyperus tenellus* (Cyperaceae). *Novon*, 17: 59.
- Mucina, L., Adams, J.B., Knevel, I.C., Rutherford, M.C., Powrie, L.W., Bolton, J.J., Van der Merwe, J.H., Anderson, R., Bornman, T.G., Le Roux, A. and Janssen, J.A.M. 2007. Coastal Vegetation of South Africa. *Strelitzia*, 19: 660-690.
- Mucunguzi, P., Kasenene, J., Midgley, J.J., Ssegawa, P. and Tabuti, J.R.S. 2007. Distinguishing forest tree communities in Kibale National Park, western Uganda using ordination and classification methods. *African Journal of Ecology*, 45(Suppl. 3): 99-108.
- Mwachala, G., Cheek, M., Fischer, E. and Muasya, A.M. 2007. A new species of *Dracaena* L. (*Dracaenaceae-Ruscaceae* from Mt. Kupe and the Bakossi Mts, Cameroon. *Kew Bulletin*, 62: 613-616.
- O'Farrell, P.J., Donaldson, J. and Hoffman, M.T. 2007. The influence of ecosystem goods and services on livestock management practices on the Bokkeveld plateau, South Africa. *Agriculture Ecosystems & Environment*, 122: 312-324.
- Picker, M.D., Hoffman, M.T. and Leverton, B.A. 2007. Density of *Microhodotermes viator* (Hodotermitidae) mounds in Southern Africa in relation to rainfall and vegetative productivity gradients. *Journal of Zoology*, 271: 37-44.
- Richardson, F.D., Hahn, B.D. and Hoffman, M.T. 2007. Modelling the sustainability and productivity of pastoral systems in the communal areas of Namaqualand. *Journal of Arid Environments*, 70: 701-717.

Smit, A.J., Robertson-Andersson, D., Peall, S. and Bolton, J.J. 2007. Dimethylsulfoniopropionate (DMSP) accumulation in abalone *Haliotis midae* (Mollusca: Prosobranchia) after consumption of various diets, and consequences for aquaculture. *Aquaculture*, 269: 377-389.

Trinder-Smith, T.H., Linder, P., Van der Niet, T., Verboom, G.A. and Nowell, T. 2007. Plastid DNA sequences reveal generic paraphyly within Diosmeae (Rutoideae, Rutaceae). *Systematic Botany*, 32(4): 847-855.

Vetter, S., Goqwana, W.M., Bond, W.J. and Trollope, W. 2006. Effects of land tenure, geology and topography on vegetation and soils of two grassland types in South Africa. *African Journal of Range and Forage Science*, 23: 13-27.

Wakeling, J. and Bond, W.J. 2007. Disturbance and the frequency of root suckering in an invasive savanna shrub, *Dichrostachys cinerea*. *African Journal of Range and Forage Science*, 24(2): 73-76.

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### **Peer-reviewed published conference proceedings**

Conrad, F., Reeves, G., Snijman, D. and Hedderson, T.A. 2006. Generic relationships within the tribe Haemantheae (Amaryllidaceae) based on plastid DNA sequence data. In S.A. Gazanfar and H.J. Beentje (eds), *Taxonomy and ecology of African Plants, their conservation and sustainable use. Proceedings of the 17th AETFAT Congress, Addis Ababa, Ethiopia*, pp. 73-83 Royal Botanic Gardens: Kew Publishing. ISBN I 84246 115 X.

### **Doctoral theses**

Coetsee, C. 2007. Long-term effects of fire on nitrogen cycling in a broad-leaf savanna, Kruger National Park, South Africa. 139pp. Supervised by W.J. Bond.

Foxcroft, L. 2007. Pattern and process of plant invasion in an African savanna ecosystem, with emphasis on multiple spatial and temporal scales. Supervised by D.M. Richardson and M.T. Hoffman.

Robertson-Andersson, D. 2007. Biological and economical feasibility studies of using seaweeds *Ulva lactuca* (Chlorophyta) in recirculation systems in abalone farming. Supervised by J.J. Bolton, M. Troell, T. Probyn and A.J. Smit.

Shiponeni, N. 2007. Spatio-temporal distribution of grass and shrubs at the ecotone between an arid grassland and succulent shrubland: Ecological interactions and the influence of soils. Supervised by N. Allsopp, M.T. Hoffman and P.J. Carrick.

### **Masters degrees (by research)**

Aston, T. 2007. Geohydrological characteristics of Table Mountain Group aquifer-fed seeps and the plant ecophysiological consequences. MSc. 146pp. Supervised by E.C. February.

Botha, M. 2006. The influence of rainfall variability on savanna tree seedling establishment. MSc. 126pp. Supervised by W.J. Bond.

Herron, M. 2006. Phylogenetic studies in *Jamesbrittenia* tribe Manuleae, family Scrophulariaceae. MSc. 55pp. Supervised by G.A. Verboom.

Masubelele, M. 2007. Decomposition of grasses in a South African savanna. MSc. 124pp. Supervised by W.J. Bond.

Mgidi, T.N. 2007. Attributes that make *Acacia Karoo* dominant: Stable N and C isotope analysis of nine *Acacia* species from KwaZulu-Natal (South Africa). MSc. 67pp. Supervised by J.J. Midgley and W.D. Stock.

Rugengamanzi Nkubana, F. 2006. Bryophyte diversity patterns in a fragmented landscape: A case study of South West Coast renosterveld. MSc. 49pp. Supervised by T.A. Hedderson.

Schutz, A. 2007. Surviving the fire trap: Resprouting and carbohydrate partitioning of *Acacia Karoo* after topkill. MSc. 107pp. Supervised by W.J. Bond.

Thomas, T. 2006. Marama bean (*Tylosema asculenta*), a non-nodulating high protein legume indigenous to the Kalahari sands: Studies of its N nutrition. MSc. 109pp. Supervised by J.J. Midgley and F. Dakora.

Watson, J. 2007. Bryophyte diversity and the conservation of a highly fragmented landscape: The West coast Renosterveld. MSc. 89pp. Supervised by T.A. Hedderson.

Wheat, N. 2006. Assessment of the current population status, genetic diversity and phylogenetic affinities of the rare South African moss, *Zygodon leptobolax*. MSc. 86pp. Supervised by T.A. Hedderson.

Wigley, B. 2007. Living in a changing world: An integrated approach to documenting and understanding medium to long term vegetation changes in three contrasting land use systems in a mesic savanna, Northern Zululand, South Africa. MSc. 146pp. Supervised by W.J. Bond.