



**Stephanie Midgley**

**Curriculum Vitae**

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**Profession:** Senior Researcher and Agricultural Analyst

**Date of Birth:** 16 November 1966

**Key Qualifications:**

- Agriculture / agri-business and food security
- Climate change impacts, vulnerability and adaptation
- Analysis and integration of basic and applied scientific research
- Strategy development
- Writing and publication of scientific and project documents
- Education and training at graduate and post-graduate levels
- Communication of climate change issues to diverse audiences at all levels

**Experience**

*Strengthening Capacity for Climate Change Adaptation in the Agricultural Sector in Lesotho* (FAO and Lesotho government, 2009-2010): Project leader, team of four conducting a climate change risk and vulnerability study for the Lesotho agricultural and forestry sectors, as well as a baseline study of the climate related risks, local vulnerabilities and perceptions and coping strategies in three sub-catchment.

*Climate Change Vulnerability Assessment & Formulation of Adaptability & Mitigation for the Water Resources Sector in Uganda* (Ugandan government, 2008-2009): Member of a team, giving input on the development of climate change scenarios and impacts, with particular reference to the role of water in agricultural production.

*Climate Change in Southern Africa – Feasibility, Design and Implementation of a Regional Programme* (Department for International Development (DFID), UK Government, 2007-current): Member of a team, and leading the agricultural sector study as agriculture specialist, reviewing the risks, impacts and vulnerability of this sector within SADC countries.

*Developing Long Term Mitigation Scenarios for South Africa* (National Department of Environment and Tourism, 2006-2007): Member of a team and responsible for the section *Winter rainfall agriculture in South Africa in the context of climate change* and reviewed the risks, impacts and vulnerability on this sector, .

*Western Cape Climate Change Response Strategy and Action Plan* (Western Cape Department of Environmental Affairs and Development Planning, 2006-2007): Member of a

team – led the agricultural sector study as agriculture specialist and provided key strategy inputs for the draft Plan.

*Effect of high temperature on the physiology, growth and flowering of Protea cultivars* (Principal Investigator, Protea Producers of South Africa, 2008-2009). Supervisor of MscAgric student investigating the effects of a range of warming treatments on a commercial *Protea* cultivar. The results show that reproduction (flowering) is sensitive to high temperature.

*Photoprotection of apples and pears* (Principal Investigator, Deciduous Fruit Producers' Trust, THRIP, 2007-2010): Promoter (now co-promoter) of one PhDAgric student investigating the genetic and environmental determinants of photoprotection and sunburn sensitivity in fruit from differentially sensitive apple and pear cultivars.

*Technology for control of sunburn on apples* (Principal Investigator, Deciduous Fruit Producers' Trust, THRIP, NRF, University of Stellenbosch, Engelhard Corporation USA, Washington State University and Chempac Pty Ltd, 2002-2006): Sunburn damage on apple fruit in the Western Cape accounts for substantial economic losses, and is related to the high light and temperature conditions during summer. The project focused on the physiological principles, and correct use of ameliorating technologies.

*Collaboration on arid-zone ecophysiology* (Collaborator, NBI, UCLA, University of Stellenbosch, 1998-2000): Collaborative field studies of the ecophysiological characteristics of plants in the Richtersveld and Succulent Karoo. Invited participant of two expeditions to the Andes in Chile with Prof Rundel (UCLA) in 1998 and 2000. The results improve our understanding of the interrelationships between plant growth form, function, and response to stresses encountered in arid environments.

*PhD project* (Principal Investigator, National Botanical Institute 1994-1999): "Ecophysiological responses of *Themeda triandra* Forsk. and other southern African C<sub>4</sub> grass species to increases in atmospheric CO<sub>2</sub> concentrations". The results unexpectedly called into question the widely-accepted belief that C<sub>4</sub> plant species are all inherently unable to respond to elevated CO<sub>2</sub> to the same extent as C<sub>3</sub> species.

## **Education:**

PhD (Botany): University of Cape Town, 1999. Thesis title: "Ecophysiological responses of *Themeda triandra* Forsk. and other southern African C<sub>4</sub> grass species to increases in atmospheric CO<sub>2</sub> concentrations"

MSc (Agric) (Horticulture) cum laude, University of Stellenbosch, 1990

BSc (Botany, Biochemistry) cum laude, University of Stellenbosch, 1987

## **Employment Record**

*May 2009 - Current:* Researcher, OneWorld Sustainable Investments

*Nov 2007 – Apr 2009:* Associate Professor, Department of Horticultural Science, Stellenbosch University

*Sep 1999 – Oct 2007:* Senior Lecturer, Department of Horticultural Science, Stellenbosch University

*Jan 1992 – Aug 1999:* Principal Agricultural Researcher (last rank), National Botanical Institute, Cape Town

Jan 1991 – July 1991: Assistant Fruit Technologist, Unifruco, London, UK

## **Selected Key Publications and Presentations**

### **[under maiden name Wand]**

#### Publications in peer-reviewed journals

- Gindaba, J. & Wand, S.J.E. (2007) Climate ameliorating measures influence photosynthetic gas exchange of apple leaves. *Annals of Applied Biology* 150: 75-80.
- Gindaba, J. & Wand, S.J.E. (2007) Do fruit sunburn control measures affect leaf photosynthetic rate and stomatal conductance in 'Royal Gala' apple? *Environmental and Experimental Botany* 59: 160-165.
- Wand, S.J.E. and Midgley, G.F. (2004) Effects of atmospheric CO<sub>2</sub> concentration and defoliation on the growth of *Themeda triandra*. *Grass and Forage Science* **59**, 215-226.
- Wand, S.J.E., Midgley, G.F. & Stock, W.D. (2002) Response to elevated CO<sub>2</sub> from a natural spring in a C<sub>4</sub>-dominated grassland depends on seasonal phenology. *African Journal of Range & Forage Science* **19**, 81-91.
- Wand, S.J.E., Midgley, G.F. & Stock, W.D. (2001) Growth responses to elevated CO<sub>2</sub> in NADP-ME, NAD-ME and PCK C<sub>4</sub> grasses and a C<sub>3</sub> grass from South Africa. *Australian Journal of Plant Physiology* **28**, 13-25.
- Wand, S.J.E., Midgley, G.F., Jones, M.H. & Curtis, P.S. (1999) Responses of wild C<sub>4</sub> and C<sub>3</sub> grass (Poaceae) species to elevated atmospheric CO<sub>2</sub> concentration: a meta-analytic test of current theories and perceptions. *Global Change Biology* **5**, 723-741.
- Wand, S.J.E., Midgley, G.F. & Musil, C.F. (1996) Physiological and growth responses of two African species, *Acacia karroo* and *Themeda triandra*, to combined increases in CO<sub>2</sub> and UV-B radiation. *Physiologia Plantarum* **98**, 882-890.

#### Books and/or Chapters in books

- Musil, C.F. & Wand, S.J.E. (1999) Impact of UV-B radiation on South African Mediterranean ecosystems. In: Stratospheric ozone depletion: the effects of enhanced UV-B radiation on terrestrial ecosystems (ed. J. Rozema), pp. 265-291. Backhuys Publishers, Leiden, The Netherlands.

#### Peer-reviewed published conference proceedings

- Wand, S.J.E., Steyn, W.J. and Theron, K.I. (2008) Vulnerability and Impact of Climate Change on Pear Production in South Africa. 10<sup>th</sup> International Pear Symposium, May 2007, Peniche, Portugal. *Acta Horticulturae* 800: 263-271.
- Wand, S.J.E., van den Dool, K., Smit, A. and Steyn, W.J. (2008) Heat injury thresholds in apples measured using chlorophyll fluorescence are influenced by orchard heat reduction technologies. XXVIIth International Horticultural Congress, August 2006, Seoul, Korea. *Acta Horticulturae* 772:273-277.

## Technical/Policy reports

Midgley, G.F., Chapman, R.A., Mukheibir, P., Tadross, M., Hewitson, B., Wand, S.J.E., Schulze, R.E., Lumsden, T., Horan, M., Warburton, M., Kgope, B., Mantlana, B., Knowles, A., Abayomi, A., Ziervogel, G., Cullis, R., Theron, A. (2007) Assessing impacts, vulnerability and adaptation in key South African sectors: A background study for the Long Term Mitigation Scenarios assessment. Energy Research Centre, Cape Town.

## **Invited Keynote addresses**

Midgley, S.J.E. Impacts of climate change on South Africa's agriculture sector. The Ecocentric Journey, UCT/Santam, Cape Town, 15 September 2009.

Midgley, S.J.E. Climate change and agriculture: impacts and opportunities. "The Impact of Climate Change on Coastal and Little Karoo Living", Eden District Municipality, Mossel Bay, 2-4 February 2009.

Midgley, S.J.E. Climate change and agriculture in South Africa: the future is not what it used to be. 46<sup>th</sup> Congress of the Southern African Society for Plant Pathology, Gordon's Bay, 25-28 January 2009.

Midgley, S.J.E. Impacts of hydrological changes on agriculture and food security in the SADC. *SADC Multi-stakeholder Water Dialogue*, Maseru, Lesotho, 14-15 May 2008.

Midgley, S.J.E. Climate change: Implications for crop and horticultural sciences in southern Africa. *Combined congress of the Southern African Society for Horticultural Sciences, the South African Society of Crop Production, the South African Weed Science Society and the Soil Science Society of South Africa*, Rhodes University, Grahamstown, 21-24 January 2008.

Wand, S.J.E. Climate change impacts and adaptations for the Western Cape fruit industry. Western Cape Climate Change Seminar, Kirstenbosch, February 2006.

Wand, S.J.E. Potential impacts of climate change on agriculture in southern Africa with respect to the brewing industry. *Congress of the Institute of Brewing: Africa Section*, Sun City, South Africa, 2001.

Wand, S.J.E. Climate change in the deciduous fruit industry: are we in for a rough ride? *Cape Pomological Association Technical Symposium*, Stellenbosch, 2000.

## **Membership of Professional Societies:**

- Southern African Society for Horticultural Sciences
- International Society for Horticultural Sciences

## **Languages:**

English, Afrikaans, German