

# SAAB-SASSB Joint Conference 2008

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A joint conference of the South African Association of Botanists (SAAB) and the Southern African Society for Systematic Biology (SASSB) was held from 14 to 18 January at the Drakensville Mountain Resort in the northern Drakensberg. It was hosted by the School of Animal, Plant and Environmental Sciences of the University of the Witwatersrand, and attended by about 275 delegates, many of whom were members of both societies.

Fifteen international and local guest speakers provided stimulus to the numerous symposia within the conference, including topics ranging from biogeography to plant physiology; phytochemistry to landscape functioning and restoration. Tony Cunningham of People and Plants International opened the SAAB conference with a talk on the status of ethnobotanical work in Africa, identifying strengths and gaps in the research currently being done by African researchers, and advising on what the needs are for future research. Amongst these needs Tony listed research into (i) adaptation to climate change, (ii) the impact of urban growth in Africa on rural supplies, (iii) the anticipated impact of Asian "take-aways", and (iv) the importance of building confidence and

capability amongst students and researchers in ethnobotany. Neil Crouch of SANBI introduced the afternoon symposium on Biodiversity and Conservation with a special focus on Threatened Species. Neil spoke on South Africa's bioprospecting legislation and emphasised how important it was for local researchers to be involved in the review process during the drafting stages of legislation - to ensure that it does not hinder genuine research, while protecting the country's flora and fauna and indigenous knowledge.

## Conservation in Madagascar

The SASSB conference officially opened on the Tuesday with Steven Goodman speaking on conservation priorities in Madagascar. Steve is a recipient of many international grants and fellowships (including WWF) and has lived and worked in Madagascar for the last 20 years, although he still maintains links with the Field Museum of Natural History in Chicago, USA. He describes himself as a true naturalist and has been instrumental in exploring, discovering and documenting the diversity (mainly land vertebrates) of Madagascar through his own field work and collaborative efforts in training Malagasy scien-

tists. The importance of understanding the geological and climatic histories of Madagascar and particularly of its river catchments in determining areas of endemism were outlined as key to identification and prioritization of 'new' areas for conservation.

We were fortunate to have a symposium put together by council members of the International Association of Plant Taxonomists (IAPT) who were currently in South Africa for their annual general meeting. We were graced by the likes of Tod Stuessy, Warren Wagner, Robert Gradstein, Nick Turland, Santiago Castroviejo, Jun Wen and Josef Greimler who put together an interesting afternoon of talks on their particular interests - both current and past. This included information about the Flora of China project, the unusual idea of the role of Hawaii as a source area (vs. sink) for migration and subsequent speciation, as well as various phylogenetic studies of families of plants such as the Asteraceae, Vitaceae, Gentianaceae and even some liverworts in the form of the Porellaceae. An interactive panel discussion on research priorities for systematics following the presentations highlighted the importance of systematics work to biodiversity conservation.

### **Responding to global change**

A highlight of the conference was a plenary lecture by Christian Körner of the Institute of Botany, University of Basel, Switzerland, who spoke on '*Global change affects ecosystems through biodiversity responses*'. The

take home message from Christian's extremely stimulating talk was that different plant species have differential responses to global change and that research should be designed to take this into account, as well as to accommodate the numerous variables (e.g. hydrology, mineral elements, biotic interactions) that can have secondary effects on their responses.

Leading into the Ecology Symposium, Brian van Wilgen of the CSIR, Natural Resources and the Environment, based in Stellenbosch stimulated considerable discussion with his controversial talk entitled "*Fire management in South Africa's Conservation areas: why bother?*" Brian discussed the different fire management practices in the fynbos and savanna biomes in terms of frequency and seasonality of burning and the potential long term effects of these strategies, as well as the effects of unplanned fires due to human ignitions and lightning.

### **Landscape Dynamics**

Another symposium of potential interest to the members of the Grasslands Society was that entitled 'Vegetation and Landscape Change' with Lindsey Gillson of UCT (previously from Oxford) heading it up with a plenary lecture entitled '*Resilience, thresholds and dynamic landscapes*'. Lindsey is using fossil pollen data to study transitions between grassland, savanna and forest phases at various sites in the Kruger National Park and interpreting the

dominant driving processes or limiting factors and the interaction between these forces/factors. This work is important for our understanding of what drives change in landscapes over long periods of time, and how and why stable ecosystems cross thresholds rapidly resulting in new 'stable' phases.

In the symposium on Landscape Functionality and Restoration, David Tongway of the CSIRO, Australia spoke on the importance of 'soil health' in maintaining ecosystem functioning. David has developed a methodology that enables practitioners to rapidly assess soil health in its landscape and land-use contexts. His approach, called 'landscape function analysis' (LFA), uses a number of rapidly assessed indicators to evaluate the problems in a wide range of degraded lands. David used the opportunity to entice the delegates to attend his two-day workshop directly after the conference to learn more about his approach. Isabel Weiersby of the University of the Witwatersrand then gave an overview of her research and experience in the use of plants, algae and micro-organisms in rehabilitation of mines. It is encouraging to see that 'phyto-technological' solutions to serious problems created by mining are being developed and put into practice.

**“Fire management in South Africa’s Conservation areas: why bother?”**

## **Patterns and Processes in the Cape Floral Kingdom**

The last day and a half of the conference was dedicated to the Cape Biota Symposium, organised by Tony Verboom and Leanne Dreyer of Cape Town and Stellenbosch universities respectively. A series of presentations focussed on understanding the patterns and processes resulting in the tremendous diversity of the Cape Floral Kingdom. Topics ranged from the geological history of Africa (Tim Partridge), the roles of geomorphic evolution (Richard Cowling), pollinators (Richard Waterman), the evolution of rivers (Ernst Swartz) and even fungal radiation (Francois Roets) in the Cape Floristic Region.

Timo van der Niet and Steve Johnson came to the interesting (and controversial) conclusion that patterns of plant ecological speciation in the Cape are not markedly different from those in the rest of southern Africa. Steve Hopper of the Royal Botanic Gardens, Kew, gave an extremely fascinating talk related to OCBIL theory (old, climatically-buffered, infertile landscapes), in which he compared rates of speciation in lineages of the Haemodoraceae occurring in the Greater Cape and Southwest Australian Floristic Regions. The roles of reduced dispersability resulting in local endemics, the selection for heterozygosity in small populations (the 'James effect') and the role of chro-

mosomal variation (e.g. polyploidy) were all discussed.

In addition to the LFA Workshop (funded by the NRF's Technology and Human Resources for Industry Programme—THRIP), there was a South African Biosystematics Initiative (SABI)-funded workshop on Reticulation in Phylogenies facilitated by Lucinda McDade, director of research at the Rancho Santa Ana Botanic Garden, California, USA. Lucinda is renowned for her work on hybrids and some stimulating discussion was held on the definition/identification and detection of different kinds of hybrids, the types of characters one might use in order to study hybrids and strategies for dealing with hybridization in phylogenetic studies. A number of software programmes were explored for their potential to identify hybrids and hybridization using molecular and/or morphological data.

A poster session comprising ca. 50 posters was held on the Wednesday evening amidst a great mountain storm. This ensured a captive viewing audience, although it made communication difficult under a tin roof!

## Wrapping up

The conference dinner on the Thursday evening was extremely festive and everyone had a good time. The SAAB Silver Medal for Botany was awarded this year to Jill Farrant who currently holds a research chair in plant physiology and molecular biology at UCT. Jill is a leading researcher in the field of plant responses to water deficit stress (i.e.



Photo: Donald McCallum

## Jill Farrant, winner of Silver Medal for Botany

drought/desiccation tolerance). The SAAB Bronze Medal was awarded to Dr Bridget Crampton whose PhD work represents the first in depth molecular biological study of pearl millet and has relevance both in the South African context and in the broader agricultural and botanical arenas.

The foothills of the Drakensberg created a marvellous setting for the conference and truly facilitated valuable interaction amongst the scientific community attending it, as well as providing opportunity for socializing and even a brief excursion into the 'berg. The conference was deemed a great success and it was very encouraging to see the quality and quantity of student presentations. Thanks to all involved - organisers, sponsors, student helpers, presenters and participants.

