

General Meeting
7:00pm, Monday 20th September 2004
Royal Society of Western Australia Ordinary Meeting
Kings Park Administration Building
Off Fraser Ave., Kings Park

**ENVIRONMENTAL CHANGE IN THE WA GRAINBELT
WITH SPECIAL REFERENCE TO BIODIVERSITY**

***Stephen D. Hopper, Professor of Conservation Biology School of Plant Biology,
University of Western Australia***

The southwest of WA was recognized as a Global Biodiversity Hotspot in 2000, one of 25 regions on Earth where a rich endemic biota is under threat. This presentation reviews what is known of the biota of the Grainbelt and its potential for conservation, from a multidisciplinary and multi-agency perspective. Contemporary Grainbelt plants, animals and environments have a rich and deep history. The globally old, flat terrain of the WA Grainbelt has weathered, nutrient-deficient soils and accumulated salt. Inventory and biological survey are still incomplete, but significant recent progress has recorded an extraordinary range of biodiversity which is limited by, and at risk to changes in, land clearing, summer temperatures, rainfall seasonality, soil attribute (fertility, salinity), dieback disease, weeds and feral animals.

The Grainbelt is listed nationally as being under the highest landscape stress levels. Valley floor animal assemblages could lose 58% of their species by 2030 (84% by 2070) due to climate change under worst-case scenario models. It has been predicted that a potential loss of salt-affected populations of 50% of 1922 taxa included in the Salinity Action Plan biological survey, especially on granite soils. Some 15 wetland plant assemblages (out of 34) containing 472 taxa are particularly at risk to salinity. Can we minimise the 6th global extinction event that is currently taking place in the Grainbelt? We can, if we assume every vegetation remnant matters. An integrated conservation strategy will involve completing the inventory through biological survey, conservation through reserves, ongoing work on threatened species and threatening processes, conducting risk assessments and applying restoration ecology, including *ex situ* strategies and genetic provenance work. Restoration ecology is an emerging discipline for the Grainbelt, requiring a new landscape ethic to achieve conservation outcomes. Biodiversity conservation is urgent, at some cost, but worth it if a major part of the Grainbelt's special and unique character is to last.

Members, guests and visitors welcome

<http://www.ecu.edu.au/pa/rswa>

This issue of the RSWA Proceedings was edited by Margaret Brocx < rswa@inet.net.au >_



The Royal Society of Western Australia
Public Forum, held on the 16th August 2004

STATE OF THE ENVIRONMENT- WHERE TO FROM HERE?

On Monday 16th August, at the Alexander Library, as part of National Science Week, the Royal Society hosted a Public Forum, inviting the Minister for Environment & Heritage, the Honourable Dr Judy Edwards MLA, the Shadow Minister for Environment, Mr Brendon Grylls MLA, and a representative from The Greens, Ms Rachael Siewert to present their views at the political level to the members of the Society and to the informed general public. Nearly 100 member guests, and the public attended. The President Dr Alex Bevan opened the evening, introducing each of the speakers. The Ministers and Shadow Ministers identified the issues they thought were critical in the environmental debate, and outlined their vision for statewide environmental management.

Dr Judy Edwards focused on what the Labour Party had achieved while in office, for example, the protection of Old Growth Forests, and the accompanying social, employment and industrial changes that had to be emplaced as a result of the shift in emphasis in forestry. As for the present environmental issues and how to deal with them, Dr Edwards pointed out that while Western Australia has a variety of environmental pressures that present challenges and opportunities, measures had been taken to strengthen the environmental laws, to protect the State's biodiversity, and to improve the community's ability to participate in these critical matters. In finale, Dr Edwards directed the audience to the newly formulated Wetlands Policy that had recently released.

Mr Brendon Grylls focused on what he considered to be the key environmental issues

facing Western Australia. In particular, he discussed the environmental areas he believes have not been adequately addressed: the issues of environmental volunteers as a human resource, the ongoing problems of wheatbelt salinity, and future water supplies for the State. He touched upon policy initiatives for a future Coalition government. Mr Grylls urged the audience to call on the State Government to address the issue of salinity in the same manner as "environmental icons" such as the Old Growth Forests, which had been successfully preserved as an outcome of public outcry.

Ms Rachel Siewert commenced by acknowledging that the State has come a long way on environmental issues: the environment is now mainstream, all political parties address it in some form, as there is a Ministry for Environment, an Environment Department, and an Environmental Protection Act. Ms Siewert, however, pointed out while 'the environment' is addressed after a fashion in decision-making and policy by all political parties it is still secondary to industry and big business that set the agenda and undermine progress on environmental repair, decision-making, policy formation, legislative reform and allocation of resources. The following critical environmental issues were identified: Climate Change, Biodiversity Loss, Salinity, Declining Water Quality, Perth urban sprawl, Marine conservation, Coastal protection, Rangelands, Waste management, Environment health, and running out of Oil. Ms Siewert suggested solutions lay in directions of new ways of thinking about community and society, a new mind set for our agencies and politicians, and a challenge to the idea that when the economy is working then everything else is all right. Ms Siewert concluded by outlining her visions for good environmental practices: a Sustainability Act, a Sustainability Commission with ecological bases, NRM legislation, an improved Environmental Protection Act, a Climate strategy that actually plans to reduce emissions, better planning (i.e., not urban development but planning), more resources for the environment, and a Conservation Bill of Rights.

The Royal Society of Western Australia
Public Forum, held on the 18th August 2004

LOCAL SCIENCE, GLOBAL IMPACTS

In addition to the Public Forum on the 16th of August, as part of National Science Week, the Royal Society of Western Australia, together with Murdoch University, also sponsored a Public Presentation on the 18th August, 2004, at the Western Australian Constitutional Centre on the theme “Local Science, Global Impacts”.

Thirty people attended the function, with Dr Alex Bevan, Dr Vic Semeniuk, and Margaret Brocx representing Council. Some seven invited speakers, drawn from a wide variety of disciplines, presented the results of their science, and indicated its global significance or impact. Western Australia’s Chief Scientist, Dr Bruce Hobbs, introduced the presentations.

First of the speakers was Professor Una Ryan, from Biochemistry at Murdoch University, who outlined the type of research into parasitology being undertaken by her team, with her talk “Parasites - are we losing the battle?” Dr Sean Geoghegan, from the Australasian College of Physical Scientists and Engineers in Medicine, then outlined the advances being made in artificial limbs, with his talk entitled “Medical physics and medical engineering saved and improved your life”. The Premier's Research Fellow, Professor Julian Gale, a computational chemist, talked on “Designing material by computer”. Professor Charitha Pattiaratchi, Australian Marine Science Association, University of Western Australia, provided a description of the unique Western Australian coastline. Professor Barry Marshall, Australian Society for Microbiology, with a presentation entitled “We cured ulcers - now what”, talked about the potential use of Helicobacter through bioengineering of the bacterium to address a whole range of human health problems from HIV, malaria, to diabetes.

The evening ended with a presentation by the Royal Society President, Dr Alex Bevan, Curator at the WA Museum, entitled “Museum science for the 21st century”; Dr Bevan talked on the global significance of some of the work being undertaken in meteoritics in Western Australia and outlined the potential of the “Fireball camera network”, an all night camera array being employed in the Nullarbor.



**Integrated terrestrial vertebrate fauna
survey database**

Lotterywest has provided a grant of \$99 960 to the Royal Society of Western Australia to develop a web-based integrated terrestrial vertebrate fauna survey database.

Two pieces of software will be written to record, store, upload, manipulate and disseminate data from terrestrial vertebrate fauna surveys. One piece of software will be used by consultants, scientists, researchers, amateur herpetologists, naturalists, etc, to record, collate, organise and provide output data for terrestrial vertebrate fauna surveys that can be uploaded to a CALM web site. The uploaded information will be the fauna survey returns required by CALM. The second piece of software will sit on the CALM web server. It will accept uploaded information, store and manipulate the data so as it can be accessed on the web site by other users. The web server software output will be a simple version of the Western Australian Museum *FaunaBase*.

It is proposed that the ‘user’ software, that can be downloaded from the CALM web site, will be provided at no charge to consultants, researchers, etc.

Project team for the fauna database

Dr Graham Thompson (Edith Cowan University) and Professor Philip Withers (University of Western Australia), both of whom organised the workshop on *Co-ordination and Integration of Terrestrial Vertebrate Survey Data Bases for Western Australia* will manage the project.

Consultation and workshops

It is planned to develop this fauna survey database in consultation with the major users. 'Major players' will be regularly consulted on the development on the software.

Dr Peter Mawson from the Wildlife Branch of CALM, a web manager from CALM, Dr Ric How from the Western Australian Museum and Mr Roy Teale from Biota Environmental Sciences will form a consultative group. The project team will co-opt other members to the consultative group as the project develops.

The project team will run two workshops. The first workshop will be conducted at the beginning of the project to clarify the objectives, project specifications and the development strategy for the software. The second workshop will be held toward the end of the 12 months, and will be used to explain and show researchers, consultants, etc, what the programs do and how they operate.

A person will be employed (via the University of Western Australia, School of Animal Biology) for a period of 12 months to liaise with user groups, organise both workshops, conduct training programs in the use of the software, liaise with technical staff in CALM and UWA and develop the software. RSWA members interested in this position should contact Dr Graham Thompson (g.thompson@ecu.edu.au).

RSWA members seeking more information about this project should contact either Graham Thompson (g.thompson@ecu.edu.au) or Philip Withers (philip.withers@uwa.edu.au).

RSWA Membership News

Council has accepted the following new members:

Dr William D Stock, Dr Eddie van Etten, Dr Stephen van Leeuwen, Ms Jessica Oates, Dr Jane E. Prince, Mr Chris Clemente, Ms Caroline McCormick, Mr Stewart S Ford, Dr Cecilia J. Tollet, Mr David C Williams, Ms Danielle Edwards, Ms Renee Firman, Mr Stephen D. O'Dwyer, Mr Malin Kordes, Dr Elke Schleucher, Mr Blair Hardman.

RSWA Events Calendar

This space each month will be dedicated to providing RSWA members with a calendar of up-coming events and to provide advance notice of any changes to the ordinary monthly meeting that may occur from time to time as special events such as Public Forums, Symposia, and excursions arise. Watch this space!

Date	Time	Venue	Event
Sept 20th	7 pm	Kings Park	Dr Stephen Hopper
Oct 18th	7 pm	Kings Park	Dr Simon Wilde
Nov 15th	7.pm	Kings Park	Dr Marion Hercock
Dec TBA	TBA	TBA	Xmas Function

A Little Einsteinian Humor!



Einstein and his students: In the period that Einstein was active as a professor, one of his students came to him and said: "The questions of this year's exam are the same as last years!" "True," Einstein said, "but this year all answers are different."