

National Science Week 2010

For National Science Week 2010, there were four Science Week events, one in Perth, and three in Regional centers:

Biodiversity of the Leschenault Peninsula and the Leschenault Inlet.

Council and sponsored by the Bunbury 2nd Sea Scouts, this year's RSWA National Science Week event focused on the Biodiversity of the Leschenault Peninsula and Leschenault Inlet. On Monday August 16th, several members of the Royal Society of Western Australia (Vic Semeniuk, Joy Unno, and Lynette Howearth) travelled to the Bunbury Sea Scouts Hall, Koombana Bay to hold a workshop on the Biodiversity of the Leschenault Peninsula and Inlet.

The workshop was attended by over 70 adults and children. After a welcome by Quenton Gay, the Leschenault Catchment Council Coordinator, Vic Semeniuk described the development of habitats in barrier dunes, and in Leschenault Inlet, and how flora and fauna responded to this diversity to result in the biodiversity mosaic in the region. Dry sand and a wind funnel were used to illustrate how parabolic dunes and habitats formed. This was followed by an illustrated tour of the vegetation inhabiting the various dune landscapes. The evening ended with refreshments and discussions.



Biodiversity and climate change – past, present, and future.

As part of the International Year of Biodiversity, on Wednesday, August 18th, some 70 Royal Society of Western Australia members and the general public were present at the Society's National Science Week Event sponsored by Horizon - the Planetarium to view some visually spectacular vistas and description of the climate of planets of our Solar System by Carley Tillett, and hear several speakers on talking on climate change, biodiversity, and the effect of climate change on biodiversity. Professor Lyn Beazley AO, Vice Patron of RSWA introduced the theme of the evening, and was followed by Dr Alex Bevan, Western Australian Museum, Professor Malcolm McCulloch FAA FRS from UWA, Dr Pieter Poot, plant scientist from UWA, and Dr Vic Semeniuk.



In discussing the control that astronomic patterns have on climate, Alex Bevan first described the Milankovitch cycles, that are related to orbital variations of the Earth relative to the Sun and how these affect the intensity of the Sun's radiation reaching the planet forcing climatic changes leading to ice-ages. Proof of such patterns was provided later by studying deep sea cores covering the last 500,000 years that demonstrated climate cyclicity of 100, 41, 23 and 19 thousand years. This periodicity matched precisely the orbital cycles calculated by Milankovitch. In addition to orbital cycles, Alex discussed how variability in activity of the Sun (solar cycles) also influenced climate on a shorter time-scale, and appears to be a determinant of 10-1000 year climatic change.

On very much longer timescales (50-1000 million years), the Earth's tectonic activity has both a direct and indirect effect on climate, and can influence atmospheric CO₂ levels over geological time. All of these effects on the Earth's climate have different intensities and frequencies, which makes understanding the root causes of temporal climate change extremely complex. Professor McCulloch discussed the future of coral reefs in a rapidly increasing CO₂ World. He pointed out that rapidly rising levels of atmospheric CO₂ levels is causing global warming as well as perturbing the oceans carbonate chemistry in a process known as "ocean acidification". Ocean acidification is driving a rapid reduction in seawater carbonate concentrations, which controls the ability of many organisms to secrete calcium carbonate skeletons. The effects on coral reefs of both local environmental and now the inevitable impacts of global climate change were discussed.

Dr Pieter Poot described how special is the southwestern Australia plant biodiversity. Compared with many other regions worldwide SW Australia has remarkable plant diversity. Peter illustrated some aspects of this diversity, put it in a global context and discussed how scientists think this rich plant life has evolved. Peter also discussed some of the major threats to this diversity, including climate change. In detail, Peter's presentation covered the following topics: (i) how special is WA's plant diversity (on a global scale), (ii) how many species are there, (iii) how many are rare and where do they occur, (iv) why are there so many species, and (v) what will be the effect of climate change.

Region. The evening began with a talk by Vic Semeniuk explaining the role of RSWA in regional centers during the International Year of Biodiversity and National Science Week. Vic then gave an illustrated presentation on the physical features of the region, leading to the expression of regional biodiversity inland in the ranges, wetlands, and along the Pilbara Coast.

Vic described the Pilbara vegetation habitats as related to geology, landscape, and soils, and showed how the regional species pool expressed itself at the local scale in response to habitat diversity. The excursion illustrated how geology, landscape, and soils influenced the development of local biodiversity.

National Science Week and the International Year of Biodiversity at Port Hedland 2010

Continuing the theme of the International Year of Biodiversity, and National Science Week 2010, several members of the Royal Society of Western Australia (Vic Semeniuk, Joy Unno, and Margaret Brocx) arrived at Port Hedland to present information on the mangroves of Port Hedland on Saturday August 21st and a on Sunday excursion on August 22nd. Some 75 adults and children attended the Port Hedland Civic Centre for the lecture and demonstration on “The mangroves of Port Hedland”, and the excursion on “Mangroves of Finucane Island”.



Special thanks for sponsoring/assisting with National Science Week events are extended to: Horizon – the Planetarium and Scitech for sponsoring the venue, Leschenault Catchment Council (in particular Quenton Gay), and the Bunbury 2nd Sea Scouts for the venue, Alex Bowlay of the Department of Environment & Conservation for assisting at Karratha and organising the venue, the Port Hedland Port Authority (especially Harriet Davie) for promoting/sponsoring the Port Hedland event, sponsoring accommodation/ travel, organizing the venue and refreshments, and Port Hedland Shire for sponsoring the venue.