





Professor Lyn Beazley OAM

by Rhianna King

With a burning quest to discover the natural world, there was probably no doubt Professor Lyn Beazley was going to achieve great things in science. And the possibilities of her work seem endless.

Professor Lyn Beazley's enthusiasm is infectious. Her face lights up when she talks of her work and it's obvious she still holds the same wonderment for the natural world that she had as a 15-year-old school girl visiting Down House – the home of Charles Darwin – on a school excursion, where she first fell in love with biology and zoology. She says she loved everything she saw that day and was fascinated to learn about, among other things, how dogs and pigeons were bred to get different 'versions'. Lyn's family was not 'scientific' and she was the first to attend university. But, you get the impression that once she'd discovered her passion for learning, and her interest in science there was no stopping her.

Since that fateful visit to Down House, Lyn has gone on to enjoy a career in biomedical research spanning more than 30 years, has held the position of Winthrop

Professor in Zoology at The University of Western Australia, has completed a seven-year stint as Western Australian Chief Scientist, raised three daughters, was awarded an Officer of the Order of Australia, and has taken part in, or facilitated, countless initiatives to make science accessible to the community. And, even though she resigned from the Chief Scientist position at the end of 2013, she's showing no sign of slowing down any time soon.

SOWING THE SEEDS AND WATCHING THEM GROW

After completing high school, Lyn attended Oxford University to study botany. But, after one unit, she decided to change her degree to zoology to foster her interest in the study of animals. It was in this field that she attended a lecture by

Left Honey possums (*Tarsipes rostratus*) were the subject of Lyn's work into colour vision in marsupials.

Photo – Sallyanne Cousins

Inset Professor Lyn Beazley.

Photo – Lyn Beazley



Above Lyn with her granddaughter Jemima, who was administered corticosteroids at 27 weeks of gestation based on guidelines developed from Lyn's research.
 Photo – Lyn Beazley

“Kids just love nature, and they really understand it. And their primary school experience is such a big part of fostering a life-long appreciation for the natural world.”

Professor Mike Gaze, who later supervised her doctorate, about the ability of some animals to regrow their nerves and regain function in a way that mammals can't. This intrigued Lyn and she moved from zoology to what is now known as neuroscience at Edinburgh University to complete her doctorate on the neurology of frogs. In 1968 she met her husband, Clinical Professor Richard Tarala, and in 1976 they both were offered posts at The University of Western Australia and moved to Western Australia for what was meant to be two years.

When they arrived in Perth, Lyn says she had no idea WA was a biodiversity hotspot, instead thinking that it was going to be all desert. She now enjoys quoting that while 1500 new species of flowering plant were discovered in WA in about the past decade, England has 1480 or so species in total. Since arriving, Lyn has more than familiarised herself with the State's native plants and animals and has conducted extensive research into the colour vision of Australian native animals, especially marsupials including the quokka, bandicoot and numbat. She also headed the team that carried out the first-ever study into the vision of seahorses.

In other research, Lyn led an internationally renowned team that focused its research on recovery from brain damage. This work may still hold the key to people being able to recover and continue to improve after a brain injury. In addition, her research into the use of corticosteroids in pregnant woman at risk of pre-term delivery was groundbreaking. It examined the dose of corticosteroids that could safely be given to mature a baby's lungs while *in utero* without compromising brain development. Little did she know that this research would eventually help determine care for her daughter and then unborn granddaughter who were administered steroids at 27 weeks of gestation.

CHIEF SCIENTIST

In 2006, the State Government was seeking to appoint a 'chief scientist' – someone to provide independent advice to government and to be an advocate

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Right Lyn enjoyed opening the eyes of primary students to the wonders of topics such as the Gogo fish.
 Photo – Dennis Sarson/Lochman Transparencies

Above left Lyn carried out the first-ever study into colour vision in seahorses such as *Hippocampus barbouri*.
 Photo – Dennis Sarson/Lochman Transparencies

for science in WA. For seven years, Lyn fulfilled this role with gusto.

Engaging the community and, in particular, young people, in science and conservation was a key priority for Lyn during her time as Chief Scientist. She believes that children are never too young to be introduced to 'nature' and reminisces about her own daughters' childhoods, which were spent around the Peel Estuary examining tadpoles and watching forays of cormorants. “Kids just love nature, and they really understand it. And their primary school experience is such a big part of fostering a life-long appreciation for the natural world,” she said.

Before becoming Chief Scientist, Lyn hadn't had the opportunity to work with primary school-aged students, but





Above Parks and Wildlife senior research scientist Neale Bougher shows Lyn fungi spores in Gilbert's potoroo scats.
Photo – Parks and Wildlife



Above right Lyn, pictured with Premier Colin Barnett, was inducted into the WA Science Hall of Fame in May 2014.
Photo – Cam Campbell

Right Lyn visited many department offices in her term as Chief Scientist.
Photo – Lyn Beazley



said that going into schools and watching the kids get excited about topics such as underground orchids, colour vision in animals and the ancient Gogo fish was one of the highlights of her term. These experiences fuelled an intense commitment in Lyn to nurture science education in primary schools and propelled her to initiate and drive the Magnifying Microscope Project. Thanks to a partnership with Rotary Australia clubs, this program has resulted in more than 390 Western Australian primary schools, and an estimated 120,000 students, having access to microscopes at school. Lyn believes that providing students with practical classes in which they learn

about science, and motivating them to choose science as a career, is crucial to the State's future. "This can only be done by scientists getting into schools and getting kids excited about science, and getting really good teachers and school lab technicians who will provide students with interesting and imaginative classes," she said.

Another challenge Lyn focused on during her time as Chief Scientist was WA's 'brain drain', which is resulting in the State's talented young scientists leaving and moving interstate or overseas. "It's so important we keep these people here or attract them back once they've gone," she said. Lyn is keen to see continued

investments made into programs such as the WA (Premier's) Research Fellowship program, which attracts top scientists to the State, and into programs for up-and-coming scientists.

JOINING FORCES

An avid 'tweeter' and with a blackberry contact list that boasts 5000 contacts, Lyn believes that the scientific community must embrace technology if it is to thrive in the modern world and engage young people, as well as capitalise on opportunities that technology provides to capture data. In her last week as Chief Scientist, Lyn launched four applications – one to record canker in forests, one

Colour me

As part of her research into colour vision, Lyn and her team provided evidence that marsupials, like primates, can see a wide range of colours. It was previously thought that, as for placental mammals, Australian native marsupials could only see green and blue and lacked the ability to see red. However, Lyn and her team thought this was unlikely because Australia's environment is so colourful and many marsupials rely on vibrant flowers to guide them to their pollen and nectar. Honey possums are such animals. They rely on brightly coloured red-flowered banksia flowers and Lyn explains that it would be a disadvantage to honey possums if, at less than 10g each, they exerted energy to climb to the top of a banksia tree only to find that instead of the flowers being ripe and red, they were immature, green and inedible.

It is believed that the ability to see colour was passed on from the ancient fish from which all vertebrates evolved. Amphibia, reptiles and birds are known to be able to see many colours but, by the time mammals were evolving and dinosaurs roamed the world, their survival required them to become nocturnal and therefore they did not need to see colour to survive. In primates, the gene for being able to see green made a copy of itself and, thankfully, the random mutation enabled vision for red light, which had a big selective advantage. But it is thought the loss of colour vision genes did not occur in marsupials so they retained great colour vision. Lyn's team concluded that, unlike primates, marsupial mammals can even see into the ultraviolet spectrum, making their colour vision far more enhanced than that of primates, including humans.

Right Honey possums rely on their colour vision to find red flowers with nectar to eat.
Photo – Jiri Lochman



to report illegal fish dumping, one to encourage people to report dolphin sightings and for Murdoch University's Coastal Walkabout Project. Collecting and sharing data with the swipe of a smart phone can enable people of all walks of life to contribute valuable information to science that would otherwise go uncollected. Lyn cites the highly successful Swan River Trust Swan-Canning River Dolphin Watch project, which enlists the help of the community to build a profile about the dolphins in the Swan and Canning rivers. She has a term for this type of community involvement: 'citizen science'. And she says it's enormously important. However, Lyn says members of the public becoming involved in science is just one component of what she calls the 'four legs of the table approach', which must involve cooperation between industry, academia, government and the community. Lyn believes this is particularly true in WA because of the State's diverse ecology and significant mining industry.

UPON REFLECTION

Lyn cites meeting one of her personal heroes, Sir David Attenborough, as a career highlight. She met him at the WA Museum at an event to name a spider in his honour and recounts that after the ceremony he joined in on a casual conversation about seahorses and, without missing a beat, contributed to the discussion with the knowledge of a field expert. But what is really endearing about Lyn is that she speaks of all the people she encountered throughout her seven-year stint as WA Chief Scientist, and during her whole career for that matter, with the same admiration. She is genuinely awed by the work of all the people she's met and is generous with her recognition of their skills and expertise – whether it's an eminent scientist working in ground-breaking mammal research or an innovative school principal who is working to make their school carbon neutral. She believes they, just like her, have an important and meaningful contribution to make to science and conserving the environment.

Below Lyn has conducted research into colour vision of the quenda.
Photo – Jiri Lochman



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