



# The Royal Society of Western Australia

## RSWA Awards

### Student Medallists 2012 (presented 2013)

The Royal Society of Western Australia Student Medal is awarded annually to graduating science students with an outstanding academic record from the universities in Western Australia. The students are nominated by their institutions.

Here are the 2012 recipients:-

**Luke Barrett** - The University of Western Australia

**James Tsakalos** - Edith Cowan University

**Georgina Sauzier** - Curtin University

**Jessica Skelton** - Murdoch University

**Harriet Carter** - The University of Notre Dame Australia



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**Luke Barrett** - The University of Western Australia



Luke completed a Bachelor of Science in June 2012, with majors in zoology and marine biology. At the completion of his degree, he was awarded the RSWA Medal for the highest weighted average mark in the Faculty of Natural and Agricultural Sciences (84 %, GPA 6.8/7.0). He was also awarded the Oceanica Consulting Marine Science Prize for UWA, and while on exchange at the University of Otago (New Zealand) in 2011, was awarded the Elizabeth Batham Prize in Marine Science.

Luke went on to complete a first class honours degree (86 %, GPA 7.0/7.0) in zoology and marine biology in June 2013. His research project, titled “Effect of expected future mating opportunities on patterns of reproductive investment by male guppies (*Poecilia reticulata*)”, was supervised by Prof. Jonathan Evans and Dr. Clelia Gasparini at the Centre for Evolutionary Biology, UWA.

This experiment was designed to examine the way in which males decide to invest effort in reproduction, using guppies as a model system. Courtship and sperm production are costly for male guppies, so it was expected that males would invest more sparingly when future mating opportunities were likely, thus conserving resources for future mating attempts. However, Luke’s findings showed that the response was more complex than predicted, in that the male’s sexual behaviour was also influenced by his own body size (a trait correlated with attractiveness). Luke is currently preparing a publication based on his research, while also working full-time at DPaW’s Threatened Flora Seed Centre.

In 2014 he will commence a PhD in marine ecology at the University of Melbourne (pending acceptance). He is interested in whether anthropogenic structures and invasive habitat-forming species can affect the ability of marine fauna to distinguish between suitable and unsuitable habitats, and whether there is widespread settlement of fish into attractive but nonetheless unsuitable habitats. Identifying and mitigating these so-called ‘ecological traps’ may improve the resilience of exploited fish populations.



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**James Tsakalos** - Edith Cowan University



Edith Cowan University provided a solid educational foundation where James completed his undergraduate degree – a Bachelor of Science in Conservation & Wildlife Biology. Throughout this experience he earned memberships and awards at the Golden Key International Honour Society and the Royal Society of Western Australia.

Post completion of his degree James pursued his passions in vegetation ecology by commencing studies in February 2013 towards a Bachelor of Science (Honours in Botany) at The University of Western Australia. For this honours project James is re-analysing an exemplar of vegetation classification from an environmental consultant's work which is based in the Kwongan vegetation complex of Western Australia under supervision of Professor Ladislav Mucina and Assistant Professor Etienne Laliberté.

The topic for his honours project was sparked by the rapid development of new novel data analytical techniques and software used for vegetation classification. Consequently this new system presents a serious challenge to the users of existing methodologies, especially when they do not fully grasp the improved possibilities on offer and solutions provided which overcome the existing limitations with current procedures.

The outcomes of his work aim at developing and providing guidance protocols to ensure robust and ecologically meaningful vegetation classification. These outcomes will lead towards the improvement of guidance statements such as those prescribed for vegetation surveys for Environmental Impact Assessment in Western Australia by the Environmental Protection Authority. These documents are used broadly by proponents and consultants of such assessments and for the general interest of the public.

James plans on further developing these passions by continuing his career at The University of Western Australia with PhD research commencing 2014 and providing ad-hoc environmental consulting services including vegetation surveys and assessment utilising the new systems.



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**Georgina Sauzier** - Curtin University



Georgina completed her Bachelor's degree in Forensic & Analytical Chemistry at Curtin University in 2011. Research conducted in her final semester (focussing on the detection of latent fingermarks on paper) was published in the *Journal of Forensic Identification*, as well as being presented at the 21st ANZFSS International Symposium on the Forensic Sciences in 2012. For her final semester she was awarded three School of Science awards (including the RACI Prize for most outstanding graduating student), in addition to a place on the Vice Chancellor's List (awarded to the top 1% of undergraduate students).

In 2012 Georgina undertook an Honours degree, looking into the characterisation of forensic trace evidence using infrared spectroscopy and advanced statistical techniques. Her research studied the impact of weathering on the characterisation of automotive paint samples by a statistical model, capable of predicting the country of vehicle manufacture for a sample based upon its infrared spectrum. Georgina's findings showed the model to be unaffected by short- to medium-term environmental exposure of samples, suggesting that this model could be used to quickly and accurately generate useful leads from paint samples recovered during forensic investigation. The results of this research have recently been published in a special issue of the journal *Analytical Methods*. At the end of the year Georgina achieved first-class Honours (90%) and was awarded the School prize for most outstanding Honours student.

This year Georgina commenced her PhD at Curtin sponsored by an Australian Postgraduate Award, while also working as a laboratory supervisor teaching first- and second-year undergraduate chemistry. Her current project is aimed at applying the statistical techniques used in her Honours work to additional forms of forensic trace evidence, such as fibres and explosive residues. A secondary line of this research is aimed at identifying factors that may affect the results obtained using these techniques. It is hoped that this will establish statistically validated protocols for collecting, handling or analysing forensic evidence



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**Jessica Skelton** - Murdoch University



Jessica has completed a double degree at Murdoch University: Bachelor of Forensics in Forensic Biology and Toxicology, and Bachelor of Science in Molecular Biology. She also concurrently completed Postgraduate Certificates in Forensic Science and Business Administration as part of Murdoch's MasterClass program. During her time at Murdoch, Jessica has achieved straight High Distinctions for all units she has studied, and has twice been awarded a Vice Chancellor's Commendation for Academic Excellence. In 2011, Jessica was awarded a University Medal, which recognises outstanding academic performance by undergraduate students.

As the recipient of Murdoch University's Banksia Association Honours Scholarship, Jessica is currently undertaking a clinical honours project at Fremantle Hospital. Her research is looking at the role of dietary iron in the development of colorectal cancer.

Colorectal cancer is highly prevalent in Western Society with more than 13,000 patients diagnosed, and 4,000 deaths in Australia annually. Colorectal cancer is caused by both genetic and environmental factors, with studies suggesting that diets high in iron are capable of promoting colorectal carcinogenesis. Jessica's research is evaluating the effect that various iron concentrations have on enhancing the development of colorectal cancer.

At the completion of her honours project, Jessica is looking forward to spending some quality time with her two young children before commencing her PhD in 2014.



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**Harriet Carter** - The University of Notre Dame Australia

Harriet completed a Bachelor of Science majoring in Environmental Science and Biology in 2012. She achieved 4 High Distinctions and 15 Distinctions across her degree (of the 21 graded units).

For her final year research project (not Honours), Harriet investigated sediment transportation processes in Geographe Bay. The research was undertaken for the Department of Transport and to investigate the nature and composition of these dunes and sand bars, to establish whether or not they are a primary source of sediment to beaches along Geographe Bay. She was awarded a Distinction (77%).

Harriet was the recipient of School awards:

- Highest Academic Performance (First Year) in Science in 2011
- Highest Academic Performance (Upper Year) in Science in 2012