

## **Growing Resilience in our Community - The Story of the Brush-tailed Rock-wallaby**

I am Juliet Dingle - an Environmental Scientist who has worked for the National Parks and Wildlife Service for over ten years as an Interpretive Assistant and Scientific Technical Officer.

**The *Friends of the Brush-tailed Rock-wallaby* community group has been raising funds and awareness to help NPWS save the local iconic species for over 20 years. The group has received significant national acclaim, for instance, they one of three finalists in the *Community Award* category for the United Nations Association of Australia 2015 World Environment Day Awards.**

**The Friends of the Brush-tailed Rock-wallaby recently launched a documentary 'On the edge', viewable on our website: [rockwallaby.org.au](http://rockwallaby.org.au). They have also received a three year NSW Government Environmental Trust grant for promoting community awareness and action towards the conservation of biodiversity and the local endangered rock-wallaby. This is where you come in ...**

## **Outline of School Education Program - Stages 4, 5 and 6**

My passion and first-hand experience has granted me the opportunity to develop and implement the primary and secondary school education components.

We all know that shaping a sustainable future starts now ... and is the responsibility of everyone. Thankfully, sustainability is now a significant cross-curriculum objective of the National Syllabus. Here is a brief explanation of the program, including the relevance to Stage 4 and 5 NSW Curriculum.

**The aim of this education program is to develop students' respect for biodiversity and appreciation of the role of science, monitoring and technology in continually building our understanding of the complex world we live in. Scientific research can be difficult to communicate, yet it is crucial that students are able to make meaningful links between everyday life and the application of scientific expertise.**

The desired outcome is to inspire students to actively participate in local biodiversity conservation initiatives, to continually expand and communicate their knowledge, and to engage in ethical decision-making and consumption.

Balancing our *needs and wants* of today with our *needs and wants* of tomorrow is the big dilemma that humans face. The study of science encourages students to use evidence and reason to become informed, reflective citizens.

The first part of the program will be delivered in the classroom. From an environmental scientists' perspective, students will explore how human activity has caused the current biodiversity crisis and consider the repercussions for society and global systems, ie. cause and effect relationship.

Students will be reminded that the cell is the basic unit of life and that there is a diverse range of living things that have evolved on Earth, classified into plants, animals, fungi and bacteria, etc. Students will develop their understanding of behavioural and structural adaptations for survival and reproduction, populations, habitats, ecosystems, biotic and abiotic interactions, genetics, photosynthesis, energy flows, food webs and nutrient cycling.

Science and technology can find solutions to conserving and managing sustainable ecosystems.

Students' investigation of the real-world problem of the protection of a local endangered species will develop their understanding of and skills in applying the processes of Working Scientifically. Students will identify strength and limitations of the Brush-tailed Rock-wallaby recovery project and threat abatement strategies, evaluate the monitoring methodology and explore constraints of ecological experimental design.

The classroom component incorporates a multimedia online presentation accompanied by thought-provoking discussion and a creative exercise designed to challenge students to problem-solve and transfer

what they have learnt to different threatened species and situations. As a collaborative group exercise, students will develop a mind-map and flow chart for a community-supported threat abatement program for the protection of a real or imagined endangered species, including a scientific monitoring program.

A fieldwork and/or computer lab component will develop students' skill in the application of technology to monitor native and introduced fauna. A selection of interested students will be offered the opportunity to actively participate in monitoring with sand pads, remote cameras and radio-tracking technology for the Shoalhaven Brush-tailed Rock-wallaby Recovery Program.

Compared to other scientific disciplines, our knowledge of the living world is infantile. As scientific research gradually increases our understanding of the interconnectedness of life on this planet, the values of society, industry and government sway. Peoples' perceptions and priorities change. This in turn influences the focus of scientific research and technological development. Unfortunately, much of the current technological trends are actively disconnecting young people from nature. How can we protect biodiversity and life as we know it, if we do not know it or care?

As you would be aware, the aim of the *Science Years 7–10 Syllabus* is to develop students':

- *interest in and enthusiasm for science, as well as an appreciation of its role in finding solutions to contemporary science-related problems and issues*
- *knowledge and understanding of the nature and practice of scientific inquiry, and skills in applying the processes of Working Scientifically*
- *scientific knowledge of and about phenomena within the natural world and the application of their understanding to new situations and events*
- *appreciation of the development and dynamic nature of scientific knowledge, its influence in improving understanding of the natural world and the contribution of evidence-based decisions in informing societies' use of science and technology.*

This enrichment program targets numerous values and attitudes, skills, knowledge and understanding outcomes developed for Stage 4 and Stage 5 for the NSW Science Syllabus: Including, a student:

- appreciates the importance of science in their lives and the role of scientific inquiry in increasing understanding of the world around them SC4-1VA, SC5-1VA
- shows a willingness to engage in finding solutions to science-related personal, social and global issues, including shaping sustainable futures SC4-2VA, SC5-2VA
- demonstrates confidence in making reasoned, evidence-based decisions about the current and future use and influence of science and technology, including ethical considerations SC4-3VA, SC5-3VA
- identifies questions and problems that can be tested or researched and makes predictions based on scientific knowledge SC4-4WS
- develops questions or hypotheses to be investigated scientifically SC5-4WS
- produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively SC4-5WS, SC5-5WS
- selects and uses appropriate strategies, understanding and skills to produce creative and plausible solutions to identified problems SC4-8WS
- applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems SC5-8WS

- explains how advances in scientific understanding of processes that occur within and on the Earth, influence the choices people make about resource use and management SC4-13ES
- relates the structure and function of living things to their classification, survival and reproduction SC4-14LW
- analyses interactions between components and processes within biological systems SC5-14L
- explains how new biological evidence changes people's understanding of the world SC4-15LW
- explains how biological understanding has advanced through scientific discoveries, technological developments and the needs of society SC5-15LW
- presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations SC5-9WS

This enrichment program strongly links with the Stage 5 and 6 Earth and Environmental Science electives and can be customised to meet specific outcomes.

**This enrichment program is on offer to a limited number of schools, and there is NO cost to the school.**

**To honour The Friends obligation to the NSW Government Environmental Trust, I ask that the school publish a short article (and maybe a photo) about the program experience in the school newsletter.**

**In the spirit of adaptation (and to provide further measurable outcomes to the Environmental Trust), students and teachers will be asked to provide some honest feedback on the education program.**

**The only resources required by the school are some valuable class time, internet and projector/ smart board access for the presentation, and potentially, a computer lab.**

And finally, we are looking for some especially enthusiastic teachers and students who have the time and inclination to link up with other schools on the topics of Biodiversity and/or the Brush-tailed Rock-wallaby Recovery Project through video conferencing, with support offered by the School of Mars Education Centre.

I envisage the enrichment program will be tailored to satisfy the individual requirements of each school and extend over a few days, for up to two hours per day. I look forward to discussing a potential partnership between the *Friends of the Brush-tailed Rock wallaby* and your class.

The moral of my story is: *Working together, science and communities can find innovative solutions for a sustainable future.*

*Kind Regards, Juliet Dingle*