



# Earth Science Western Australia

## Annual Report

### 2013/14



**This report provides an overview of ESWA's projects and achievements for the twelve months – July 2013 to June 2014.**

## About ESWA

### Our Objectives

- Raise the profile of geoscience in the State's secondary schools to a level matching the strategic needs of WA
- Increase awareness of the wide range of career opportunities geosciences provides
- Increase the number of students entering tertiary geoscience studies
- Increase VET participation in related courses
- Increase community awareness of the importance of understanding earth science

*We are achieving our objectives by:*

- *strongly supporting the teaching of earth science in our secondary and primary schools,*
- *developing teaching and learning resources,*
- *providing professional development for teachers,*
- *presenting hands-on incursions for students,*
- *assisting with field experiences for students through funding, expertise and field guides, and*
- *connecting volunteer professionals with schools as guest speakers*



# Our Story

Founding  
(2003)

- Jim Ross and John de Laeter lead a steering group in response to declining geoscience education in WA
- ESWA formalised through HOA between Curtin, UWA, CSIRO and WA Museum, with support of GSWA

Fundraising  
(2004)

- Fundraising commences across institutions, professional organisations and minerals and petroleum industries

Formal  
Establishment  
(2005)

- Board and Executive of ESWA formally established and inaugural Executive Officer recruited

EES  
(2006)

- Promotion of Earth and Environmental Science to senior science staff in a wide range of secondary schools.
- Engagement with the State Curriculum Council to prepare resources for introduction of EES

Employee 2  
(2007)

- Second education officer employed to commence strengthening of Earth Science teaching in lower secondary and upper primary schools, funded by BHP Billiton.

Resources  
(2008-10)

- Teaching packages produced, and travel to regional and remote areas increased
- Professional reviews of ESWA's work undertaken with positive results
- ESWA lobbies successfully for EES as fourth science subject in Australian Curriculum

Textbook  
(2011)

- The first textbook for the WA Earth and Environmental Science course is released and supported with professional development for teachers

Field Guide  
(2011)

- 'A Field Guide to Perth and Surrounds' is released and supported with teacher PD

Promotion  
(2011/12)

- A quarterly newsletter is issued to all interested parties
- Volunteer guest speakers are provided to schools

Extension of  
Activities  
(2012/13)

- Official Incorporation of Earth Science Western Australia Inc (29/5/13)
- Extension of resources available, including those for the new Woodside Australian Science Project (WASP)

National  
engagement  
(2013/2014)

- Resources made available for Australian Curriculum Earth Science, Years 7-10 under WASP
- Release of 'A Geological Field Guide to the Capes Region of Southwest WA'

## From our Chair

Underpinning ESWA's objectives is our deep desire to irreversibly embed a positive appreciation of Earth Science into our secondary and primary schools. If realised, it can bring diverse, strategic benefits to a resource-rich WA, and provide positive examples to others. Encouragingly, after almost 9 years of operation, developments during the 2013/14 year give us cause to believe that we are firmly on the pathway to achieving that aim.

This belief flows from the continued strengthening of our support for senior school Earth and Environmental Science, the success of the WASP Project (Woodside Australia Science Project) which provides Earth and Space Science resources directly keyed to the requirements of the new Australian Curriculum for years 6-10 and, at the time of writing, our confidence in being able to replicate the WASP strategy for years K-5, commencing in 2015.

ESWA played a leading role in selection of Earth and Environmental Science as the fourth senior science subject in the new Australian Curriculum (displacing the proposed Environmental Science). Consequently, the new science curriculum from K-10 now includes a significant component of Earth and Space Science. Unsurprisingly we are delighted to directly support teaching of the new curriculum, thanks to the generosity of Woodside Energy Ltd. We are also pleased to be considering extending that direct support down to Years K-5, because many primary school teachers need assistance to effectively teach the science and maths components of the new curriculum.

Ultimately, ESWA's effectiveness distils down to people, and it is quite uplifting to see the inspiring enthusiasm, collaborative strategic planning, and skilful energetic implementation of our two staff: Joanne Watkins and Julia Ferguson. Of course their work builds on the shoulders of others, and the financial and in-kind contributions of our many supporters, the diligent, committed work of the Executive, and the strong input of our Board provide a robust foundation to the substantial work that is reported in the following pages.

The year in review has also been our first as an incorporated entity. This development has only strengthened our internal reporting and governance procedures and enabled ESWA to stand alone as a financial entity, independent of the previous financial arrangements with Curtin University, which were so helpful to our early development. Our Treasurer, Peta Libby, deserves recognition and appreciation for her work in establishing our new financial control and reporting systems.

The positive development of ESWA over the last 9 years has recently been affirmed by the report from the Technology Industry Advisory Council (TIAC): *Optimising STEM Education in WA Schools*. It highlights the deep and widespread concerns about student engagement in STEM subjects and the need for increased STEM teacher support. It also identifies the

unique ESWA model as an appropriate template for strengthening the teaching of other STEM subjects, and accords with the increased recognition that ESWA is receiving within the education community.

In July 2013, the Education Minister, the Hon Peter Collier MLC, helped us launch the WASP project and also to celebrate ten years since ESWA was conceived. The year also included the launch of our second guide book: the splendid Geological Field Guide to the Capes Region of Southwest WA by John Bunting.

The growing maturity of ESWA does not diminish our enthusiasm for the future. In the current year we will commence work on our third guidebook and we are very excited at the prospect of launching a program of support for K-5 teachers and students.

On behalf of the Board and staff, our sincere thanks for your support. We sincerely hope that you enjoy this inaugural Annual Report and continue to share the journey with us.

Dr Jim Ross AM

## Engagement at Schools

An important component of ESWA's success is our engagement with schools across WA, it is here that we access the largest numbers of students and teachers.

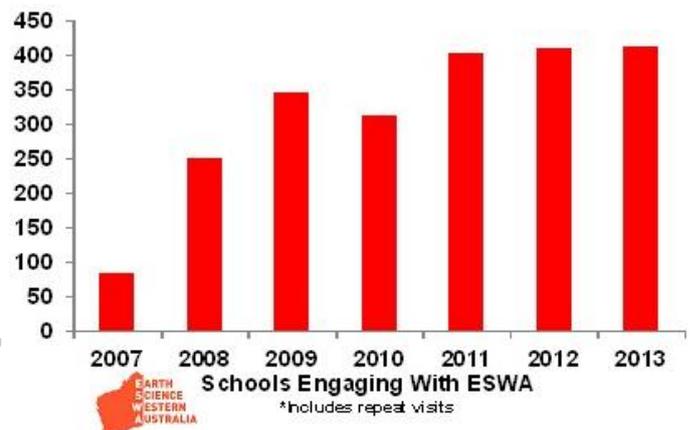
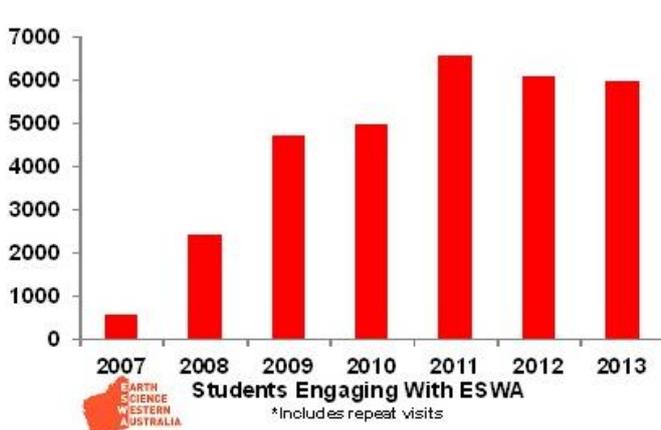
Hands-on incursions with over 6,000\* students  
at visits to over 350\* schools



Earth and Environmental Science students across WA  
enjoyed a high level of support



This built on our past success in engaging with schools



\*Includes requested repeat visits

## Field Fun!

One of the great joys of Earth Science studies is getting out into the field.

Over 300\* students were engaged in the field



11 schools were provided field trip support funding with some taking students on international trips



Earth and Environmental Science groups were supported to run several trips within the year including extended camps



\*Forms part of total student engagement numbers

## Teacher Professional Development

In addition to classroom learning during hands-on incursions with their classes, teachers were also offered a wide range of opportunities to develop their Earth Science teaching skills.

Over 1,000\* educators were supported through professional development and in the classroom

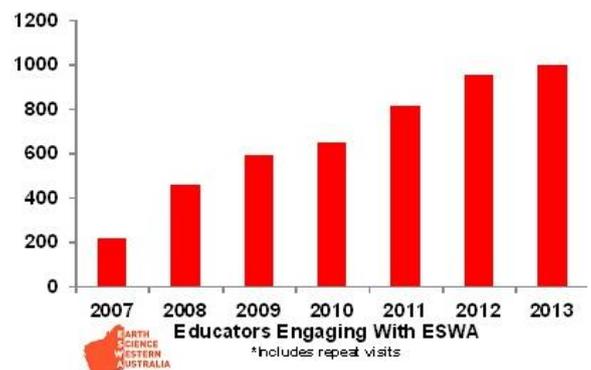


This learning extended into the field and included a weekend for teachers to support fieldwork in the Southwest



Attendees at conferences and other events were also accessed

All of this builds on our past support of teachers

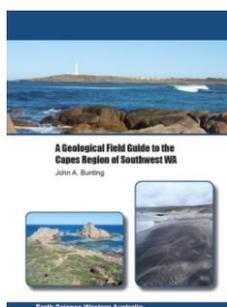


\*Includes requested repeat visits

## Publications and Resources

The provision of resources is vital to the uptake of Earth Science and this year we added to our growing catalogue.

**'A Geological Field Guide to the Capes Region of Southwest WA'**  
by John Bunting and ESWA was released



Resources were donated to new schools to EES in 2014:  
the Australian Islamic College, Morawa District High School, Peter Moyes Anglican Community School and Strathalbyn Christian College



fossils



Loan Kits are now available in:  
Albany, Broome, Bunbury,  
Geraldton, Hedland, Jigalong,  
Karratha, Kalgoorlie, Newman,  
Northam, Perth and Tom Price.

crystals & minerals



Rock collections were curated, and added to, at schools across WA, by request.



[www.earthsciencewa.com.au](http://www.earthsciencewa.com.au)

Over 3,000 users

Over 16,000 page views

Averaging over two and half minutes per visit

From Australia, the UK, the US, Brazil and China

## Events

Across this year we ran and supported a large range of events around promoting Earth Science education. Here are some of the highlights.

### Revision Seminars

Year 12 EES students from across the state attended free, interactive revision seminars run by ESWA at Curtin University.



### The ConocoPhillips Science Experience

Year 9 and 10 students took part in ESWA's activity around the identification of rocks, geological field mapping and introductory cross sections.



### Careers in Geoscience

ESWA assisted to plan and run this event. Over 40 students attended the high school session and over 80 were at the university session.



### Get Into Resources

ESWA assisted to plan and run this event. GIR ran over two days and brought in over 230 Year 10 students, and their teachers, to take part in hands-on 'taster' sessions for a wide variety of careers in resources, presented by volunteer professionals.





# Special Projects



# Woodside Australian Science Project (WASP)



The Woodside Australian Science Project (WASP) produces support packages for the Earth Science component of the Australian Curriculum, for Years 6 - 12. These packages are full of hands-on activities for students, with teacher support materials. As each package is released professional development sessions are made available to teachers.

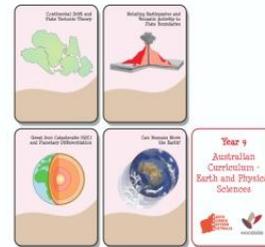
2 packages released  
Year 8 – Rocks and Minerals  
Year 9 – Plate Tectonics



Rocks & Minerals Package



Plate Tectonics Package



## Official launch of the project by the Honorable Peter Collier MLC



## Professional development provided to over 500 teachers



A popular booth and workshop at the Conference of the Australian Science Teachers' Association,  
La Trobe University, Melbourne



Hands on incursions to more than 500 students and 160 teachers



[www.wasp.edu.au](http://www.wasp.edu.au)

Over 2,000 users

Over 4,000 page views

Averaging over one and a half minutes per visit

From Australia, the US, France and the UK

Release of a free app, for iPad with three sections





## Taking Earth Science to the Pilbara



'Taking Earth Science to the Pilbara' aims to raise the profile of Earth Science education in the region encompassing Hedland, through classroom presentations, teacher professional development and the provision of kits and guest speakers.

The highlight of this project for the 2013/14 year was a regional trip boasting the following successes.

747 students (K-10) and 41 teachers engaged in hands-on incursions



Hedland, Marble Bar and Nullagine



8 schools and a youth centre engaged



14 kits of hands-on materials donated to schools. Including 'Fossils', 'Crystals and Minerals' and 'Investigating Earth Science'



2 Atlas Iron staff engaged with 2 schools and a specialist science centre for careers presentations to 49 students and 6 teachers.

Two teacher professional development sessions for primary and secondary staff



"Just wanted to say a HUGE thank you for coming to SHPS yesterday and working your magic with our students. They thoroughly enjoyed the sessions. Our kids were motivated, engaged and most of all they learnt something in the process of getting their hands dirty and having fun with science. You managed them exceptionally well and the goodies I received were fabulous.

Please come back and visit us again next year. "

Emily Leech

Science Teacher

South Hedland Primary School

# Operations

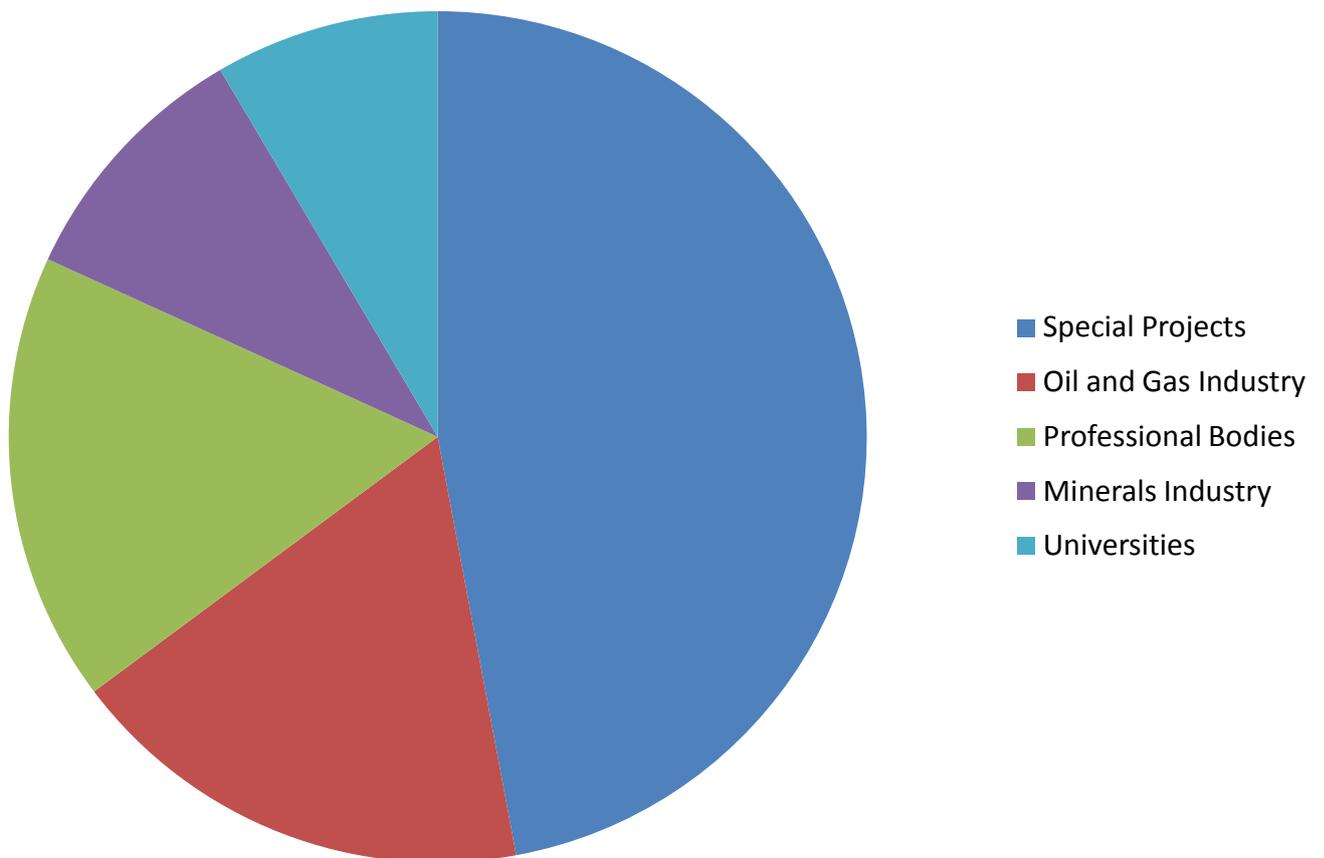


## Financial Report

*The financial report for Earth Science Western Australia for the financial year ending 30 June 2014 was made available at the Annual General Meeting on Tuesday 28 October 2014.*

*This report is available to supporters upon request.*

## Financial Support by Category



## ESWA's Supporters (2013/14)

### Platinum

Atlas Iron Ltd  
Chamber of Minerals & Energy of WA  
Chevron Australia  
CSIRO  
Curtin University  
Geoconferences (WA) Inc  
Shell Development (Australia) Pty Ltd  
UWA  
Woodside Energy Ltd

### Silver

Alkane Resources Ltd  
Australian Institute of Energy  
Schlumberger Australia  
Teck Australia Pty Ltd

### In-Kind

Geological Survey of WA  
Scitech  
STAWA  
Western Australian Museum

### Gold

AusIMM  
BP Developments Australia Pty Ltd  
ConocoPhillips Australia Pty Ltd  
First Quantum Minerals Ltd  
Murphy Australia Oil Pty Ltd  
Total E & P Australia

### Bronze

Australian Institute of Geoscientists  
Digirock Pty Ltd  
Encounter Resources Ltd  
Finder Exploration  
Geological Society of Australia  
Independence Group NL  
International Association of Geophysical Contractors  
Jim Ross  
Mitsui E&P Australia Pty Ltd  
PESA  
Rockwater P/L  
Sipa Resources Ltd  
SRK Consulting  
Western Mining Services  
Whythenshawe Pty Ltd

## ESWA's Staff



Jo Watkins (left), Executive Officer, responsible for Years 7-12 engagement, project management, communications and operations.

Julia Ferguson (right), Earth Science Consultant, responsible for Kindergarten to Year 10 engagement and the Woodside Australian Science Project.

## ESWA's Executive

<b>Chair</b>	Dr Jim Ross AM – Deputy Chairman, Berkeley Resources Ltd – (since foundation)
<b>Vice Chair</b>	Dr Chris Yeats - Consultant – (since 2010)
<b>Secretary</b>	Mark Thompson - Vice President Exploration Australasia, Woodside Energy Ltd – (since 2012)
<b>Treasurer</b>	Peta Libby - Managing Director, Digirock – (since 2009)
<b>Member</b>	Professor Peter Moore - Executive Director Strategic Engagement, Curtin Business School – (2008, 2014)

(time with ESWA)

## ESWA's Board

Aforementioned Executive Members  
Steve Appleyard – Department of Parks and Wildlife  
Geoff Batt – University of Western Australia  
Alex Bevan - WA Museum  
Alan Brien/Simon Carroll – Scitech  
Charles Butt – CSIRO\*  
Ian Glacken – Consultant\*  
Jay Ridgewell - Curtin University  
Jennifer Rumbles - Chamber of Minerals and Energy WA  
Joy Cicchini – Schools Curriculum and Standards Authority  
John Clarke – Science Teachers' Association of Western Australia  
Mary Gee - University of Western Australia  
Ray Wills – Future Smart\*  
Dr Ryan Noble – CSIRO  
Dr Tim Griffin – Department of Mines and Petroleum (WA)  
\* Retired from the Board during the year

## ESWA's Volunteers

ESWA is humbled by the support of numerous volunteers across the course of the year including, geologists, engineers, environmental scientists, teachers, science communicators and accountants; to name a few.



**EARTH  
SCIENCE  
WESTERN  
AUSTRALIA**

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