



GAIA RESOURCES

Environmental Initiatives through Spatial Innovation

Piers Higgs
Gaia Resources

www.gaiaresources.com.au

Presented at SESI YP Summit 18th May 2010



OVERVIEW

Overview

- Who are we?
- How we've helped other businesses with their environmental efficiency - some projects
- Thinking about being "green"
- Wrap up and questions

www.gaiaresources.com.au



WHO ARE WE?

What is our business?

"A consultancy that responsibly delivers sustainable technology solutions to companies that work with the environment."

- Consultancy – we are a business
- Responsibly – we take pride in our work
- Sustainable – we are environmentally sustainable
- Solutions – we are holistic
- Environment - ...

www.gaiaresources.com.au



WHO ARE WE?

What is our business?

- Define "works with the environment?" ...
 - Measuring or recording information about the natural environment
 - Undertakes research into the natural environment
 - Undertakes conservation activities



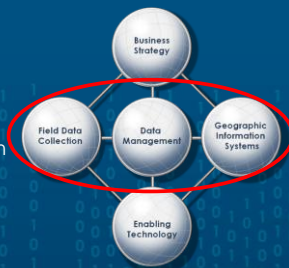
www.gaiaresources.com.au



WHO ARE WE?

What is our business?

- Field Data Collection
- Data Management
- Geographic Information Systems
- Business Strategy
- Enabling Technology



www.gaiaresources.com.au



WHO ARE WE?

What is our business?

- Our clients range in size, nature, and scope;
 - Local, State and Federal government
 - Private companies across a range of industries
 - Not-for-profit agencies and international institutions
- Wide range of projects undertaken...

www.gaiaresources.com.au



PROJECTS

Projects

- Climatewatch
- Atlas of Living Australia
- Disturbance Mapping
- South-West Australian Ecoregion Initiative

www.gaiaresources.com.au

PROJECTS

Climatewatch

www.gaiaresources.com.au

PROJECTS

Climatewatch

- Project developed by the Earthwatch Institute

"ClimateWatch is a climate change monitoring program that allows every Australian to be involved in collecting and recording data that will help shape the country's scientific response to climate change."

- Launched nationally Sept 2009, in WA May 2010.

www.gaiaresources.com.au

PROJECTS

Climatewatch

- *Where is the spatial innovation?*
- Using spatial data and interfaces to streamline the entry of records from the public
- The public is becoming more spatially aware, more comfortable with spatial

www.gaiaresources.com.au

PROJECTS

Climatewatch

- *Where is the environmental efficiency?*
- Using the public to record information increases your data capture by large factor
- What data from the public lacks in accuracy, it can make up for in volume – can add to analyses

www.gaiaresources.com.au

PROJECTS

Atlas of Living Australia

www.gaiaresources.com.au

PROJECTS

Atlas of Living Australia

The Atlas of Living Australia project is a collaboration between the Australian Government, the Commonwealth Science and Industry Research Organisation (CSIRO), the Council of Heads of Australasian Herbaria, the Australian Museum, the Museum of Victoria, Queensland Museum, Southern Cross University, the Tasmanian Museum and Art Gallery and the University of Adelaide.

It is funded by the Australian Government under the National Collaborative Research Infrastructure Strategy and further supported by the Super Science Initiative of the Education Investment Fund.

www.gaiaresources.com.au

PROJECTS

Atlas of Living Australia

- Collecting biodiversity information and making it freely accessible online.

food security
 decision making
 conservation
 research
 primary production
 biosecurity
 global change management
 education
 climate change




www.gaiaresources.com.au

PROJECTS

Atlas of Living Australia

- Where is the spatial innovation?
- Using spatial data and interfaces throughout the entire project
- Includes mobile devices – platform independent
- Similar use of spatial interfaces to Climatewatch






www.gaiaresources.com.au

PROJECTS

Atlas of Living Australia


- Where is the environmental efficiency?
- Similar to Climatewatch – getting the public interested, and creating links to researchers
- Citizen science portals
- Open source software - freely available


www.gaiaresources.com.au

PROJECTS

Disturbance Mapping



Types of Disturbance	
DESCRIPTION	Area (ha)
General Pits	48.04
Proximal Pits (1-10,000 TDS)	1.91
General Openly	22.08
Hardened Areas	5.12
High Level Pits or Old Leach Dams	26.14
Water Pits	7.75
Disturbed access tracks/roads	7.73
Openings	5.26
Public Road	0.54
Shrub Access	36.22
Roads - Road	1.52
Track Disturbance	17.28
Track Corridor (High 4WD)	17.28
Track Disturbance	188.81
Levels of Disturbance	
STATUS	Area (ha)
All Disturbance	181.1
Revegetation	0.01
Undisturbed	181.09
TOTAL AREA	362.21



www.gaiaresources.com.au

PROJECTS

Disturbance Mapping

- Required under licencing and other reporting




Uh, I reckon this is about a hectare.

www.gaiaresources.com.au

PROJECTS

Disturbance Mapping

- Where is the spatial innovation?
- Using leading remote sensing technologies and carbon accounting through our partners
- Checking the data through deployment of portable, rugged PCs to site

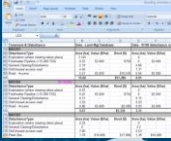


www.gaiaresources.com.au

PROJECTS

Disturbance Mapping

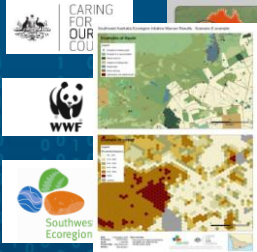

- Where is the environmental efficiency?
- Solution provided used in multiple reporting streams – AER, NPI, bonds
- Faster, cheaper than previous methods – money can be spent elsewhere on site
- Defensible, accurate solution



www.gaiaresources.com.au

PROJECTS

South West Australian Ecoregion Initiative





www.gaiaresources.com.au

PROJECTS

South West Australian Ecoregion Initiative

- Multiple phase project
- Phase 1:
 - “commence a rigorous and defensible systematic conservation planning process that works at both the regional and landscape scale”

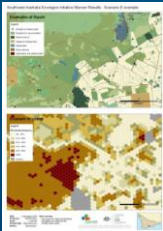


www.gaiaresources.com.au

PROJECTS

South West Australian Ecoregion Initiative

- Where is the spatial innovation?
- Likely to be the biggest Marxan analysis conducted to date:
 - 250 GB of spatial data
 - 70,000 files to manage
 - Over 250,000 “grid” cells



www.gaiaresources.com.au

PROJECTS

South West Australian Ecoregion Initiative

- Where is the environmental efficiency?
- Over 850 conservation features were included in the analysis to determine areas of high conservation value
- Outputs from the project went to the federal and state regulators for inclusion in planning



www.gaiaresources.com.au



PROJECTS

- Throughout our projects, we try to be "green"



www.gaiaresources.com.au




BEING GREEN

How to be "green"?

- Sustainability is important – not just financially, but socially and environmentally
- Environmental sustainability – "green" activities:
 - Use renewable energy
 - Recycled products (pens, paper)
 - Use public transport
 - Carbon offsetting flights
 - Filtered, not bottled water
 - Carbon offset everything else...



www.gaiaresources.com.au




BEING GREEN

How to be "green"?

- Discounting rates by 20% for environmental research and conservation:
 - Undertaken since day 1 of the business
 - Have donated over \$250,000 through this method to date
 - Means clients with smaller budgets still get good outcomes

www.gaiaresources.com.au





BEING GREEN

How to be "green"?

- Constant and evolving process
- Where to from here?
 - Solar power in offices (trailing since 2009 on small scale)
 - Reducing energy use through switches and behaviour
 - More knowledge sharing!

www.gaiaresources.com.au




BEING GREEN

Sharing knowledge?

- As a group, environmental GIS professionals do a lot of the same thing – we work on similar problems
- We have proposed to set up an **Environmental GIS** group that meets regularly
- To be involved, come and talk to us or email us...

www.gaiaresources.com.au




QUESTIONS?

Questions? Comments?

- Keep in touch via our web site, blog, news, Twitter
- Contact Piers directly:
 - piers@gaiaresources.com.au
 - Office: 9272 5994
 - Mobile: 0411 754 006

www.gaiaresources.com.au

