



Edition (14)  
November 2012

## Terrestrial Research E-bulletin

### Convener's Update

Welcome to the November issue of the TRE-bulletin.

In this edition we focus on the importance of citizen science and how it can contribute to the collection and presentation of nationally important environmental data.

We also focus on a community based project, EDGAR, which allows the public to help improve the quality of data available and generate maps of how climate change might impact some species in the future.

In this issue, we would also like to celebrate Terrestrial Biodiversity network members that were awarded one of the NCCARF 2012 Climate Adaptation Champions awards. The 'Making Connections: landholders restoring connectivity in the Wet Tropics' project won the community category for the climate adaptation champion awards. This project involves community groups, landholders, NGO's, Government agencies and scientists working together to restore habitat in high altitude areas in the Wet Tropics of north Queensland.

This project was initiated from work by Shoo et al (2010) ([see Information Sheet 4](#)) that mapped areas of likely refugia under climate change.

Funding was then sourced by the Wet Tropics Management Authority to undertake the restoration of some of these areas. Together with NGO's community groups and landholders this project aims to reconnect a 1,000 hectare patch of rainforest on private land to the Wet Tropics World Heritage Area.

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We would like to congratulate the Making Connections group on a fantastic collaborative effort and working towards on ground adaptation for Terrestrial Biodiversity.



Award recipients Luke Shoo (centre) and David Hudson (right) with network co-convenor Steve Williams (left).

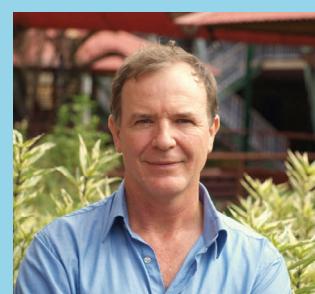
#### Steve Williams & Lesley Hughes



#### Meet the Steering Committee

##### Prof Stephen Garnett

Stephen Garnett is a conservation biologist at Charles Darwin University with a particular interest in threatened birds.



Most of his work in the last three decades has been in tropical Australia. In collaboration with other network members he is currently preparing a climate change action plan for Australian birds and recently co-ran a workshop on assisted colonisation.

# The March of Citizen Science: How the public can contribute to climate change adaptation knowledge

Citizen science is the new buzz phrase in science circles. With more and more research groups and organizations setting up citizen science projects, here we explain what citizen science is, and how it can contribute to climate change adaptation knowledge and management.

Citizen science aims to engage the general public to help scientists gather data and information on a particular project or topic. For example, amateur birdwatchers have been contributing to distribution and abundance records of birds in Australia, and elsewhere, for many years. Indeed, despite some differences, a recent study (Szabo et al, 2012, Emu) found that bird occurrence data collected by volunteers in the Mt Lofty area of South Australia was highly correlated to data collected by experienced researchers over the same period of time. Similarly, a study by Tim Davies and colleagues (Wildlife Research, 2012) finds that photographs of whale sharks taken by tourists were just as useful as researcher data (photographs) in assessing whale shark populations through mark-recapture methods.

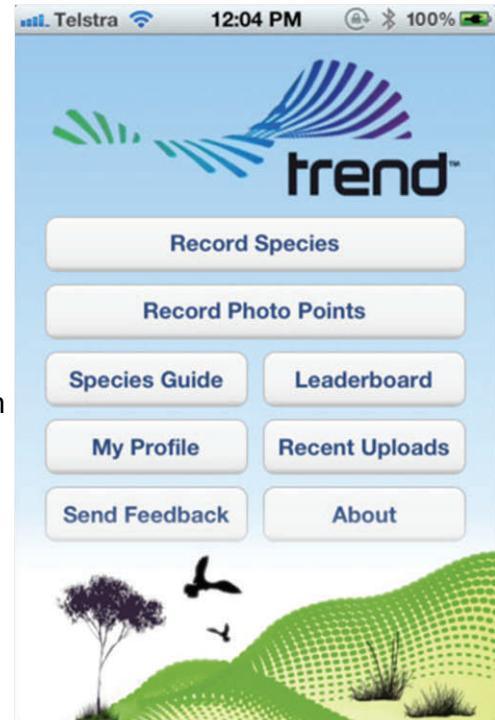
So the evidence suggests that data collected by the general public can be reliable, and scientifically important. It is also generally much less expensive to gather than many organized research projects. But how can citizen science contribute to climate change adaptation?

One of the first initiatives to be launched was the ClimateWatch website ([highlighted in our very first issue](#)). An initiative of Earthwatch, ClimateWatch allows members of the public to log sightings of common animals and plants in their area, to help scientists get a picture of how changes in temperature and rainfall are affecting the seasonal behaviour of Australia's plants and animals. In its first year, more than 36,000 people visited the ClimateWatch site. ClimateWatch has

recently released [an app](#) in order to aid the public in collecting data when out and about.

The University of Adelaide recently launched TREND – the Transect for Environmental Monitoring and Decision Making, which monitors a number of transects around South Australia. The main aim of TREND is to produce an 'early warning system' to changes in South Australia terrestrial ecosystems in terms of climatic and environmental shifts. [The TREND app](#), for iPhone and android, allows members of the public to contribute data from the TREND region.

Involving the public in science projects fosters both a greater understanding of environmental issues, such as climate change, in the wider community, and also contributes valuable data to long-term studies of the impacts of climate change to our environment. As data continues to be amassed, ClimateWatch, TREND and other citizen science climate change initiatives have the potential to generate important information which can be incorporated into climate change adaptation management plans.



Smart Phone Apps, like these from ClimateWatch and the TREND initiative, allow the general public to collect and submit data 'on the go' which can directly contribute to knowledge and science on climate change and adaptation.



# Engaging the public to better understand the future of Australian Birds. By Jeremy VanDerWal, James Cook University.

Researchers at James Cook University recently launched a new website, named Edgar, to engage the public in improving knowledge of how climate change may impact Australian birds. The project, led by myself, seeks to engage the public, in this case Australian 'birders', in vetting millions of bird observations hosted within Atlas of Living Australia (ALA).

At the same time, the site highlights the potential impacts of climate change by displaying the potential changes in ranges given different levels of global warming.

The website is a point of contact for people to assess for themselves the degree to which climate change may impact the distributions of Australian birds. This is through a simple mapping interface highlighting the current and future bird distributions given a range of emission scenarios and global climate models.

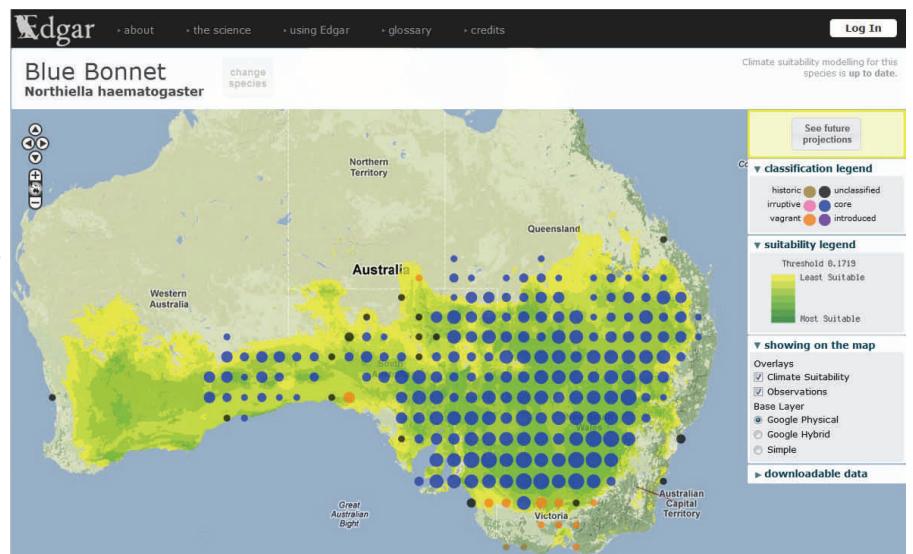
The initial idea for the site stemmed from the necessity to improve the underlying data for which we base our understanding of future climate change. It is relatively easy to bring together vast amounts of information on where species occur but the quality of the species identification or reported locations vary. Who better to check this data than the informed public?

Here we engage stakeholders (such as researchers and citizen scientists) by providing feedback mechanisms for assessing quality of species observations.

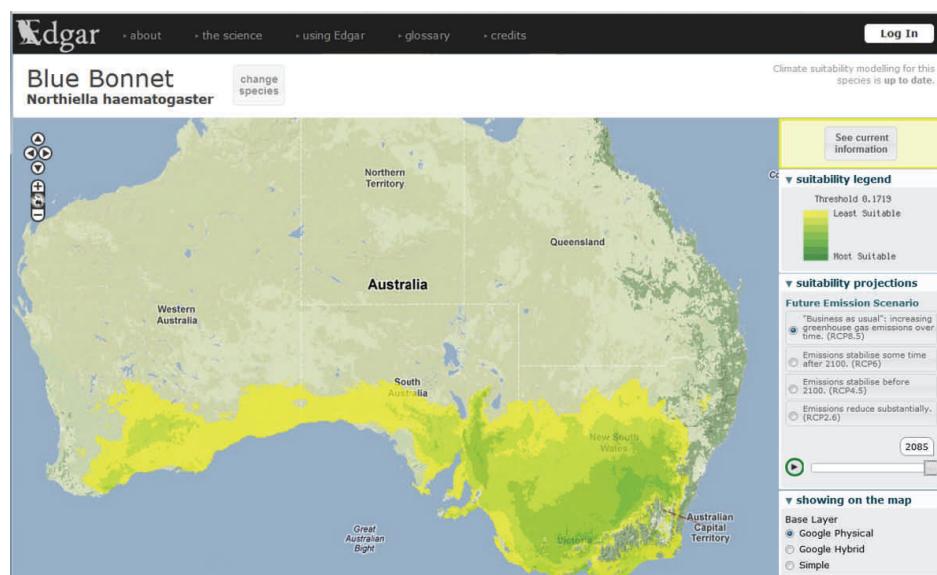
This feedback triggers a series of events from assessing the feedback and notifying the data source of the comments through to rerunning of current and future distribution models for the species. Lastly, this website acts as a point of contact for researchers to gain direct access to available data (that is, species occurrence records, climate data and species distributions) under a Creative Commons 3.0 by attribution licence.

This research was funded by the Australian National Data Service (ANDS). The funding enabled the development of an open-source platform – an interconnected suite of free software – underlying the website. A key aspect of the development was to ensure that this software would not only be applicable to Australian bird information housed at ALA but rather it could be applied to a wide variety of datasets across different spatial extents across the globe.

Prof Stephen Williams, Director of the Centre for Tropical Biodiversity and Climate Change, hopes to implement this software to engage people and disseminate information of the potential impacts of Climate Change on the flora and fauna of the Wet Tropics Region. "Not only does this system engage and inform people of climate change impacts, it also allows for immediate uptake of our research and enables informed adaptation planning for the region" says Prof Williams.



Screenshot from Edgar showing the current distribution of the Australian Blue Bonnet (above), and a future predicted distribution (below) using the 'business as usual' emissions scenario. The range shows an obvious contraction to the south of its range in this scenario.



## Must Read:

Hot off the press— papers and reports on climate change adaptation

- ◆ **DARA 2012 Climate Vulnerability Monitor report “Cold Calculus for a Hot Planet**. (2012) This report focuses on the monetary global costs of climate change, based on the latest information on climate change and the carbon economy. Download at [DARA](#).
- ◆ **Implementing Adaptation to Climate Change in Terrestrial and Freshwater Natural Environments in Tasmania (2012)** Report on an expert workshop held in Hobart, Tasmania, exploring how general adaptation principles can translate into specific guidelines for different ecosystems in Tasmania. Download [here](#)
- ◆ **Spatially explicit benefit-cost analysis of fire management for green-house gas abatement.** (2012) Heckbert, et al. *Austral Ecology*. This study explores the potential for fire management to provide offsets to carbon markets in northern Australian savannahs. The authors find that it may be possible to abate 1.6 million tonnes of .CO<sub>2</sub>-e per year. DOI: 10.1111/j.1442-9993.2012.02408.x



## Opportunities

- ◆ Applications for Student travel and registration grants for Climate Adaptation 2013 Conference. Up to \$200, post-graduate students welcome to apply. To apply please complete the application form and submit to [nccarf2013@yrd.com.au](mailto:nccarf2013@yrd.com.au) before **5pm 30th January 2013**

## Conference Update

Climate Adaptation 2012: Delivering knowledge, building partnerships. 24-27th June 2013, Sydney, Australia. **Abstracts due 15th February 2013.** <http://www.nccarf.edu.au/conference2013/>

European Climate Change Adaptation Conference. March 18-20th 2013. Hamburg, Germany. **Abstract submission closed.** <http://eccaconf.eu/index.php/page/ECCA>

On-Climate 2013. 18-19th July 2013. Port-Louis, Mauritius. **Abstracts due 11 December 2012.** <http://on-climate.com/the-conference/>



## About the Adaptation Research Network for Terrestrial Biodiversity

The Adaptation Research Network for Terrestrial Biodiversity is one of eight Research Networks administered by the National Climate Change Adaptation Research Facility - [www.nccarf.edu.au](http://www.nccarf.edu.au).

It is hosted by James Cook University in Townsville.



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## TB Network Partners

