

**NAME** **Kenneth David Clarke**

**DATE OF BIRTH** 12 December 1977

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**DRIVERS LICENCE** Current car

## **EDUCATION**

- 2005 – 2008 **Doctor of Philosophy** (University of Adelaide)  
Thesis title: Landscape scale measurement and monitoring of biodiversity in the Australian rangelands
- 2000 **Bachelor of Environmental Management (Hons)** (University of Adelaide)  
Thesis topic: Remote sensing of dryland salinity in South Australia
- 1996 – 1998 **Bachelor of Natural Resource Management** (University of Adelaide)

## **AWARDS**

- 2011 **Asia-Pacific Spatial Excellence Award:** Environmental Sustainability Industry Award – for the project "Spatial and temporal monitoring of soil erosion risk with satellite imagery"
- 2011 **South Australian Spatial Excellence Award:** Environmental Sustainability Industry Award – for the project "Spatial and temporal monitoring of soil erosion risk with satellite imagery"
- 2009 **Asia Pacific Spatial Excellence Award:** excellence in a student project at the postgraduate level
- 2009 **South Australian Spatial Excellence Award:** excellence in a student project at the PhD or Masters level
- 2006 **14<sup>th</sup> Biennial Conference of the Australian Rangeland Society**  
Young researcher prize for best student paper (only prize awarded at conference)
- 2005 **South Australian Awards for Spatial Research and Development:** Spatial Commercialization and Industry Award

## **PUBLICATIONS**

### **Papers**

Clarke, K., Brandle, R., Lewis, M., and Ostendorf, B., (2011), 'Not-detection errors in a survey of persistent, highly-detectable vegetation species.' *Environmental Monitoring and Assessment*. DOI: 10.1007/s10661-011-1991-0.

Clarke, K., Lewis, M., and Ostendorf, B., (2010), 'Additive partitioning of rarefaction curves: removing the influence of sampling on species-diversity in vegetation surveys.' *Ecological Indicators*, 11:1, 132-139. DOI: 10.1016/j.ecolind.2010.07.002.

Clarke, K., Lewis, M., Ostendorf, B., and Dutkiewicz, A. (reviewed, under revision), 'New MODIS index improves discrimination of soil from vegetative cover in agricultural lands.'

### **Conference Proceedings**

Clarke, K., Lewis, M., and Ostendorf, B. (2010). The use of MODIS imagery to monitor soil erosion risk in SA Agricultural Land. 15th Australasian Remote Sensing and Photogrammetry Conference, 13 - 17 September, Alice Springs, Australia.

Clarke, K., Lewis, M., and Ostendorf, B. (2010). The use of MODIS imagery to monitor soil erosion risk in SA Agricultural Land. Surveying & Spatial Sciences Institute South Australia Spatial Information Day, 13 August 2010, Adelaide, Australia.

Lewis, M., Clarke, K. and Ostendorf, B. (2009). Spatial and temporal monitoring of soil erosion risk in southern Australian agricultural lands with MODIS imagery. Surveying & Spatial Sciences Institute Biennial International Conference, 28 September – 2 October 2009, Adelaide, Australia

Clarke, K., Lewis, M., Ostendorf, B., 2008 'Remotely sensed surrogates of biodiversity stress.' 14th Australasian Remote Sensing and Photogrammetry Conference, Darwin, Australia.

Clarke, K., Lewis, M., Ostendorf, B., 2006, 'Assessing the potential of MODIS imagery for agricultural land condition monitoring.' 13th Australasian Remote Sensing and Photogrammetry Conference, Canberra, Australia.

Clarke, K., Lewis, M., Ostendorf, B., 2006, 'Limitations of vegetation surveys: Characterising plant species richness.' 14th Biennial Conference of the Australian Rangeland Society, Renmark, Australia.

Butterly, C., Clarke, K., Jassogne, L., 2006, 'Postgraduate student retreat: Interaction, knowledge and support.' 7th Quality in Postgraduate Research, Glenelg, Australia.

### **Reports**

Clarke, K., Clark, M., Lewis, M., 2012, 'Lake Hawdon inundation regime characterisation by remote sensing.' Adelaide, The University of Adelaide, report for the South Australian Department of Environment, Water and Natural Resources.

Clarke, K., Lewis, M., Dutkiewicz, A., Forward, G., and Ostendorf, B., 2011, 'Spatial and Temporal Monitoring of Soil Erosion Risk with Satellite Imagery.' Land Condition Monitoring Reports, Report 4. Adelaide, The University of Adelaide, report for the South Australian Department for Environment and Natural Resources.

Lyle, G., Clarke, K., Hobbs, T., Kilpatrick, A., Summers, D., Ostendorf, B., 2009, 'Land Use Planning for Sustainable Production Systems.' Adelaide, The University of Adelaide, report for the South Australian Department of Water, Land and Biodiversity Conservation.

Clarke, K. and Lewis, M., 2009, 'Development of a satellite image-based land condition monitoring system for South Australian agricultural regions.' Adelaide, The University of Adelaide, report for the South Australian Department of Water, Land and Biodiversity Conservation.

Clarke, K., Lewis, M. and Ostendorf, B., 2004, rev. 2009, 'Assessing the potential of MODIS imagery for monitoring land condition in the crop lands and non pastoral lease rangelands of South Australia.' Adelaide, The University of Adelaide, report for the South Australian Department of Water, Land and Biodiversity Conservation.

## **CAREER**

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| 1994 – Present | <b>Elysium family property/investment (personal)</b>  |
| 2011 – Present | <b>University of Adelaide</b><br>Postdoctoral Research Associate and TERN AusCover South Australian Node Officer  |
| 2008 – 2011    | <b>University of Adelaide</b><br>Postdoctoral Research Associate on ARC Linkage Project with South Australian Department of Environment and Natural Resources (DENR): Spatial and temporal monitoring of soil erosion risk with satellite imagery |
| 2012 – Present | <b>Surveying and Spatial Sciences Institute (SSSI) (volunteer)</b>  |
| 2009 – 2010    | Remote Sensing and Photogrammetry Commission Representative   |
| 2007 – 2008    | <b>Surveying and Spatial Sciences Institute (SSSI) (volunteer)</b><br>South Australian Editor: Spatial Sciences Magazine  |
| 2005 – 2007    | <b>University of Adelaide</b><br>Demonstrator for undergraduate subjects: Remote Sensing III, Spatial Information and Land Evaluation, Environmental Biology I  |
| 2004           | <b>University of Adelaide</b><br>Professional research officer: Literature review, remote sensing analysis, GIS analysis, report writing, map production  |
| 2001 – 2004    | <b>South Australian Department for Environment and Heritage, Environmental Information Directorate</b><br>Remote Sensing Specialist: remote sensing analysis, GIS analysis, report writing, map production, client liaison.                       |
| 2003           | <b>Apogee Imaging International</b><br>Remote Sensing Specialist: satellite imagery sales, tender management, report writing, map production, client liaison.   |

2000                      **University of Adelaide**  
Project work: collect ground-truth data

### **Experience**

As an undergraduate student in Natural Resource Management my studies touched on fields including biology, chemistry, environmental toxicology, microbiology, soil fertility, entomology, remote sensing, GIS, economics and statistics. Finally, I completed my undergraduate studies with honours in Environmental Management, focusing on the use of remote sensing for dryland salinity monitoring in South Australia.

In 2008 I completed my Doctorate of Philosophy in which I researched novel remote sensing approaches to improve biodiversity monitoring and management in the South Australian rangelands. This work has the potential to improve biodiversity management and conservation in Australia, assisting in the preservation of endangered plants and wildlife.

Through 2007/08 I was the South Australian editor of the new Australian Spatial Sciences Magazine. This included primary responsibility for the South Australian regional section and joint responsibility with 8 other editors for national content. During this period I successfully headed an initiative to transform the magazine from black and white print to full colour electronic media.

Through 2009 I was the South Australian representative on the Remote Sensing and Photogrammetry Commission of the Surveying and Spatial Sciences Institute.

Since finishing my PhD I have completed two post doctoral projects on the spatial and temporal monitoring of soil erosion risk with satellite imagery. Both of these projects were collaborations with the South Australian Department of Environment and Natural Resources (DENR), and the last project was an ARC Linkage Project. The linkage partner, DENR, is now in the process of implementing the soil erosion risk monitoring method we developed.

I am now employed as a postdoctoral research associate and the TERN AusCover South Australian Node Officer. My duties include co-supervision of postgraduates, contract research and remote sensing consultancy work, assisting in the running of a lab group, and product development for AusCover.

### **Teaching**

From 2004 I have taken every opportunity to assist in teaching. Under the auspices of the University of Adelaide discipline of Soil and Land Systems I have had the opportunity to teach at several levels from high-school students, through to undergraduate and post-graduate students. My responsibilities have ranged from co-demonstrator for 30 undergraduate students to prime responsibility for 30 high-school students, and from demonstrating established practicals to creating and conducting new lectures. My latest lecture introduced the history, principals and applications of remote sensing to a class of geographic information systems (GIS) students, and was created by myself from predominantly new material and some material borrowed from Associate Dean of Research, Megan Lewis.

Topics covered in practicals and lectures include GIS, map reading, air photo interpretation, basic surveying methods, biology, experimental design, and the history, principals and applications of remote sensing.

### **Research Interests**

I am interested in understanding, monitoring and managing natural and built systems at broad scales. My interest stems from a belief that human aspirations and intrinsic environmental values are equally important. I believe that, with the right information and perspective, we can pursue our aspirations and improve our environmental stewardship.

To further my ability to collect the information necessary to inform good decision making I have studied and worked to develop remote sensing and spatial analysis expertise. This has included work at the University of Adelaide and in the South Australian Department for Environment and Heritage which provided the opportunity to develop and utilise my analytical skills to solve environmental problems. Similarly, my honours and PhD research has allowed me to spatially examine important environmental problems.

Finally, I am intrigued by the field of ecosystem services, which allows the framing of ecological management in economic terms. I believe this concept, informed by the Spatial Sciences, will allow better communication of good science to policy makers, leading to better outcomes for both the environment and society.

### **OTHER INTERESTS**

My personal interests are varied but include the outdoors, the environment, computers and science. I am a senior member of a computer gaming group that hosts a Minecraft survival multiplayer server for group members, and which meets online weekly to play team-based games. I also regularly geocache, cycle and rock climb.

### **REFEREES**

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