



# NGRREC Welcomes Ecologist Anthony Dell

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*Ecologist Anthony Dell, shown here, joined NGRREC<sup>SM</sup> in fall 2014.*

ALTON – The National Great Rivers Research and Education Center (NGRREC?) is proud to welcome Ecologist Anthony Dell to its research team.

Dell, who spends his days running field and laboratory experiments, analyzing data and writing scientific papers, was hired in fall 2014.

“NGRREC is a unique institution, with a realistic goal of becoming a global leader in understanding the socioecology of large river systems across the planet,” Dell said. “Our research station has state-of-the-art facilities, and the volunteers, staff and management team here provide an extraordinarily supportive environment for the important policy-relevant research and education that we undertake.”

Dell has broad interests in ecology, but is currently focused on several larger research projects. These include the ecological effects of temperature, which is critical for understanding the current and predicted effects of global warming and determining the role of animals and plants in the cycling of nutrients across the planet.

“We have a large project just starting in the Amazon (French Guiana) that will use natural gradients in nutrient levels, combined with manipulative field experiments, to understand how nutrient enrichment, like nitrogen and phosphorus, affect how animals move, behave and ultimately interact with each other,” Dell said. “All the different microbes, plants and animals that comprise ecosystems and the ecological interactions between organisms are critical for maintaining ecosystem structure and dynamics. Humans are having huge impacts on nutrient cycling globally, so a more comprehensive understanding of the ecological effects should have important basic and applied benefits. The goal here is to go beyond simply showing that humans are affecting natural processes. What we need to do is provide policy-relevant research that will better allow us to manage the needs of both human societies and the natural environment well in to the future.”

Another project Dell is involved with is the Moorea Island Digital Ecosystem Avatar (IDEA), which aims at developing the first avatar, or digital simulation, of a complete socio-ecological system. The IDEA Project will build advanced computational models of a range of complex socioecological systems.

“Although modeling entire socio-ecological systems is still in its infancy, doing so will prove scientifically productive in the short-term and is societally essential in the long-term,” Dell said. “The Moorea IDEA will incorporate observations, experiments, data and theory across a coupled four-dimensional marine-freshwater-terrestrial landscape to model how physical, chemical, biological and social processes interact to shape the

island's phenotype. While the current focus of this project is a tropical island, once we have the methods resolved, we plan to use the approach to understand the socioecology of large river systems globally."

This project was just featured in the scientific journal Nature.

Other projects that will be undertaken by Dell's research group will be focused more locally, including using state-of-the-art infrared and thermal cameras to monitor animal communities in and around large rivers and their catchments.

"Together with John Crawford, another ecologist at NGRREC?, we will use these methods to better gauge how vertebrates, ranging from salamanders and frogs to larger mammals and birds, are impacted by the physical environment," Dell said.

Dell and Crawford were recently successful in securing funds through NGRREC's summer intern program to have two students work on this project. Dell also hopes to use these remote camera methods to more accurately and easily monitor the health of freshwater and terrestrial landscapes around the local region, for instance in figuring out the effectiveness of habitat restoration.

Dell has published almost 20 scientific articles, including in prestigious multi-disciplinary journals like Nature and the Proceedings of the National Academy of Science. Details of Dell's research laboratory and current projects can be found at [www.dellecologylab.org/research](http://www.dellecologylab.org/research).

Passionate about biology, Dell enjoys working both outdoors and in the lab. He especially appreciates the diversity of his work.

"Everyday is something different," Dell said. "Each day I get to interact with interesting people about interesting things - it's intellectually stimulating and never boring."

From an early age, he has loved the outdoors.

"Like many kids, I have always been passionate about nature," Dell said. "I was always outside, chasing insects, frogs, lizards and anything else I could get my hands on. Of course, growing up in Australia meant this was a little more dangerous than most places! I guess I just never grew out of it. Once I found out that being an ecologist was a realistic goal for me, I never looked back. I honestly can't imagine doing anything else. I love my job."

Dell earned both his bachelor's degree and doctorate in ecology from James Cook University in Queensland, Australia. Before joining NGRREC?, he was a postdoctoral

researcher at the University of California, Los Angeles, (UCLA) and then at the University of Göttingen, Germany.

The National Great Rivers Research and Education Center is a partnership of Lewis and Clark Community College, the University of Illinois at Urbana-Champaign, and the Prairie Research Institute's Illinois Natural History Survey. NGRREC? aspires to be a leader in scholarly research, education and outreach related to the interconnectedness of big rivers, their floodplains and watersheds, and the people who use them.

For more information, visit [www.ngrrec.org](http://www.ngrrec.org).