

World-first crocodile gene map

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A University of Sydney PHD student has developed the world's first genetic map of a crocodile - or indeed any reptile - in research seen as a potential boon for Australia's multimillion dollar export industry.

PhD student Lee Miles, supervised by [Professor Chris Moran](#), worked with Dr Sally Isberg from the Darwin Crocodile Farm in the Northern Territory and

international collaborators to analyse families of farmed salt-water crocodiles and map their genetic profile.

The map they developed, published in the journal *BMC Genomics*, can be used to identify genes of economic importance to the export industry, such as those affecting juvenile survival, growth rates and skin quality.

"The crocodile is a very charismatic organism, but there have been surprisingly very little genetic or genomic resources available prior to this map," Miles said.

"As part of my PhD I was fortunate to have been involved in this collaboration between the University of Sydney, Darwin Crocodile Farm and the University of Georgia in the USA, and it is very satisfying to know that the outcomes of our research will be of value to both future research efforts, as well as industry.

"We've taken that first difficult step and I am certain that even more exciting research will follow."

The map is expected to help determine the selection of crocodiles to breed in captivity. At present there is 10-15 per cent mortality in the first year, with no guide as to which crocodiles will fare better than others in a farmed environment.

In 2006 several thousand farmed baby crocodiles in the Northern Territory unexpectedly died. The deaths - at first a mystery - were later determined to have been caused by *Chlamydia*, but many more crocodiles die every year from unidentified causes.

The map is also expected to be a key resource for evolutionary biologists interested in related crocodylians. Some of the genetic markers are already being used in ecological studies of an endangered species in Africa.

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