

Study on brain shrinkage shifts to Tassie Devils

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The quality of captive breeding enclosures and time spent in them may be crucial to the success of marsupials once released back to the wild, new research suggests.

Victoria University [ecologist](#) Dr Patrick Guay measured the brains of Stripe-faced Dunnarts – small mouse-sized Australian marsupials – bred in captivity over several generations and found those kept in an enriched environment showed little or no decrease in [brain](#) size.

This is significant as captive-bred animals typically have smaller brains than wild relatives, resulting in poorer skills for nesting, avoiding predators, finding food and rearing young.

“This study on Dunnarts shows the importance of enriched enclosures and, if possible, short-term captivity for successful breeding and returning of endangered animals to the wild,” Dr Guay said. “Hopefully, this will help improve the success of [captive breeding](#) programs for many of our endangered or critically endangered marsupials, including the Tassie Devil”.

The study will now be extended to focus specifically on Tasmanian Devils, which are the focus of a national breeding program at Healesville Sanctuary and other institutions to save them from extinction.

Dr Guay’s new study with Zoos Victoria, the Zoo and Aquarium Association and the Save the Tasmanian Devil Program will measure the

skulls of deceased devils from zoos and wildlife parks across Australia to see whether captive-bred devils retain wild brain sizes.

“Reduced brain size may be used as a warning sign,” Dr Guay said. “If we find current captive breeding strategies have led to reduced brain size we need to do something about it before captive bred threatened species, including devils, become domesticated zoo animals that can never be released back into the wild.”

He said the aim of an enriched captive breeding environment was to provide animals with features and activities to stimulate natural behaviours.

Scientists have long thought these factors important to maximise reintroduction success, but Dr Guay’s study on Dunnarts with Zoos Victoria and The University of Melbourne’s Department of Zoology showed the level of brain reduction may be a major reason why.

The Dunnart study will be published in *Zoo Biology*.

Provided by Victoria University

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