

Successful live-birth in the tammar wallaby, *Macropus eugenii*, using intrauterine artificial insemination (IUAI) and laparotomy

Damien B.B.P. Paris¹, David A. Taggart², Peter D. Temple-Smith³, Geoffrey Shaw¹ and Marilyn B. Renfree¹.

¹Dept. Zoology, University of Melbourne, Vic. 3010.

²Dept. Environmental Biology, University of Adelaide, Frome Road, Adelaide, S.A. 5005.

³Dept. Conservation and Research, Zoos Victoria, P.O. Box 74, Parkville, Vic. 3052.

Artificial insemination (AI) in marsupials will provide a vital management tool for endangered species to maximise animal numbers and genetically supplement inbred populations in the field and captivity. In this study, the tammar wallaby (*Macropus eugenii*) was used as a model to develop AI for potential application in various species of endangered macropods including the brush-tailed rock wallaby and long-nosed potoroo.

The reproductive cycle of 24 females was synchronised by removing their pouch young (RPY), which resulted in reactivation of the diapausing embryo, birth 26.2 ± 0.7 days later and an oestrus lasting approx 1 to 6 hours post partum. Females were isolated from males from the time of RPY. Semen collected by electroejaculation on the day of birth was used for artificial insemination into 4 different regions:

- (i) urogenital sinus via syringe (n=7)
- (ii) median & anterior lateral vaginae via catheter (n=7)
- (iii) uterus via a transcervical catheter during laparotomy (n=5)
- (iv) uterus directly (IUAI) via needle during laparotomy (n=5)

Each female had their second pouch young removed to allow for any successful AI fertilisations to develop directly through to birth.

One of the five females inseminated by direct IUAI gave birth (20% success and 4.2% success of all animals artificially inseminated). This is the first live-born macropodid offspring produced by artificial insemination.

Applicant for Bolliger Award

Blue whales: critical feeding habitat in the Bonney Coast upwelling region.

Peter Gill

Blue Whale Study, Marine and Migratory Wildlife Group, School of Ecology and Environment, Deakin University, Warrnambool.

Blue whales *Balaenoptera musculus* are still at less than 1% of pre-whaling abundance, making them one of the most threatened cetacean species. These enormous predators are specialist feeders on euphausiid crustaceans (krill), and gather in only a handful of regions around the world to feed. Blue whales were "discovered" feeding near the Victoria/South Australia border in 1995. Since 1998, an ecological study has found that blue whales feed seasonally in this region, and has examined the links between blue whales and the environment.

Between November and April-May each year, south-east winds force upwelling along the narrow shelf between Cape Otway and Robe (and beyond). Enhanced primary production in shelf waters supports great abundance of the whales' prey, the coastal krill *Nyctiphanes australis*. Krill and whales aggregate along the surface plume of the Bonney Coast upwelling (Australia's most prominent upwelling), but are also commonly found in waters to its east, where the study has shown that sub-surface upwelling occurs over a wide area. Surface feeding has been frequently seen during more than 350 sightings since 1998.

The Commonwealth is investigating management options for this region, to ensure that human activities do not hinder the fragile recovery of this magnificent mammal.



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