PARIS[1*], Damien B.B.P.; Taggart[1,2], David A.; Temple-Smith[3], Peter D.; Shaw[1], Geoffrey; and Renfree[1], Marilyn B.
[1]Department of Zoology, University of Melbourne, Vic. 3010
[2]Department of Environmental Biology, University of Adelaide, Frome Road, Adelaide, S.A. 5005
[3]Department of Conservation and Research, Zoos Victoria, P.O. Box 74, Parkville, Vic. 3052

TIMING OF INTRAUTERINE ARTIFICIAL INSEMINATION (IUAI) IN RELATION TO OVULATION IN THE TAMMAR WALLABY, *MACROPUS EUGENII*

The window for fertilization is narrow in marsupials because the oocyte is transported rapidly through the oviduct (<24h) and acquires a mucoid coat that entraps and inhibits sperm penetration. Knowledge of the precise time of ovulation is required in the tammar wallaby, *Macropus eugenii*, to maximise artificial insemination (AI) success. In this study, the timing of ovulation in female tammars was monitored in relation to different times for intrauterine artificial insemination (IUAI).

The reproductive tracts of 10 females were dissected at 36 to 41h post coitum (p.c.) and assessed for ovulation. After ovulation, tracts were flushed for embryos. A further 13 females were isolated from males for AI and checked for births every 12h. Semen ($^{3}10^{6}$sperm) was deposited into the uterus via laparotomy at different times between 21.7-42.6h after birth was first detected. Ovaries were examined and tracts flushed for embryos in 4 females at 6h post AI, while 9 were left to give birth.

Mating occurred 12.4±2.7h (n=10; 4.1-28.4h) after birth was first detected. Graafian follicles were observed at 36.0±0.0h p.c. (n=3; all 36.0h) and embryos at 39.4±1.4h p.c. (n=7; 36.0-41.0h). Thus ovulation occurs 36.0 to 39.4h p.c. (~48.4 to 51.8h post partum). A fertilized embryo was recovered 6.4h post AI (~49.0h p.p.) and one AI offspring was born after insemination 34.0h p.p. This confirms that anaesthesia and laparotomy do not suppress ovulation, and that spermatozoa reach the oocyte in time for successful fertilization after IUAI between 34.0 and 42.6h after birth.

PIETRZYKOWKSI[AB], Elizabeth; McArthur[AB*], Clare; Fitzgerald[A], Hugh; and Goodwin[C], Adrian N.
[A]CRC for Sustainable Production Forestry
[B] School of Zoology, University of Tasmania, GPO Box 252-05, Hobart TAS 7001
[C] Forestry Tasmania, GPO Box 207, Hobart TAS 7001

FORAGING PATTERNS OF RED-BELLIED PADEMELONS AND OTHER MARSUPIAL HERBIVORES IN RELATION TO VEGETATION PATCHES

Herbivores can make foraging decisions at any spatial scale showing vegetation heterogeneity. When feeding within habitats, herbivores can choose to feed and move between patches of vegetation, as well as choosing to consume foliage from individual plants. For generalist herbivores, consumption of an individual plant may depend just as much on characteristics of neighbouring plants as on its own characteristics. We examined the hypothesis that neighbouring plant or patch characteristics affected consumption of tree seedlings by several marsupial herbivores. On an ex-pasture plantation, we planted pine seedlings (*Pinus radiata*) in patches of vegetation varying in quality (palatability) and structure (height relative to seedlings), and measured browsing of the seedlings over time. The main herbivores at the site were red-bellied pademelons (*Thylogale billardierii*), Bennett's wallabies (*Macropus rufogriseus rufogriseus*) and common brushtail possums (*Trichosurus vulpecula*). Browsing of pine seedlings was greatest in palatable, short vegetation (grass), intermediate in high quality, tall vegetation (*Lomandra longifolia*) and least in low quality tall vegetation (bracken and shrub). Patch structure also affected browsing: in low quality patches, pine seedlings were browsed more in short vegetation patches (12 – 24 cm shorter than the seedling) than in tall vegetation patches (at least as tall as the seedling). This difference was at least partly because herbivores took, on average, two weeks longer to locate seedlings in tall than in short vegetation. These results demonstrate that attempting to explain consumption of plants simply by their own characteristics ignores the important interactive effect between plant species on foraging behaviour of generalist herbivores.

ABSTRACTS

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Spoken papers pages 1-37
* Asterisks indicate the person delivering the paper

Poster papers pages 39-49