

**The 3<sup>rd</sup> International Symposium on Assisted Reproductive Technology  
for the Conservation and Genetic Management of  
Companion Animals, Non-Domestic and Endangered Species (CANDES)**

Saturday, 29 July 2006, Omaha's Henry Doorly Zoo's Wild Kingdom Pavilion

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*Sponsored by:*

*The Bill & Berniece Grewcock Center for Conservation & Research at Omaha's Henry Doorly Zoo and the  
International Embryo Transfer Society's Parent Committee on CANDES*

**INVITED SPEAKER ABSTRACTS**

**UNIQUE MALE REPRODUCTIVE STRATEGIES IN CANDES**

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Sexual conflict exists in many species due to the male drive to maximize individual paternity success versus the female need to choose mates of superior quality to ensure offspring fitness. Selective forces in this sexual arms race include pre-copulatory and sperm competition between males, and sexual selection and post-copulatory cryptic choice of males by females. As a consequence, a diverse array of unique male reproductive strategies has evolved to facilitate transmission of a male's genes to the next generation. These strategies are employed by males before, during and after the fertile period of the female. At the behavioral level, male strategies include voluntary/enforced monogamy, mate guarding, repeat mating and sneak breeding. Sneak breeding in some reptiles and fish has led to the evolution of multiple male morphotypes within a single species, each with its own unique reproductive strategy. In addition, many male fish exclusively rear their own young to guarantee survival. Such behavior has resulted in extreme physiological adaptation in the male seahorse that has a specialized brood pouch in which oocytes are fertilized and embryos develop in a protected environment. Morphological adaptation in other structures such as the penis has yielded alternative mating strategies including copulatory locking and sperm removal to avoid cuckoldry and sperm competition. To insure paternity success in many polyandrous species, unique strategies also occur at the ejaculate level, including superfecundity, sperm co-operation and/or efficient transport in the female tract. Even components of seminal plasma can act as physical or chemical barriers to further copulation or may induce ovulation and sperm storage in females. Pheromones are an additional tool by which males can reproductively suppress sub-ordinates and/or stimulate oestrus in females. Understanding the diversity of these strategies can fill gaps in our existing knowledge, enhance captive management of CANDES species, identify unique factors beneficial in infertility and assisted reproductive technology, and provide insight into our own sexuality. D.P. funded by the European Commission under a Marie Curie Incoming International Fellowship.