

**Peer Reviewed Papers**

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Tubbs CW, Moley LA, Ivy JA, **Metrione LC**, LaClaire S, Felton RG, Durrant BS, Milnes MR. (2016). Estrogenicity of captive southern white rhinoceros diets and their association with fertility. *General and Comparative Endocrinology*, 238: 32-38.

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**Metrione LC**, Bateman HL, Swanson WF, **Penfold LM**. (2018). Characterization of the behavior and reproductive endocrinology of the giant river otter (*Pteronura braziliensis*) in managed care. *Zoo Biology*, 37: 300-309.

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Baquerizo CI, **Penfold LM**, **Gillis JD**, Citino S, Marker L, Crosier AE. (2023). A retrospective analysis investigating the effects of Telazol and medetomidine on ejaculate characteristics in cheetahs (*Acinonyx jubatus*). *Frontiers in Conservation Science*, <https://doi.org/10.3389/fcosc.2023.1293180>.

Flacke GL, **Penfold LM**, Schwarzenberger F, Martin GB, Rosales-Nieto CA, Paris MCJ. (2023). Non-invasive assessment of fecal glucocorticoid and androgen metabolites in the pygmy hippopotamus (*Choeropsis liberiensis*). *General and Comparative Endocrinology*, 341: 114338.

**Gillis JD**, Holt WV, Yon L, Myers GE, Schnellbacher R, Holly R, Love D, **Penfold LM**. (2023). Effects of exogenous oxytocin on the semen characteristic of the Indonesian wild cattle, banteng (*Bos javanicus*), collected by electroejaculation: implications for semen collection techniques and genome resource banking. *Theriogenology Wild*, <https://doi.org/10.1016/j.therwi.2023.100044>.

### **Book Chapters, Manuals**

**Penfold LM**, O'Brien J. (2011). Importation of non-domestic ruminant semen for management of zoological populations using artificial insemination. In: *Fowler's Zoo and Wild Animal Medicine: Current Therapy Vol 7*. RE Miller, ME Fowler. Academic Press, 604-611.

**Penfold LM**. (2013). Reproduction. In: *Zookeeping: An Introduction to the Science and Technology*. MD Irwin, JB Stoner, AM Cobaugh. University of Chicago Press, 190-199.

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Holt WV, **Penfold LM**. (2014). Fundamental and practical aspects of semen cryopreservation. In: *Animal Andrology: Theory and Applications*. PJ Chenoweth, SP Lorton. CAB International, 76-99.

**Metrione L**, Eyres A. (2014). *Rhino Husbandry Manual*. International Rhino Foundation. 327 p.

Swanson WF, **Penfold LM**. (2018). Reproductive technology – captive wildlife breeding: mammals and birds. In: *Encyclopedia of Reproduction 2<sup>nd</sup> Edn*. M Skinner. Academic Press, 782-790.

**Metrione LC**, Flora P, Foster W, **Penfold LM**. (2019). The first bachelor group of African elephants in a North American Zoo. In: *Wellness for Elephants*. MC Morris, VD Segura, DL Forthman, TL Maple. Red Leaf Press, 156-168.

**Penfold LM**, **Wyffels JT**. (2019). Reproductive science in sharks and rays. In: *Reproductive Sciences in Animal Conservation, Advances in Experimental Medicine and Biology*. P. Comizzoli. Springer Nature Switzerland AG, 465-488.

**Penfold LM**, **Gillis JD**, Pye GW. (2021). Exotics and wild species: specificity and disease control or transmission. In: *International Embryo Transfer Society Manual 5<sup>th</sup> Edn*. *In press*.

### **Abstracts**

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- Van der Goot AC, Martin GB, **Metrione LC**, Paris MCJ, Schook MW, **Penfold LM**. (2013). Attempted control of estrus and ovulation in white rhinoceros using a synthetic progestagen and slow-release GnRH analogue. International Elephant and Rhino Conservation and Research Symposium, Pittsburgh, USA.
- Bateman HL, **Metrione L**, Swanson WF. (2014). Reproductive characteristics of captive giant otters. International Otter Congress, Rio de Janeiro, Brazil.
- Sumigama S**, **Penfold LM**, Mylniczenko N. (2014). Development of criteria for categorizing ultrasonographic images of uterine health assessments in the southern stingray (*Dasyatis americanus*). American Association of Zoo Veterinarians, Orlando, USA.
- Adams CA**, **Penfold LM**. (2015). Techniques for determining hormone concentrations in southern stingray (*Dasyatis americana*) plasma using enzyme immunoassay. International Society for Wildlife Endocrinology Conference, Berlin, Germany.
- Daly-Crews K**, Kopel E, O’Leary M, **Metrione L**. (2015). Space-utilization of an innovative exhibit for tigers (*Panthera tigris*). Association of Zoos and Aquariums Annual Conference, Salt Lake City, USA.
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- Mylniczenko ND, **Wyffels JT**, **Penfold LM**. (2016). Progress in understanding reproductive disease in southern stingrays (*Dasyatis americana*). American Association of Zoo Veterinarians, Atlanta, USA.
- Peele EE, Barrington P, Lankford TE, **Wyffels JT**. (2016). Aging bonnethead shark (*Sphyrna tiburo*) pups using umbilicus morphology. American Elasmobranch Society, New Orleans, USA.
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- Wyffels JT**, Bulman F, Coco CS, Fatzinger H, Henningsen A, Jewell J, Martin S, McKnight M, Schreiber CM, Sloan P, **Penfold LM**. (2016). Development and dissemination of tools to access reproductive status of sand tiger sharks (*Carcharias taurus*) and advance the field of assisted reproduction in sharks. Regional Aquatics Workshop, New Orleans, USA.
- Wyffels JT**, **Penfold LM**. (2016). Comparative morphology of shark sperm using light and electron microscopy. American Elasmobranch Society, New Orleans, USA.
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- Gillis JD, Penfold LM.** (2018). Developing assisted reproductive technologies in banteng (*Bos javanicus*) and lowland anoa (*Bubalus depressicornis*). Association of Zoos and Aquariums, Jacksonville, USA.
- Hayes L, **Metrione L.** (2018). Managing 2.3 Sumatran tigers at the Dallas Zoo with an out-of-the-box approach. Felid Taxonomic Advisory Group Meeting, Fresno, USA.
- Metrione LC, Ivy JA, Brewer C, Penfold LM.** (2018). Relatedness in southern white rhinoceros: preliminary results and implications for breeding management at White Oak. Association of Zoos and Aquariums, Jacksonville, USA.
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- Adams CL , Wyffels JT, Penfold LM.** (2019). Relationship between thyroid and testosterone hormones in aquarium and wild sand tiger sharks (*Carcharias taurus*). International Society of Wildlife Endocrinology, Skukuza, South Africa.
- Metrione LC, Kruse C, Wesley B, Hunter D, Penfold LM.** (2019). Relationships of nutrition to fecal glucocorticoid metabolites in bison (*Bison bison*). International Society of Wildlife Endocrinology, Skukuza, South Africa.
- Metrione LC, Price C.** (2019). Characterization of *ex situ* sand tiger shark habitat use and behavior: using ZooMonitor to understand well-being and reproduction. Association of Zoos and Aquariums, New Orleans, USA.
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- Gillis JD**, Woad KJ, Watts JA, Holt WV, **Penfold LM**, Yon L. (2020). Comparison of directional and conventional cryopreservation methods for domestic boar (*Sus domesticus*) sperm. *Cryobiology*, 97: 305.
- Metrione L**, **Pham Ho NK**, Price C, Duskin L, Stamper MA, **Penfold L**. (2020). Characterization of sand tiger shark space use and behavior to understand wellbeing and reproduction. Association of Zoos and Aquariums Virtual Conference.
- Anderson CE, **Gillis JD**, Miller SN, Davis MR. (2021). Production of live offspring from unilateral (left) ovariectomized Potamotrygon rays (*Potamotrygon castexi*, *P. leopoldi*, *P. motoro*). International Association for Aquatic Animal Medicine, Tampa, USA.
- Eade L, Kelly E, Janssen J, **Metrione L**. (2021). Understanding aggressive and dominance relationships to guide management of ex situ *Carcharhinus melanopterus*. Association of Zoos and Aquariums Virtual Conference.
- Gillis JD**. (2021). How do mating systems influence biobanking strategies? Association of Zoos and Aquariums Virtual Conference.
- Gillis JD**, Montano G, **Penfold LM**. (2021). Comparison of conventional and controlled rate freezing methods to cryopreserve white spotted bamboo shark (*Chiloscyllium plagiosum*) sperm: implications for elasmobranch biobanking efforts. *Reproduction, Fertility, and Development*, 34: 245.
- Mowle, K**, **Penfold, LM**. (2021). Determining baseline sex steroid hormone concentrations in adult and juvenile zebra sharks (*Stegostoma fasciatum*). International Society of Wildlife Endocrinology Virtual Conference.
- Penfold L**, **Wyffels J**, O’Neil K, Moura A. (2021). Temporal ultrastructure changes in staghorn coral (*Acropora cervicornis*) sperm: implications for fertility. *Reproduction, Fertility and Development*, 34: 242-243.
- Pham Ho NK**, **Metrione L**, Price C, Duskin L, Stamper MA, **Penfold L**. (2021). Three-dimensional GIS: from visualization to analysis, a technique to incorporating depth into habitat use descriptions for aquariums. Association of Zoos and Aquariums Virtual Conference.
- Stoops M, **Metrione L**, **Gillis JD**, Wojtusik J, Bezjian M, Flacke G, Myers G, James M, **Penfold LM**. (2021). Successful artificial insemination with induced ovulation in a fully anesthetized greater one-horned rhino. Association of Zoos and Aquariums Virtual Conference.
- Gillis JD**, Yon L, **Penfold LM**. (2022). Effects of exogenous oxytocin on semen characteristics in banteng (*Bos javanicus*) and lowland anoa (*Bubalus depressicornis*). *Reproduction, Fertility, and Development*, 35: 140-141.



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**Penfold L**, Pukazhenti B, Lavin S. (2022). Challenges and considerations for biobanking for zoos and aquaria: a mammoth undertaking. *Reproduction, Fertility and Development*, 35: 141-142.

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**Mowle K**, **Penfold L**, Hyatt M. (2023). Using a synthetic GnRH agonist to modulate aggression in male cownose rays (*Rhinoptera bonasus*): evaluating effectiveness with an enzyme-linked immunoassay. Joint Meeting of Ichthyologists and Herpetologists, Norfolk, USA.

**Pham NK**, Matsushige L, Carlson P, Penfold L. (2023). Sea-ing is believing: exploring seadragon reproductive events with data visualization tools. 37th Regional Aquatics Workshop, Dubuque, USA.

### **Newsletters and Non-scientific Publications**

Kopel EM, **Daly-Crews K**, **Metrione L**. (2016). Location and activity preferences of tigers living in a complex habitat. *Animal Keeper Forum*, 43: 254-258.

**Gillis JD**. (2019). Exciting PhD research: Advancing genome resource banking methods for Action Indonesia GSMPs'. *Action Indonesia Newsletter*, p. 2.

Hayes L, **Metrione L**. (2019). Managing 2.3 Sumatran tigers in a rotating group system to mitigate potential social stress and promote breeding at the Dallas Zoo. *Animal Keeper Forum*, 46: 10-16.