Reproduction, Fertility and Development

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Table 1. Biochemical composition of follicular fluid (FF) and serum from alpacas (*Vicugna pacos*) under 2 nutritional planes

Nutritional plane	Glucose		Cholesterol		Triglycerides		Proteins	
	FF (mg dL^{-1})	serum (mg dL^{-1})	FF (mg dL^{-1})	Serum (mg dL^{-1})	FF (mg dL^{-1})	Serum (mg dL^{-1})	FF (g dL^{-1})	Serum (g dL^{-1})
High	74.3 ± 85.5[a]	128.6 ± 157.2	186.2 ± 34.9[a]	18.7 ± 6.7[a]	270.2 ± 61.3	123.8 ± 1.9	23.1 ± 40.1	22.4 ± 37.5
Low	156.1 ± 24.9[b]	193.0 ± 29.9	452.4 ± 63.3[b]	30.7 ± 11.8[b]	343.4 ± 94.9	17.4 ± 12.1	29.4 ± 54.2	21.6 ± 24.1

[a,b]Different superscripts within a column represent statistical difference ($P < 0.05$).

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97 Social Dominance does not Affect Semen Quality in African Wild Dogs (*Lycaon pictus*)

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Sperm banking and AI could benefit conservation of endangered African wild dogs (AWD). However, it is not clear whether their strict dominance hierarchy causes subfertility in subdominant males that typically do not breed. Our study investigated the effect of dominance on male reproductive parameters, including faecal glucocorticoids (fGCM) and androgens (fAM), testis and prostate volume, preputial gland size, semen collection success, and the number, motility, morphology, viability, acrosome integrity (PSA-FITC), and DNA integrity (TUNEL) of spermatozoa collected by electroejaculation. Samples were obtained from $n = 12$ captive AWD (4 US packs) in the pre-breeding season and $n = 28$ captive AWD ($n = 11$ from 4 US packs; $n = 17$ from 3 Namibian packs) in the breeding season. Male hierarchy was clearly determined by behavioural observations in all but 1 Namibian pack. Data were grouped by dominance status and means were compared by ANOVA or *t*-test; $P \leq 0.05$ was significant. In the pre-breeding season, there was no significant difference in body weight, fGCM, fAM, or prostate and testis volume between dominance groups. Semen was successfully collected from all alphas but only half the subdominants; urine contamination was negatively associated with dominance. Sperm quality was low (17.3 ± 10.2% total motility, 12.8 ± 8.5% progressive motility, 27.4 ± 11.5 × 10^6 ejaculated spermatozoa, 40.6 ± 9.8% normal morphology, 63.1 ± 5.1% viability, 72.6 ± 5.2% acrosome integrity) with no difference observed in any parameter except progressive motility and normal sperm morphology, which were significantly lower in subdominants (27.7 ± 16.8% *v.* 0.0 ± 0.0% and 59.8 ± 13.0% *v.* 21.4 ± 5.7%). From pre-breeding to breeding season, testis and prostate volume increased significantly, particularly in beta and gamma males respectively. Prostate volume was higher in alpha than beta males (16.0 ± 6.4 cm^3 *v.* 5.7 ± 1.4 cm^3), but testis volume, body weight, fAM, and fGCM did not differ between dominance groups (12.0 ± 0.9 cm^3, 28.5 ± 0.8 kg, 0.51 ± 0.07 μg g^{-1}, and 30.6 ± 2.3 ng/g of dry weight). Semen was successfully collected from 75% of males with reduced urine contamination. Collection success, urine contamination, and preputial gland size were not associated with dominance. Sperm quality improved with significantly greater number, viability, and total motility. However, sperm quality did not differ between dominance groups (47.4 ± 6.7% total motility, 30.5 ± 5.8% progressive motility, 32.3 ± 9.2 × 10^6 ejaculated spermatozoa, 50.9 ± 5.2% normal morphology, 74.4 ± 4.2% viability, 85.6 ± 3.0% acrosome integrity, and 99.7 ± 0.1% DNA integrity). In conclusion, subdominant males are at higher risk of urine contamination and have lower sperm motility and normal morphology when semen is collected in the pre-breeding season. However, their semen is of similar quality to dominant males in the breeding season, indicating that reproductive suppression of subdominant males is only behavioural. Thus, AWD males of all social ranks in the breeding season are suitable candidates for sperm banking.

98 Assessing Endangered Felid *Puma concolor* Sperm Fertility by *In Vitro* Fertilization with Domestic Cat Oocytes

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The *Puma concolor* population has been decreasing during the last 30 years. Semen cryopreservation of this species has been accomplished successfully and offers the possibility of preserving endangered species. We previously showed that fertilizing capability of wild felid spermatozoa can be evaluated using intracytoplasmic sperm injection (ICSI) with *in vitro*-matured domestic cat oocytes (Moro *et al.* 2014 Reprod. Domest. Anim. **49**, 693-700). Due to the lack of homologous oocytes, we evaluated the capability of the *Puma concolor* sperm to induce domestic cat oocyte fertilization and subsequent pre-implantation embryo development. In the present study, cryopreserved sperm obtained by electroejaculation from five different males were used for IVF of *in vitro*-matured (IVM) domestic cat oocytes. Straws were thawed by exposing them to air for 10 s and then