Sex differences in cooperation: A mammalian perspective

Supplementary Materials

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Supplemental Results

Model 1: No predictors

Full summary of Model 1, estimating the likelihood of female-only coalitions, male-only coalitions, and coalitions by both sexes, without any predictors. Note that coalitions by both sexes is the reference level, hence we are only estimating the probabilities of female only and male only coalitions. In order to differentiate coefficients of the female coalitions and male coalitions linear models, we here put the corresponding outcome in parentheses, e.g. Intercept (female bias). All estimates are on the log-odds scale and summarized by the median and 90% credible interval ("lwr90CI" - "upr90CI") of the posterior distribution.

Table S1: Predicting the probability of coalition formation by sex (Model 1)

Parameter	Mean	lwr90CI	upr90CI
Intercept (female bias)	-0.44	-2.06	1.19
Intercept (male bias)	-0.24	-1.88	1.39
Phylo SD (female bias)	0.72	0.03	2.11
Phylo SD (male bias)	1.35	0.27	3.09

Model 2: Mixed-sex vs sex-segregated

Full summary of Model 2, estimating the likelihood of female-only coalitions, male-only coalitions, and coalitions by both sexes in mixed-sex vs sex-segregated species. Note that coalitions by both sexes is the reference level, hence we are only estimating the probabilities of female only and male only coalitions. Mixed-sex is the reference level for the predictor, hence coefficients for sex-segregated species give the change in probability when going from mixed-sex to sex-segregation. In order to differentiate coefficients of the female coalitions and male coalitions linear models, we here put the corresponding outcome in parentheses, e.g. Intercept (female bias). All estimates are on the log-odds scale and summarized by the median and 90% credible interval ("lwr90CI" - "upr90CI") of the posterior distribution.

Table S2: Coalition formation in mixed-sex vs sex-segregated species (Model 2)

Parameter	Mean	lwr90CI	upr90CI
Intercept (female bias)	-0.46	-2.23	1.11
Intercept (male bias)	-0.26	-1.85	1.35
Sex-segregated (female bias)	0.05	-0.82	0.82
Sex-segregated (male bias)	0.03	-0.79	0.86
Phylo SD (female bias)	0.75	0.00	2.14
Phylo SD (male bias)	1.32	0.25	3.06

Model 3: Primates vs non-primates

Full summary of Model 3, estimating the likelihood of female-only coalitions, male-only coalitions, and coalitions by both sexes in primates vs non-primates. Note that coalitions by both sexes is the reference level, hence we are only estimating the probabilities of female only and male only coalitions. Non-primate is the reference level for the predictor, hence coefficients for primates give the change in probability when going from non-primate to primate. In order to differentiate coefficients of the female coalitions and male coalitions linear models, we here put the corresponding outcome in parentheses, e.g. Intercept (female bias). All estimates are on the log-odds scale and summarized by the median and 90% credible interval ("lwr90CI" - "upr90CI") of the posterior distribution.

Table S3: Coalition formation in primates vs non-primates (Model 3)

Parameter	Mean	lwr90CI	upr90CI
Intercept (female bias)	-0.45	-2.09	1.27
Intercept (male bias)	-0.26	-2.01	1.45
Primate (female bias)	-0.01	-0.80	0.84
Primate (male bias)	0.00	-0.81	0.84
Phylo SD (female bias)	0.73	0.06	2.12
Phylo SD (male bias)	1.34	0.25	3.02

Model 4: Predicting probability of female coalitions

Full summaries of Model 4 and its robustness checks, estimating the probability of female coalitions as a function of food defensibility and female philopatry. Note that both predictors are coded as yes/no, with no being the reference level, hence coefficients show the change in probability of female coalitions when the predictor takes on the value of yes. All estimates are on the log-odds scale and summarized by the median and 90% credible interval ("lwr90CI" - "upr90CI") of the posterior distribution.

Table S4: Socio-ecological predictors of female coalitions (Model 4)

Parameter	Mean	lwr90CI	upr90CI
Intercept	0.27	-1.52	2.06
Food defensible = yes	-0.07	-0.90	0.74
Female philopatry = yes	0.03	-0.78	0.87
Phylo SD	1.39	0.28	3.09

Table S4.a: Food defensibility only

Parameter	Mean	lwr90CI	upr90CI
Intercept	0.31	-1.27	2.00
Food defensible = yes	-0.07	-0.89	0.75
Phylo SD	1.36	0.30	3.15

Table S4.b: Female philopatry only

Parameter	Mean	lwr90CI	upr90CI
Intercept	0.23	-1.49	2.03
Female philopatry = yes	0.04	-0.75	0.90
Phylo SD	1.35	0.22	3.12

Model 5: Predicting probability of male coalitions

Full summaries of Model 5 and its robustness checks, estimating the probability of male coalitions as a function of sexual dimorphism and male philopatry. Note that sexual dimorphism is centered on 1 (i.e. monomorphic) and units are standard deviations; male philopatry is coded as yes/no, with no being the reference level. Hence coefficients show the change in probability of male coalitions with a 1SD change in dimorphism or when male philopatry takes on the value of yes. All estimates are on the log-odds scale and summarized by the median and 90% credible interval ("lwr90CI" - "upr90CI") of the posterior distribution.

Table S5: Socio-ecological predictors of male coalitions (Model 5)

Parameter	Mean	lwr90CI	upr90CI
Intercept	0.60	-1.26	2.54
Sexual dimorphism	-0.11	-0.90	0.64
Male philopatry = yes	0.09	-0.74	0.91
Phylo SD	0.76	0.06	2.24

Table S5.a: Sexual dimorphism only

Parameter	Mean	lwr90CI	upr90CI
Intercept	0.65	-1.29	2.58
Sexual dimorphism	-0.11	-0.89	0.67
Phylo SD	0.75	0.01	2.12

Table S5.b: Male philopatry only

Parameter	Mean	lwr90CI	upr90CI
Intercept	0.50	-1.11	2.28
Male philopatry = yes	0.08	-0.74	0.88
Phylo SD	0.74	0.00	2.12