

COUNTER-STRATEGIES TO INFANTICIDE: THE IMPORTANCE OF CUBS IN DETERMINING LION
HABITAT SELECTION AND SOCIAL INTERACTIONS

Appendix 4. Pride male – competitor male association

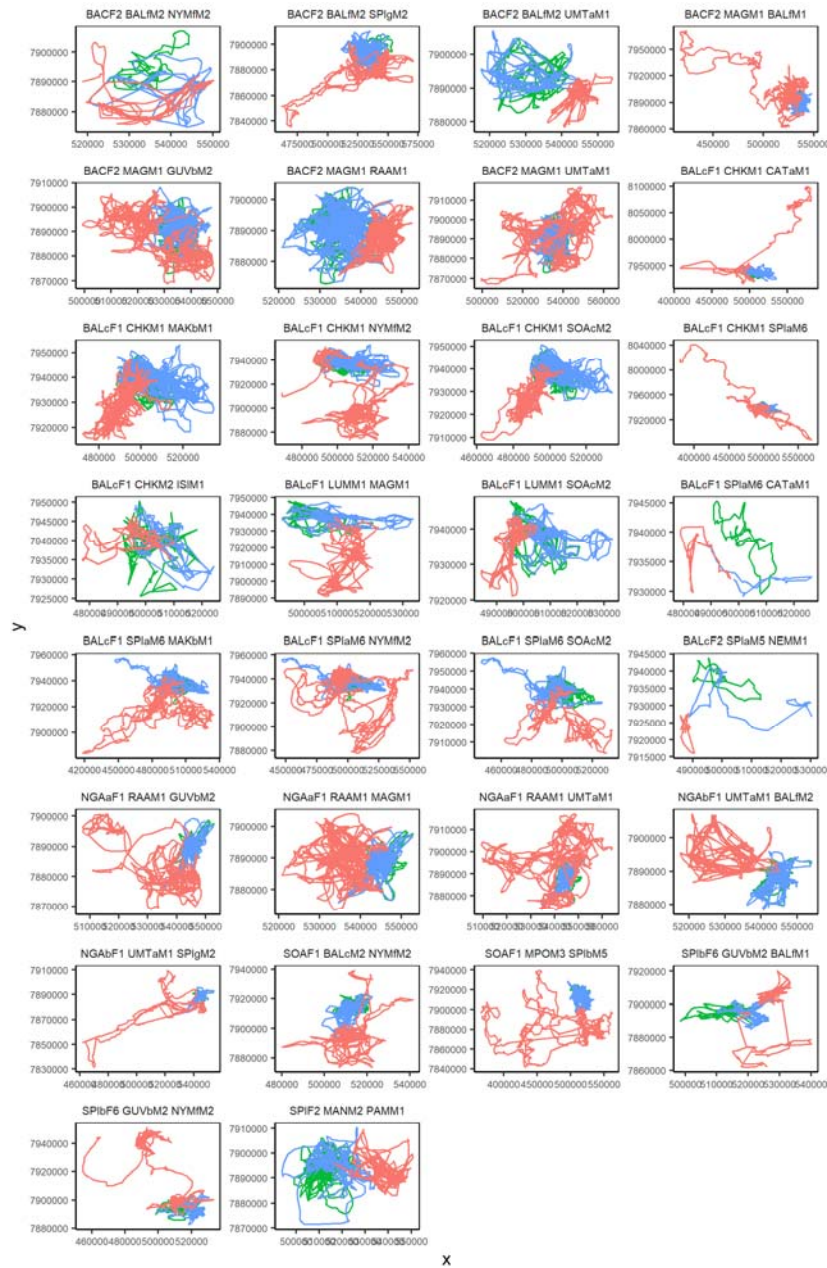


Figure S4.1. GPS locations of female (green), male (blue) and competitor (red) lions, for each of the 30 studied triads.

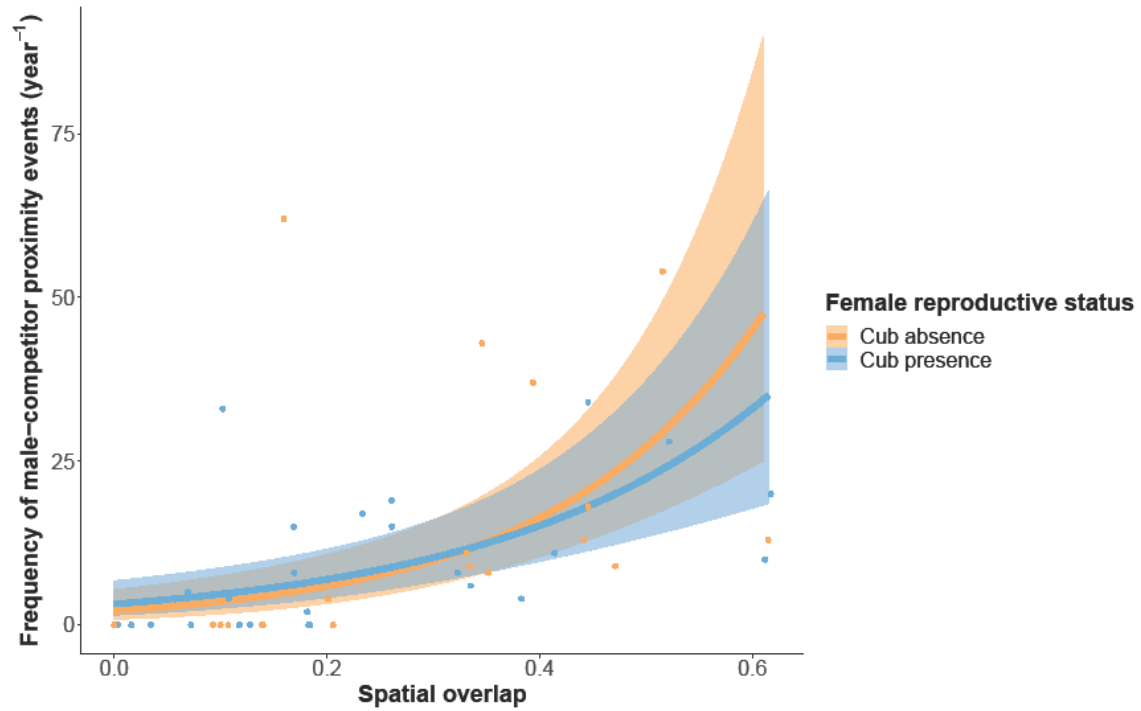


Figure S4.2. Relationship between the frequencies of proximity events between pride males and competitor males and the overlap of their utilization distribution (i.e. Bhattacharyya's affinity index) according to the presence (blue) and absence (orange) of cubs in the pride. Ribbon extremities represent 95% confidence interval, whereas solid lines represent mean frequencies of pride male-competitor male proximity events.

Table S4.1. Frequency of pride male-competitor male proximity events according to the presence of cubs within the pride (CUB) and the overlap of the utilization distributions of pride and competitor males (UD overlap). We run a log-linear regression adding a random intercept with dyad identity.

Model – cubs < 12 months	β	SE	z-value	p-value
Intercept	0,77	0,47	1,65	0.10
CUB	0,39	0,57	0,69	0.49
UD overlap	5,07	1,05	4,85	<0.001
CUB x UD overlap	-1,17	1,36	-086	0.39

Table S4.2. Spatial characteristics of proximity events between pride males and competitor males. Likelihood for pride males to use locations (a) outside of their core home range, (b) close to waterholes (<1km), and (c) within open areas, estimated using three logistic regressions adding a random intercept with dyad identity, according to the presence of cubs within the pride (CUB) and the presence of competitor males close (i.e. <1km) to the pride males (COMPETITOR).

Model – cubs < 12 months	β	SE	z-value	p-value
a) Likelihood for pride males to use locations outside of their core home range				
Intercept	-0,20	0,08	-2,58	<0.01
CUB	-0,11	0,02	-6,72	<0.001
COMPETITOR	0,26	0,16	1,56	0.12
CUB x COMPETITOR	1,17	0,22	5,29	<0.001
b) Likelihood for pride males to use locations close to waterholes (<1km)				
Intercept	-1,42	0,10	-14,56	<0.001
CUB	0,26	0,02	12,98	<0.001
COMPETITOR	0,85	0,19	4,61	<0.001
CUB x COMPETITOR	-1,22	0,24	-5,18	<0.001
c) Likelihood for pride males to use open habitats				
Intercept	-0,26	0,29	-0,90	0.37
CUB	-0,12	0,02	-5,59	<0.001
COMPETITOR	0,07	0,22	0,31	0,76
CUB x COMPETITOR	-0,31	0,26	-1,20	0,23

Table S4.3. Outcome characteristics of proximity events between pride males and competitor males.

(a) Likelihood for pride males to initiate the proximity events with competitor males, estimated using a logistic regression to the binary response variable (“initiated” or “ did not initiate”), (b) Logarithm of the competitor displacement to the proximity-event site with pride males, estimated using a log-linear regression model, according to the presence of cubs in the pride (CUB), the difference of age between the pride males and their competitors (AGE) and the time following the proximity event (HOUR).

Model – cubs < 12 months	β	SE	z-value	p-value
a) Likelihood for pride males to initiate the proximity event with competitor males				
Intercept	0,39	0,36	1,09	0.28
CUB	0,41	0,28	1,44	0.15
AGE	-0,08	0,23	-0,36	0.72
b) Logarithm of the competitor displacement to the proximity event site with pride males				
Intercept	6,85	0,16	43,98	<0.001
Log(HOUR)	0,18	0,03	6,27	<0.001
CUB	0,48	0,10	4,67	<0.001
AGE	-0,27	0,16	-1,73	0.08