

SUPPLEMENTARY MATERIAL

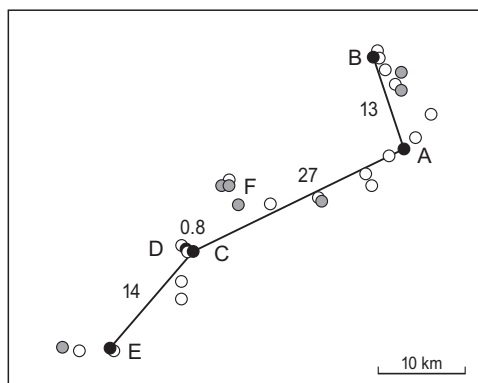


Figure S1. Map of the study area, showing the location of leks studied in 2014–2016 (A–E, black) and 2014–2015 (F). Leks used between years (black and grey circles) and display sites used irregularly between years, usually in June (white circles) are indicated. Numbers show the distance in km between nearest neighbouring leks (lines) studied in 2016.



Figure S2. Open wing posture. Satellites frequently adopt an oblique posture with partially opened wings. This posture did not clearly match a posture described in Hogan-Warburg (1966).



Figure S3. Males with conflicting plumage. Based on Hogan-Warburg (1966) and on 117 males with known behaviour (59% Independents, 41% Satellites), we scored males with more than 40% black tuft feathers, or more than 40% black ruff feathers, or less than 10 white feathers in tufts and ruff, or a barred pattern on the ruff as Independent. With this definition, four of the 117 males (3%) had a conflicting plumage: one male with a satellite-type ruff behaved as an Independent (A) and three males with an independent-type ruff behaved as a Satellite (B–D).

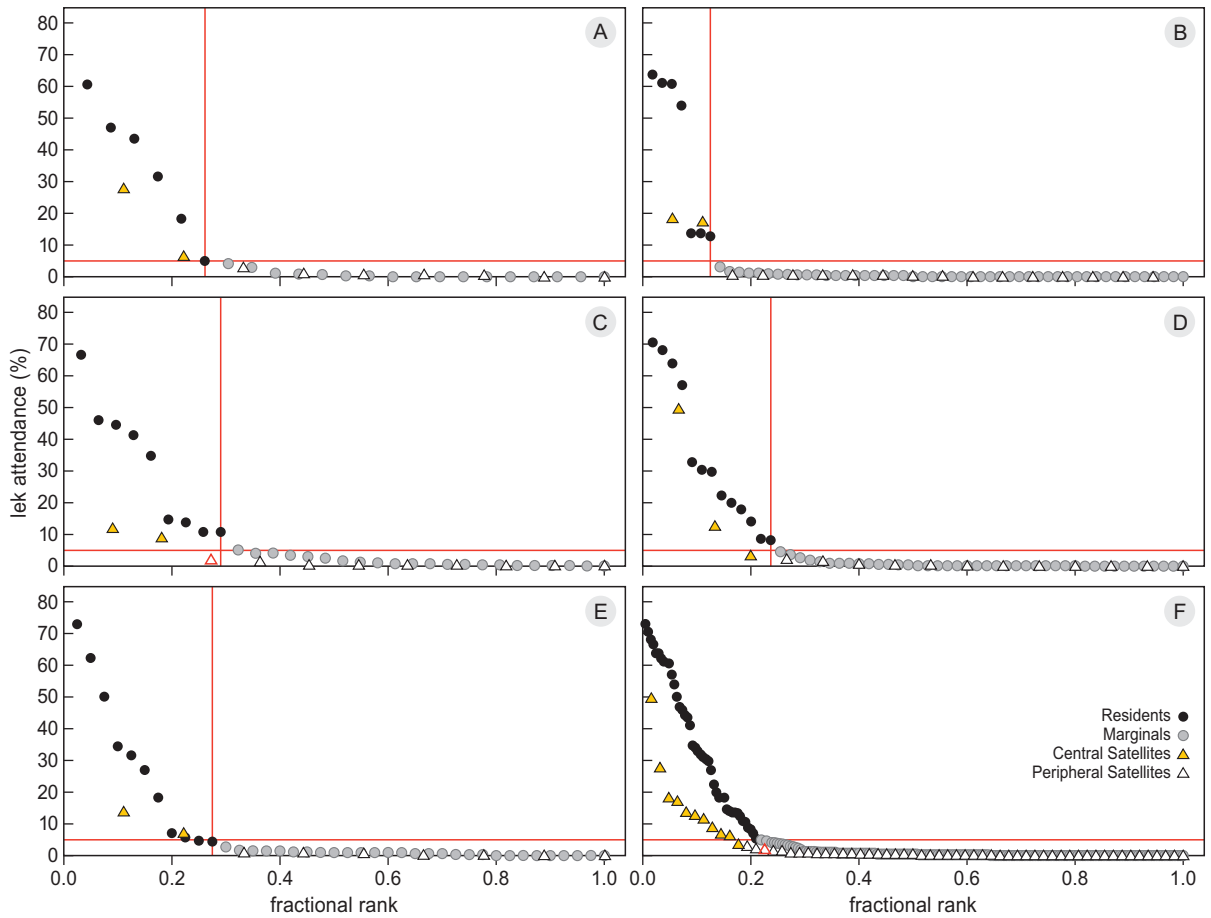


Figure S4. Independents (Residents (black) and Marginals (grey) combined), were ranked by decreasing seasonal lek attendance (% seasonal observation time), and for each male the fractional rank was calculated as the rank divided by the total number of Independents observed on the lek. Subsequently, Satellites were also ranked by decreasing seasonal lek attendance, and the fractional rank calculated. Satellites with fractional rank equal or smaller than the Resident ranked highest (vertical red line), were classified as Central Satellites (yellow). All other Satellites were Peripheral Satellites (white). One Satellite observed less than 60 minutes on lek C was classified as Peripheral Satellite (red circle). (A) lek A, (B) lek B, (C) lek C, (D) lek D, (E) lek E, (F) five leks combined.

The analysis of success of lekking males is often restricted to a subset of males, namely those with higher attendance, with an arbitrary cut-off such as presence during at least five nights (Fiske *et al.* 1994), presence during at least two hours (Widemo 1998a), territoriality during at least three hours (Apollonio *et al.* 1992), one day (Isvaran & Jhala 2000) or five days (Gibson & Bradbury 1985). In our study, four R-males had seasonal lek attendance lower than 5% (4.99–3.59%), whereas all M-males had seasonal lek attendance under 5% (4.96–0.00 %). Thus, using 5% seasonal attendance as a cut-off to define R- and M-males (horizontal red line), as opposed to fractional rank, changes the status of only four males (1.6%).

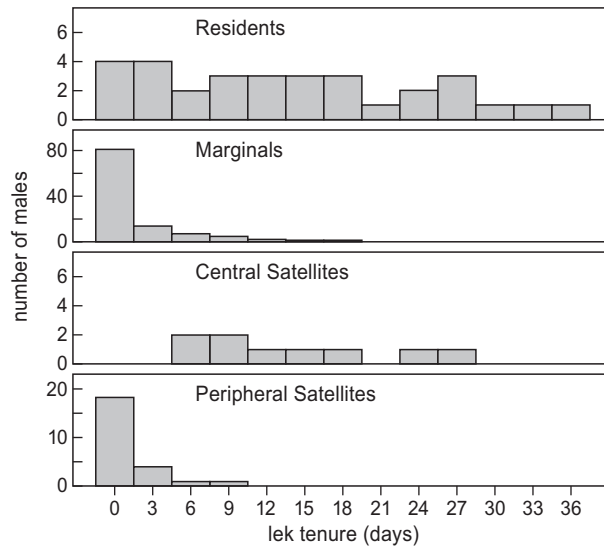


Figure S5. Histograms (bin-size 3) showing the number of males observed on two frequently observed leks (lek F in 2015, lek D in 2016) over the season classified by lek tenure, and by morph and status as Resident ($n = 31$), Marginal ($n = 109$), Central Satellite ($n = 9$) and Peripheral Satellite ($n = 24$). Status of Independents was determined based on territoriality in both years, but in 2015 lek attendance was not measured and status of Satellites was assigned based on tenure, behaviour, and subjective assessment of lek attendance.

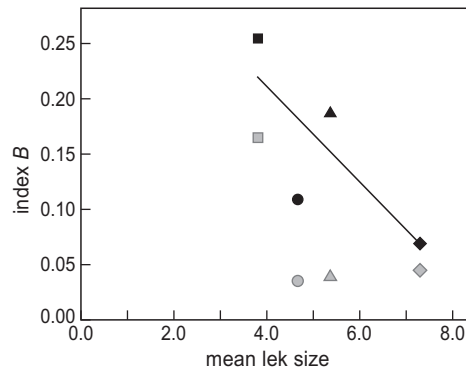


Figure S6. Relationship between lek size (seasonal mean, Table S2) and index *B* (black; Table S7B), and index *B* corrected for presence (grey; Table S7C) for lek B (circle), C (square), D (diamond), and E (triangle).

Table S1. Observation periods.

Lek	Date	Start	End	Observation period (min)	Lek	Date	Start	End	Observation period (min)
A	12/05/2016	14:46	15:46	60	D	26/05/2016	04:47	09:47	300
A	16/05/2016	14:01	18:02	241	D	29/05/2016	17:44	20:44	180
A	23/05/2016	05:30	10:30	300	D	30/05/2016	04:52	09:44	292
A	27/05/2016	15:52	20:06	254	D	01/06/2016	16:15	20:23	248
A	28/05/2016	04:44	10:15	270	D	02/06/2016	04:23	10:23	360
A	02/06/2016	16:42	19:42	180	D	06/06/2016	03:02	09:00	358
A	03/06/2016	18:00	20:00	120	D	07/06/2016	17:26	20:26	180
A	04/06/2016	05:12	10:12	300	D	13/06/2016	16:28	19:28	180
A	12/06/2016	18:25	20:25	120	E	10/05/2016	18:29	18:59	30
A	16/06/2016	08:25	09:25	60	E	14/05/2016	14:45	17:00	135
B	12/05/2013	10:55	11:55	60	E	16/05/2016	04:43	10:43	360
B	17/05/2016	05:19	11:34	353	E	19/05/2016	16:56	18:56	120
B	22/05/2016	05:30	11:30	360	E	24/05/2016	05:06	10:06	300
B	22/05/2016	15:07	19:07	240	E	25/05/2016	17:25	19:25	120
B	26/05/2016	16:39	19:39	180	E	29/05/2016	03:42	09:00	318
B	27/05/2016	04:50	09:51	301	E	31/05/2016	17:37	20:37	180
B	03/06/2016	04:28	11:00	388	E	07/06/2016	04:13	10:13	360
B	04/06/2016	16:38	20:03	205	E	14/06/2016	05:20	10:20	300
B	05/06/2016	05:30	10:38	308	F	12/05/2015	18:01	21:30	107
B	13/06/2016	04:49	11:02	373	F	13/05/2015	04:50	06:45	115
B	15/06/2016	04:55	09:55	300	F	13/05/2015	08:00	16:50	530
B	15/06/2016	16:23	20:23	240	F	13/05/2015	17:38	19:24	106
C	11/05/2016	06:26	08:49	143	F	14/05/2015	05:00	08:48	228
C	12/05/2016	17:02	21:06	184	F	16/05/2015	14:41	20:59	366
C	13/05/2016	04:52	10:52	360	F	17/05/2015	04:00	09:56	315
C	13/05/2016	13:58	14:58	60	F	17/05/2015	13:15	18:15	300
C	15/05/2016	05:06	11:06	360	F	18/05/2015	04:45	08:45	240
C	18/05/2016	05:05	10:12	307	F	18/05/2015	09:34	20:59	685
C	21/05/2016	04:45	09:46	301	F	19/05/2015	04:16	09:45	299
C	25/05/2016	04:38	09:45	307	F	19/05/2015	10:20	20:20	600
C	01/06/2016	04:50	09:57	297	F	20/05/2015	04:09	11:45	456
C	06/06/2016	16:30	19:30	180	F	20/05/2015	12:50	20:53	483
C	13/06/2016	19:50	20:50	60	F	21/05/2015	04:34	05:10	36
D	13/05/2016	16:47	18:01	74	F	21/05/2015	05:52	07:20	88
D	14/05/2016	05:03	11:08	365	F	22/05/2015	23:24	05:08	344
D	15/05/2016	14:25	17:25	180	F	24/05/2015	23:42	04:29	287
D	17/05/2016	15:50	19:50	240	F	25/05/2015	16:41	18:48	127
D	18/05/2016	14:25	18:25	240	F	25/05/2015	20:49	22:08	79
D	19/05/2016	03:29	10:19	360	F	26/05/2015	04:09	10:51	376
D	20/05/2016	05:11	11:41	390	F	26/05/2015	14:52	20:36	270
D	20/05/2016	15:47	20:55	210	F	26/05/2015	23:14	00:00	46
D	21/05/2016	16:08	20:08	235	F	27/05/2015	00:00	04:42	282
D	23/05/2016	15:21	19:21	240	F	29/05/2015	21:13	23:45	152
D	24/05/2016	16:01	20:05	244					

Table S2. Continued.

Lek	Week	Date	Start Observ.	Duration	Day				Week				Season			
					RI	MI	CS	PS	RI	MI	CS	PS	RI	MI	CS	PS
B	4	3/06/2016	04:28	06:28	6	20	2	6	4.7	9.0	1.7	4.3				
		4/06/2016	16:38	03:25	4	1	1	4								
		5/06/2016	05:30	05:08	4	6	2	3								
	5	13/06/2016	04:49	06:13	4	9	2	3	4.0	8.5	1.5	2.0				
		15/06/2016	04:55	09:00	4	8	1	1								
E	1	14/05/2016	14:45	02:15	4	3	2	0	4.0	4.5	2.0	0.0	4.4	3.8	0.9	0.9
		16/05/2016	04:43	06:00	4	6	2	0								
	2	19/05/2016	16:56	02:00	4	3	1	0	4.7	4.3	1.7	0.3				
		24/05/2016	05:06	05:00	5	10	2	1								
		25/05/2016	17:25	02:00	5	0	2	0								
	3	29/05/2016	03:42	05:18	6	4	0	1	6.5	2.0	0.0	2.0				
		31/05/2016	17:37	03:00	7	0	0	3								
	4	7/06/2016	04:13	06:00	3	3	0	1	3.0	3.0	0.0	1.0				
		14/06/2016	05:20	05:00	4	5	1	1	4.0	5.0	1.0	1.0				

Table S3. Leg colour. We aged males based on leg colour (Pearson 1972): birds with grey, grey-yellow or grey-pink legs were considered yearlings (2 CY), whereas birds with pink or orange legs were scored as adults (> 2CY). The proportion of yearlings should be considered a minimum estimate, because leg colour typically changes during the second calendar year (Pearson 1972). Status of Independents was determined based on territoriality in all three years, but in 2014–2015 lek attendance was not measured and status of Satellites was assigned based on tenure, behaviour, and subjective assessment of lek attendance.

Year	Morph	Tactic	2 CY Legs	>2CY Legs	P^a
2016	Independent	Resident	1	45	0.3
		Marginal	12	149	
	Satellite	Central	0	11	1
Peripheral		0	51		
2015	Independent	Resident	4	70	0.03
		Marginal	20	107	
	Satellite	Central	0	16	1
Peripheral		2	32		
2014	Independent	Resident	16	86	0.002
		Marginal	57	115	
	Satellite	Central	0	9	0.3
Peripheral		8	36		
Combined	Independent	Resident			0.001 ^b
		Marginal			
	Satellite	Central			0.9 ^c
		Peripheral			

^aFisher's exact test

^bcombined P with sum of logs method calculated with 'metap' package: $\chi^2_6 = 21.8$

^ccombined P with sum of logs method calculated with 'metap' package: $\chi^2_6 = 2.4$

Table S4. Arrival and departure from the lek together with females (♀). RI: Resident, CS: Central Satellite, MI: Marginal, PS: Peripheral Satellite.

Lek	Class	Arrival				Departure			
		With ♀	%	Without ♀	Total	With ♀	%	Without ♀	Total
A	MI	11	34.38	21	32	9	28.13	23	32
A	PS	4	28.57	10	14	2	14.29	12	14
A	RI	29	15.26	161	190	18	9.14	179	197
A	CS	7	22.58	24	31	6	18.18	27	33
B	MI	38	36.19	67	105	34	33.33	68	102
B	PS	11	32.35	23	34	10	30.30	23	33
B	RI	33	9.94	299	332	35	10.48	299	334
B	CS	20	21.05	75	95	17	18.48	75	92
C	MI	20	26.32	56	76	23	29.87	56	79
C	PS	6	50.00	6	12	3	23.08	10	13
C	RI	22	8.12	249	271	16	5.86	255	271
C	CS	8	15.69	43	51	12	23.08	40	52
D	MI	43	32.33	92	135	32	24.06	103	135
D	PS	10	43.48	13	23	7	30.43	16	23
D	RI	47	7.21	605	652	59	8.81	611	670
D	CS	34	22.08	118	152	44	28.03	111	155
E	MI	28	50.91	27	55	24	42.59	32	56
E	PS	2	20.00	8	10	5	45.45	6	11
E	RI	19	8.05	217	236	16	5.73	263	279
E	CS	7	28.00	18	25	8	33.33	16	24
A-E	MI	140	34.74	263	403	122	30.20	282	404
A-E	PS	33	35.48	60	93	27	28.72	67	94
A-E	RI	150	8.92	1531	1681	144	8.22	1607	1751
A-E	CS	76	21.47	278	354	87	24.44	269	356

Table S5. For each copulation visit of a Reeve, we tallied all the individual males present on the lek (leks B-E), and assigned each male the same probability to obtain the copulation. We then calculated the expected total number of copulations for each male over the season under the assumption of random mating as the sum of his scores obtained at all female copulation visits. For each male, we then compared the number of copulations actually obtained with the random expectation, using a two-tailed exact test of goodness-of-fit ('binom.test' function in R, with 'successes' = the actual number of copulations obtained, 'total' = the number of copulations observed on the lek over the season, 'numerator' = the expected number of copulations under random copulation, 'denominator' = the total number of copulations observed on the lek). On each lek one male obtained more copulations than expected ($P < 0.05$; shaded), and on one lek one male received less copulations than expected ($P < 0.05$; bold). RI: Resident, CS: Central Satellite, MI: Marginal, PS: Peripheral Satellite.

Class	Lek	Successes	Total	Numerator	Denominator	<i>P</i>	Class	Lek	Successes	Total	Numerator	Denominator	<i>P</i>
RI	B	3	22	3.12	22	1.00000	CS	D	8	57	5.96	57	0.38257
RI	B	9	22	3.25	22	0.00266	CS	D	1	57	1.86	57	1.00000
RI	B	3	22	3.50	22	1.00000	CS	D	1	57	0.76	57	0.53472
RI	B	5	22	3.97	22	0.57792	CS	E	2	25	2.06	25	1.00000
RI	B	0	22	0.45	22	1.00000	CS	E	0	25	0.86	25	1.00000
RI	B	0	22	0.45	22	1.00000	PS	B	0	22	0.00	22	1.00000
RI	B	0	22	1.28	22	0.63649	PS	B	0	22	0.00	22	1.00000
RI	C	0	21	0.45	21	1.00000	PS	B	0	22	0.10	22	1.00000
RI	C	0	21	3.64	21	0.03788	PS	B	0	22	0.00	22	1.00000
RI	C	12	21	2.85	21	0.00000	PS	B	0	22	0.00	22	1.00000
RI	C	4	21	3.14	21	0.54268	PS	B	0	22	0.00	22	1.00000
RI	C	0	21	0.90	21	1.00000	PS	B	0	22	0.67	22	1.00000
RI	C	3	21	1.78	21	0.41684	PS	B	0	22	0.11	22	1.00000
RI	C	1	21	3.19	21	0.35446	PS	B	0	22	0.00	22	1.00000
RI	C	0	21	0.25	21	1.00000	PS	B	0	22	0.00	22	1.00000
RI	C	0	21	0.25	21	1.00000	PS	B	0	22	0.00	22	1.00000
RI	D	13	57	7.19	57	0.02747	PS	B	0	22	0.40	22	1.00000
RI	D	7	57	6.29	57	0.67477	PS	B	0	22	0.00	22	1.00000
RI	D	0	57	1.04	57	0.62915	PS	B	0	22	0.00	22	1.00000
RI	D	11	57	6.62	57	0.09317	PS	B	0	22	0.00	22	1.00000
RI	D	7	57	4.22	57	0.19611	PS	B	0	22	0.00	22	1.00000
RI	D	4	57	6.66	57	0.40627	PS	C	0	21	0.00	21	1.00000
RI	D	3	57	4.42	57	0.62535	PS	C	0	21	0.00	21	1.00000
RI	D	0	57	0.00	57	1.00000	PS	C	0	21	0.14	21	1.00000
RI	D	1	57	5.30	57	0.06235	PS	C	0	21	0.00	21	1.00000
RI	D	0	57	1.39	57	0.65119	PS	C	0	21	0.14	21	1.00000
RI	D	1	57	1.43	57	1.00000	PS	C	0	21	0.00	21	1.00000
RI	D	0	57	0.27	57	1.00000	PS	C	0	21	0.00	21	1.00000
RI	D	0	57	0.00	57	1.00000	PS	C	0	21	0.00	21	1.00000
RI	E	12	25	6.20	25	0.01748	PS	C	0	21	0.00	21	1.00000
RI	E	4	25	4.92	25	0.80414	PS	D	0	57	0.00	57	1.00000
RI	E	0	25	0.83	25	1.00000	PS	D	0	57	0.00	57	1.00000
RI	E	4	25	3.36	25	0.76671	PS	D	0	57	0.00	57	1.00000
RI	E	0	25	1.20	25	0.63147	PS	D	0	57	0.00	57	1.00000
RI	E	0	25	0.00	25	1.00000	PS	D	0	57	0.13	57	1.00000
RI	E	3	25	1.28	25	0.13387	PS	D	0	57	0.00	57	1.00000
RI	E	0	25	0.00	25	1.00000	PS	D	0	57	0.00	57	1.00000
RI	E	0	25	0.94	25	1.00000	PS	D	0	57	0.00	57	1.00000
RI	E	0	25	0.00	25	1.00000	PS	D	0	57	0.00	57	1.00000
RI	E	0	25	0.00	25	1.00000	PS	D	0	57	0.00	57	1.00000
RI	E	0	25	0.00	25	1.00000	PS	D	0	57	0.00	57	1.00000
CS	B	1	22	2.45	22	0.50418	PS	D	0	57	0.00	57	1.00000
CS	B	1	22	0.85	22	0.57973	PS	D	0	57	0.00	57	1.00000
CS	C	1	21	0.59	21	0.45034	PS	E	0	25	0.00	25	1.00000
CS	C	0	21	0.33	21	1.00000	PS	E	0	25	0.00	25	1.00000

Table S5. Continued.

Class	Lek	Successes	Total	Numerator	Denominator	<i>P</i>	Class	Lek	Successes	Total	Numerator	Denominator	<i>P</i>
MI	D	0	57	0.16	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.14	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.14	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.75	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.17	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.11	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.00	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.92	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.92	25	1.00000
MI	D	0	57	0.00	57	1.00000	MI	E	0	25	0.25	25	1.00000
MI	E	0	25	0.00	25	1.00000	MI	E	0	25	0.00	25	1.00000
MI	E	0	25	0.00	25	1.00000	MI	E	0	25	0.25	25	1.00000
MI	E	0	25	0.00	25	1.00000	MI	E	0	25	0.11	25	1.00000

Table S7A. Indices of skew were calculated with Skew Calculator 2003: S (Reeve & Ratnieks 1993), Sc (Keller & Krieger 1996), S3 (Pamilo & Crozier 1996) ; Q (monopolization index; Ruzzante *et al.* 1996); lambda (Kokko & Lindström 1997), Idelta (Morisita index; Tsuji & Tsuji 1998), Ip (standardized Morisita index; Tsuji & Tsuji 1998). The mean for each study (present study: B-E; Hill 1991: 1985–87), and three studies combined (9 leks) is also calculated.

Study details	Lek	Sample	Successful	Index						
				S	Sc	S3	Q	lambda	Idelta	Ip
Present study, copulation bouts, R-males	B	9	6	0.41	0.34	0.64	0.13	0.41	2.03	0.54
	C	11	5	0.65	0.58	0.84	0.29	0.56	3.93	0.63
	D	16	11	0.36	0.33	0.62	0.08	0.25	2.13	0.53
	E	13	5	0.66	0.60	0.81	0.21	0.46	3.55	0.59
	B-E	12.3	6.8	0.52	0.46	0.73	0.18	0.42	2.91	0.57
Present study, single copulations, Residents	B	7	4	0.46	0.44	0.60	0.15	0.45	1.91	0.56
	C	9	4	0.71	0.70	0.88	0.44	0.68	4.49	0.71
	D	13	8	0.41	0.40	0.59	0.08	0.28	1.99	0.53
	E	11	4	0.74	0.73	0.88	0.40	0.63	4.96	0.69
	B-E	10	5	0.58	0.57	0.74	0.27	0.51	3.34	0.62
Hill (1991), single copulations, Residents	1985 Stora Ören	6	2	0.80	0.76	0.92	0.61	0.83	4.04	0.77
	1987 Stora Ören	7	3	0.71	0.69	0.87	0.46	0.71	3.73	0.71
	1985 Stenåsa	5	2	0.79	0.77	0.91	0.65	0.85	3.59	0.79
	1987 Stenåsa	4	3	0.51	0.47	0.74	0.37	0.71	2.11	0.62
	1985–87	5.5	2.5	0.70	0.67	0.86	0.52	0.78	3.37	0.72
Van Rhijn (1991), single copulations, Residents	1968 Roderwolde	21	12	0.58	0.57	0.90	0.28	0.49	6.66	0.64
Three studies, single copulations, Residents	9 leks	9.2	4.7	0.64	0.61	0.81	0.38	0.63	3.72	0.67

Table S7B. The skew index B (B observed) calculated with Skew Calculator 2003 (Nonacs 2003). ‘ P -level (random)’: a one-tailed probability level that the observed B value is due to random chance, calculated by simulation (set at 1000 simulations). The program also simulates a random distribution across all leks to determine the probability level of the observed mean B -value (present study: B-E; Hill 1991: 1985-87; all three studies: 9 leks). For the observed B -index, a two-tailed confidence interval is calculated (0.95% C.I.; ‘significance’ set at 0.05 and ‘calculation’ set at accurate). ‘ B under equality’: the minimum possible B value through equal sharing of the group benefits. ‘ B under monopoly’: the maximum possible B value if all the benefits are monopolized by the individual with the highest gain rate. On all leks the lower C.I. excludes ‘ B under equality’, thus an equal distribution of observed benefits can be excluded. The upper C.I. does not include ‘ B under monopoly’, thus total monopoly by one individual can be excluded. The C.I. does not include 0, and ‘ P -level random’ is smaller than 0.05, thus random sharing can also be excluded.

Study details	Lek	Sample	Successful	B observed	P -level (random)	95% C.I.	B under equality	B under monopoly
Present study, copulation bouts, R-males	B	9	6	0.11	0.002	0.03–0.25	–0.04	0.85
	C	11	5	0.25	0	0.12–0.44	–0.04	0.87
	D	16	11	0.07	0	0.04–0.12	–0.02	0.92
	E	13	5	0.19	0	0.09–0.33	–0.04	0.89
	B-E	12.3	6.8	0.16	0			
Present study, single copulations, Residents	B	7	4	0.13	0	0.05–0.25	–0.03	0.83
	C	9	4	0.38	0	0.23–0.54	–0.03	0.86
	D	13	8	0.07	0	0.04–0.13	–0.02	0.91
	E	11	4	0.35	0	0.23–0.50	–0.02	0.89
	B-E	10	5	0.23	0			
Hill (1991), single copulations, Residents	1985 Stora Ören	6	2	0.46	0	0.18–0.72	–0.08	0.76
	1987 Stora Ören	7	3	0.37	0	0.19–0.59	–0.04	0.82
	1985 Stenåsa	5	2	0.48	0	0.21–0.71	–0.06	0.74
	1987 Stenåsa	4	3	0.26	0	0.07–0.53	–0.05	0.70
	1985-87	5.5	2.5	0.39	0			
Van Rhijn (1991), single copulations, Residents	1968 Roderwolde	21	12	0.27	0	0.20–0.39	–0.01	0.94
Three studies, single copulations, Residents	9 leks	9.2	4.7	0.31	0			

Table S7C. The skew index B (Nonacs 2003) corrected for presence at female copulation visits. A restriction of the method is that all unsuccessful individuals are given the same presence; the average presence of unsuccessful males on the lek was used here. With this partial correction, the lower C.I. includes 'B under equality' on three leks, thus an equal distribution of benefits can no longer be excluded. The upper C.I. does not include 'B under monopoly', thus total monopoly by one individual can still be excluded. The value of the B -index is closer to 0 (random sharing) after correction for presence, and the C.I. includes 0 on three leks, and 'P-level (random)' is larger than or close to 0.05 on two–three leks, thus random sharing cannot be excluded.

Study details	Lek	Sample	Successful	B observed	P -level (random)	95% C.I.	B under equality	B under monopoly
Present study, copulation bouts, R-males	B	9	6	0.03	0.09	-0.04–0.14	-0.04	0.76
	C	11	5	0.16	0	0.07–0.31	-0.04	0.76
	D	16	11	0.04	0	-0.02–0.80	-0.02	1.07
	E	13	5	0.04	0.04	-0.03–0.17	-0.03	1.00
	B-E	12.3	6.8	0.07	0			
Present study, single copulations, Residents	B	7	4	0.05	0.01	0.01–0.16	-0.03	0.74
	C	9	4	0.30	0	0.18–0.44	-0.02	0.75
	D	13	8	0.01	0.08	-0.01–0.06	-0.01	1.08
	E	11	4	0.12	0	-0.02–0.21	-0.02	0.58
	B-E	10	5	0.12	0			

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SUPPLEMENTARY DATA**Model descriptions**

Abbreviations (suffix '.S' added to the scaled variable name)

B01	Copulation success (N/Y)
B02	Copulation success (0/1)
BN	Copulations (number)
BNO	BN observed
BNE	BN expected
DVR	Daily visitation rate
DS	Day of season
F01	With female (N/Y)
FA, FV	Female attendance
FVR	Female visitation rate
ID	Male ID
Lek	Lek
M	AM or PM
Mo, Mo2	Morph
PA	Attendance (%)
PAFV	PA (%) females present
PAFA	PA (%) females absent
PBE	Copulations expected (%)
PBO	Copulations observed (%)
PFA	Female attendance (%)
RM	Number of R-males
T01	Returning (N/Y)
T2	Lek tenure
Ta1, Ta	Daily status
Ta2	Seasonal status
VD	Visit duration

Grey background: models using scaled variables

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'
0.1 ' ' 1

Tables: Variable, Chi-square test statistic and *p*-value.

Summarize the output of anova comparing two models: the full model, and a model omitting the variable

Grey fill: random effects

→: variable tested in a separate model, replacing the variable on the previous line

Frequency of male morphs and lek attachment status

Returning between years: effect of morph and status (all males)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) [glmerMod]

Family: binomial (logit)

Formula: T01 ~ Mo2+Ta2+(1|ID)+(1|Lek)

AIC	BIC	logLik	deviance	df.resid
128.1	146.1	-59.1	118.1	262

Scaled residuals:

Min	1Q	Median	3Q	Max
-0.032978	-0.000048	-0.000030	-0.000030	0.121393

Random effects:

Groups Name	Variance	Std.Dev.
ID (Intercept)	1.726e+03	4.154e+01
Lek (Intercept)	1.683e-10	1.297e-05

Number of obs: 267, groups: ID, 252; Lek, 5

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-20.8422	4.5417	-4.589	4.45e-06 ***
Mo2S	0.9656	3.5743	0.270	0.787037
Ta2R	11.5652	3.3213	3.482	0.000497 ***

Correlation of Fixed Effects:

	(Intr)	Mo2S
Mo2S	-0.014	
Ta2R	-0.935	-0.051

Lek Tenure

Lek tenure: effect of returning between years, morph and status (all males)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: T2 ~ Mo2+Ta2+T01+(1|ID)+(1|Lek)

AIC	BIC	logLik	deviance	df.resid
1604.0	1629.1	-795.0	1590.0	260

Scaled residuals:

Min	1Q	Median	3Q	Max
-3.9943	-0.1341	-0.0985	-0.0985	3.4274

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	0.1996	0.4467
Lek	(Intercept)	0.0000	0.0000
Residual		22.3832	4.7311

Number of obs: 267, groups: ID, 252; Lek, 5

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	1.4701	0.3710	3.963
Mo2S	0.1701	0.6901	0.247

Ta2R 12.6006 0.8715 14.459
T01Y 5.9710 0.9802 6.091

Correlation of Fixed Effects:

(Intr) Mo2S Ta2R
Mo2S -0.450
Ta2R -0.281 0.047
T01Y -0.120 -0.012 -0.579

Variable	Chisq	p
Mo2	0.061	0.8053
Ta2	145.460	< 2.2e-16
T01	34.561	4.132e-09

Daily lek visitation rate

Daily lek visitation rate: effect of morph, tactic, and female attendance (all males)

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: DVR ~ Mo+Ta1+FA+(1|ID)+(1|DS)+(1|Lek)+(1|M)

AIC BIC logLik deviance df.resid
-3649.9 -3609.5 1833.9 -3667.9 644

Scaled residuals:

Min 1Q Median 3Q Max
-2.4236 -0.4555 -0.0769 0.3041 7.9641

Random effects:

Groups Name Variance Std.Dev.
ID (Intercept) 1.341e-05 0.003662
DS (Intercept) 2.789e-05 0.005281
Lek (Intercept) 3.749e-05 0.006123
M (Intercept) 2.226e-06 0.001492
Residual 1.841e-04 0.013570
Number of obs: 653, groups: ID, 253; DS, 33; Lek, 5; M, 2

Fixed effects:

Estimate Std. Error t value
(Intercept) 1.379e-02 3.395e-03 4.063
MoS -4.166e-03 1.551e-03 -2.686
Ta1R 1.906e-02 1.254e-03 15.200
FA -3.139e-04 6.106e-05 -5.141

Correlation of Fixed Effects:

(Intr) MoS Ta1R
MoS -0.105
Ta1R -0.197 0.014
FA -0.302 0.017 0.060

Daily visitation rate: effect of morph, tactic, and female visitation rate (all males)

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: DVR ~ Mo+Ta1+FVR+(1|ID)+(1|DS)+(1|Lek)+(1|M)

AIC BIC logLik deviance df.resid
-3636.3 -3596.0 1827.2 -3654.3 644

Scaled residuals:

Min 1Q Median 3Q Max
-2.1169 -0.4761 -0.0625 0.2935 8.1057

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	1.431e-05	0.003783
DS	(Intercept)	4.019e-05	0.006339
Lek	(Intercept)	5.077e-06	0.002253
M	(Intercept)	3.070e-06	0.001752
Residual		1.873e-04	0.013685

Number of obs: 653, groups: ID, 253; DS, 33; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	0.011473	0.002433	4.715
MoS	-0.004147	0.001574	-2.635
TalR	0.019129	0.001270	15.061
FVR	-0.066366	0.023185	-2.862

Correlation of Fixed Effects:

	(Intr)	MoS	TalR
MoS	-0.161		
TalR	-0.277	0.018	
FVR	-0.431	0.046	0.058

Variable	Chisq	p
Mo	6.8092	0.009069
Tal	175.8	< 2.2e-16
FA	21.411	3.706e-06
→ FVR	7.8651	0.00504
ID	15.127	0.0001005
DS	29.183	6.584e-08
Lek	22.333	2.292e-06
M	1.7122	0.1907

Daily lek visitation rate: effect of returning between years (R-males)

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: DVR ~ Mo+T01+FVR+(1|DS)+(1|ID)+(1|Lek)+(1|M)

AIC	BIC	logLik	deviance	df.resid
-1764.1	-1729.5	891.1	-1782.1	339

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8580	-0.6080	-0.0661	0.4598	6.0848

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	3.282e-05	0.005729
DS	(Intercept)	8.846e-05	0.009406
Lek	(Intercept)	1.621e-05	0.004026
M	(Intercept)	5.448e-06	0.002334
Residual		2.795e-04	0.016718

Number of obs: 348, groups: ID, 51; DS, 33; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	0.030367	0.004096	7.414
MoS	-0.008570	0.003226	-2.657
T01Y	0.003057	0.002829	1.080

FVR -0.087397 0.036244 -2.411

Correlation of Fixed Effects:

(Intr) MoS T01Y
 MoS -0.143
 T01Y -0.467 -0.006
 FVR -0.340 -0.016 -0.035

Variable	Chisq	p
Mo	6.6223	0.01007
T01	1.1376	0.2862
FVR	5.5574	0.0184
→ FA	14.418	0.0001464
DS	38.556	5.319e-10
ID	12.152	0.0004903
Lek	3.2434	0.07171
M	1.846	0.1742

Lek visit duration

Lek visit duration: effect of morph, status and female attendance (all males)

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: VD ~ Mo+Ta1+FA+(1|DS)+(1|ID)+(1|Lek)+(1|M)

AIC BIC logLik deviance df.resid
 27664.7 27718.1 -13823.4 27646.7 2789

Scaled residuals:

Min 1Q Median 3Q Max
 -1.386 -0.515 -0.231 0.142 9.461

Random effects:

Groups Name Variance Std.Dev.
 ID (Intercept) 2.416e+01 4.9154
 DS (Intercept) 6.232e+01 7.8944
 Lek (Intercept) 3.421e+01 5.8491
 M (Intercept) 9.629e-02 0.3103
 Residual 1.104e+03 33.2273

Number of obs: 2798, groups: ID, 253; DS, 33; Lek, 5; M, 2

Fixed effects:

Estimate Std. Error t value
 (Intercept) 1.9152 3.6778 0.521
 MoS -9.5310 2.3287 -4.093
 Ta1R 18.7065 1.9015 9.838
 FA 0.4157 0.0817 5.088

Correlation of Fixed Effects:

(Intr) MoS Ta1R
 MoS -0.116
 Ta1R -0.389 0.020
 FA -0.355 -0.014 0.065

Lek visit duration: effect of morph, status and female visitation rate (all males)

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: VD ~ Mo+Ta1+FVR+(1|DS)+(1|ID)+(1|Lek)+(1|M)

AIC BIC logLik deviance df.resid
 27675.5 27729.0 -13828.8 27657.5 2789

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.3746	-0.5132	-0.2337	0.1420	9.3676

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	24.35	4.934
DS	(Intercept)	78.05	8.834
Lek	(Intercept)	18.39	4.288
M	(Intercept)	0.00	0.000
	Residual	1107.09	33.273

Number of obs: 2798, groups: ID, 253; DS, 33; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	4.039	3.250	1.243
MoS	-9.485	2.334	-4.064
TalR	18.522	1.904	9.729
FVR	107.761	28.452	3.788

Correlation of Fixed Effects:

	(Intr)	MoS	TalR
MoS	-0.136		
TalR	-0.434	0.021	
FVR	-0.372	-0.003	0.051

Variable	Chisq	p
Mo	14.356	0.0001513
Tal	89.632	< 2.2e-16
FA	25.055	5.572e-07
→ FVR	14.236	0.0001612
DS	67.060	2.634e-16
ID	24.511	7.388e-07
Lek	17.793	2.463e-05
M	0.003	0.9566

Lek visit duration: effect of returning between years (R-males)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: VD ~ Mo+FA+T01+(1|DS)+(1|ID)+(1|Lek)+(1|M)

AIC	BIC	logLik	deviance	df.resid
23131.1	23182.7	-11556.5	23113.1	2293

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.4213	-0.5123	-0.2429	0.1345	8.5812

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	41.797	6.465
DS	(Intercept)	98.192	9.909
Lek	(Intercept)	48.538	6.967
M	(Intercept)	1.554	1.247
	Residual	1284.376	35.838

Number of obs: 2302, groups: ID, 54; DS, 33; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	20.9390	4.6347	4.518
MoS	-14.2632	3.4094	-4.183
FA	0.4900	0.1002	4.891
T01Y	-0.4543	2.8153	-0.161

Correlation of Fixed Effects:

	(Intr)	MoS	FA
MoS	-0.088		
FA	-0.315	-0.021	
T01Y	-0.408	-0.072	0.012

Variable	Chisq	p
Mo	14.219	0.0001628
T01	0.026	0.872
FA	23.207	1.455e-06
DS	71.439	< 2.2e-16
ID	26.053	3.321e-07
Lek	12.294	0.0004543
M	0.261	0.6094

Arrival together with females

Arrival together with females: effect of morph*status (all males)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) [glmerMod]

Family: binomial (logit)

Formula: F01 ~ Mo1*Ta1+(1|DS)+(1|ID)+(1|Lek)+(1|M)

AIC	BIC	logLik	deviance	df.resid
1946.3	1993.0	-965.1	1930.3	2545

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.1292	-0.4140	-0.2720	-0.2006	5.3760

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	0.007752	0.08805
DS	(Intercept)	0.633049	0.79564
Lek	(Intercept)	0.077131	0.27772
M	(Intercept)	0.039656	0.19914

Number of obs: 2553, groups: ID, 256; DS, 33; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-0.6503	0.2680	-2.427	0.01523*
Mo1S	0.0698	0.2615	0.267	0.78952
Ta1R	-1.8099	0.1481	-12.223	< 2e-16 ***
Mo1S:Ta1R	1.0114	0.3090	3.273	0.00106 **

Correlation of Fixed Effects:

	(Intr)	Mo1S	Ta1R
Mo1S	-0.199		
Ta1R	-0.340	0.321	
Mo1S:Ta1R	0.176	-0.836	-0.463

Departures together with females

Departure together with females: effect of morph*status (all males)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) [glmerMod]

Family: binomial (logit)

Formula: F01 ~ Mo1*Ta1+(1|DS)+(1|ID)+(1|Lek)+(1|M)

AIC	BIC	logLik	deviance	df.resid
1913.8	1960.6	-948.9	1897.8	2578

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.2308	-0.4218	-0.2739	-0.1831	7.0163

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	2.422e-01	4.921e-01
DS	(Intercept)	6.079e-01	7.797e-01
Lek	(Intercept)	1.816e-09	4.261e-05
M	(Intercept)	1.442e-10	1.201e-05

Number of obs: 2586, groups: ID, 264; DS, 33; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-0.9876	0.1951	-5.063	4.14e-07 ***
Mo1S	-0.2847	0.2946	-0.966	0.333892
Ta1R	-1.5178	0.1774	-8.556	< 2e-16 ***
Mo1S:Ta1R	1.3960	0.3872	3.605	0.000312 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:

	(Intr)	Mo1S	Ta1R
Mo1S		-0.285	
Ta1R		-0.473	0.298
Mo1S:Ta1R		0.219	-0.742

Lek attendance: correlates of daily variation in male lek attendance

Daily lek attendance, females present or absent on the lek (all males)

Linear mixed model fit by maximum likelihood [lmerMod]

Formula: PA ~ Mo*F01+Ta*F01+RM*F01+FV*F01+(1|DS)+(1|ID)+(1|Lek)+(1|M)

AIC	BIC	logLik	deviance	df.resid
11556.1	11633.4	-5763.1	11526.1	1261

Scaled residuals:

Min	1Q	Median	3Q	Max
-3.9638	-0.4837	-0.0287	0.5414	3.4982

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	89.720	9.472
DS	(Intercept)	72.713	8.527

```

Lek      (Intercept)    0.000    0.000
M        (Intercept)    2.802    1.674
Residual                414.675  20.364
Number of obs: 1276, groups:  ID, 253; DS, 33; Lek, 5; M, 2

```

Fixed effects:

```

                Estimate Std. Error t value
(Intercept)  11.31754    4.53382    2.496
MoS          -10.07758    2.64218   -3.814
F01Y         15.62439    4.62861    3.376
TaR          50.02654    2.09359   23.895
RM           -1.02644    0.57007   -1.801
FV           -0.05853    0.06261   -0.935
MoS:F01Y     1.60727    2.79992    0.574
F01Y:TaR     15.12887    2.30061    6.576
F01Y:RM      -1.12848    0.60112   -1.877
F01Y:FV      0.03644    0.06530    0.558

```

Correlation of Fixed Effects:

```

(Intr) MoS    F01Y    TaR    RM    FV    MS:F01 F01Y:T F01Y:R
MoS      -0.170
F01Y     -0.461  0.065
TaR      -0.187  0.024  0.142
RM       -0.813  0.041  0.421 -0.012
FV       -0.328  0.033  0.214  0.046  0.151
MoS:F01Y 0.062 -0.515 -0.122 -0.002  0.005 -0.008
F01Y:TaR 0.138 -0.005 -0.255 -0.535  0.007 -0.050  0.005
F01Y:RM  0.414  0.004 -0.902  0.011 -0.475 -0.132 -0.010 -0.028
F01Y:FV  0.202 -0.007 -0.453 -0.045 -0.124 -0.504  0.010  0.074  0.294

```

Variable	Chisq	p
Mo	15.173	0.0005073
Ta	658.94	< 2.2e-16
F01	239.34	< 2.2e-16
RM	10.862	0.004379
FV	0.8653	0.6488
→ FVR	1.048	0.5921
F01 : Mo	0.3295	0.566
F01 : RM	3.5135	0.06087
F01 : Ta	42.391	7.472e-11
F01: FV	0.3113	0.5769
→ F01 : FVR	0.7964	0.3722
DS	69.629	< 2.2e-16
ID	131.69	< 2.2e-16
Lek	0	1
M	2.3166	0.128

Daily lek attendance, females present or absent on the lek (all males)

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: PA ~ Mo*F01+Ta*F01+RM.S*F01+FV.S*F01+(1|DS.S)+(1|ID)+(1|Lek)+(1|M)

```

```

AIC      BIC      logLik deviance df.resid
11556.1  11633.4  -5763.1  11526.1    1261

```

Scaled residuals:

```

      Min      1Q  Median      3Q      Max
-3.9638 -0.4837 -0.0287  0.5414  3.4982

```

Random effects:

```

Groups   Name      Variance Std.Dev.
ID       (Intercept)  8.972e+01  9.472e+00

```



```

DS.S      (Intercept) 7.271e+01 8.527e+00
Lek       (Intercept) 1.067e-13 3.266e-07
M         (Intercept) 2.802e+00 1.674e+00
Residual              4.147e+02 2.036e+01
Number of obs: 1276, groups: ID, 253; DS.S, 33; Lek, 5; M, 2

```

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	3.8660	2.4761	1.561
MoS	-10.0776	2.6422	-3.814
F01Y	8.6787	1.7811	4.873
TaR	50.0265	2.0936	23.895
RM.S	-2.0628	1.1457	-1.801
FV.S	-1.0688	1.1433	-0.935
MoS:F01Y	1.6073	2.7999	0.574
F01Y:TaR	15.1289	2.3006	6.576
F01Y:RM.S	-2.2679	1.2081	-1.877
F01Y:FV.S	0.6655	1.1925	0.558

Correlation of Fixed Effects:

	(Intr)	MoS	F01Y	TaR	RM.S	FV.S	MS:F01	F01Y:T	F01Y:R
MoS	-0.239								
F01Y	-0.357	0.176							
TaR	-0.346	0.024	0.374						
RM.S	0.067	0.041	-0.012	-0.012					
FV.S	-0.059	0.033	0.034	0.046	0.151				
MoS:F01Y	0.118	-0.515	-0.334	-0.002	0.005	-0.008			
F01Y:TaR	0.247	-0.005	-0.691	-0.535	0.007	-0.050	0.005		
F01Y:RM.S	0.000	0.004	0.000	0.011	-0.475	-0.132	-0.010	-0.028	
F01Y:FV.S	0.025	-0.007	-0.074	-0.045	-0.124	-0.504	0.010	0.074	0.294

Daily lek attendance, females present or absent on the lek (R-males)

T2 and T01 tested in separate models. FVR and FV tested in separate models.

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: PA ~ Mo*F01+RM*F01+T01*F01+FV*F01+(1|DS)+(1|ID)+(1|Lek)
+(1|M)

AIC	BIC	logLik	deviance	df.resid
6357.6	6425.5	-3163.8	6327.6	668

Scaled residuals:

Min	1Q	Median	3Q	Max
-3.5055	-0.5318	0.1047	0.6732	2.3132

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	120.677	10.985
DS	(Intercept)	175.456	13.246
Lek	(Intercept)	24.944	4.994
M	(Intercept)	3.428	1.851
Residual		508.035	22.540

Number of obs: 683, groups: ID, 54; DS, 33; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	65.99203	7.63692	8.641
MoS	-35.09988	5.19303	-6.759
F01Y	30.41413	6.54002	4.650
RM	-2.02771	1.05978	-1.913
T01Y	2.30109	4.34927	0.529

```

FV          0.07042    0.10150    0.694
MoS:F01Y   1.89922    4.27455    0.444
F01Y:RM    -2.02549    0.88211   -2.296
F01Y:T01Y  3.55459    3.94628    0.901
F01Y:FV    0.17180    0.09766    1.759

```

Correlation of Fixed Effects:

```

(Intr) MoS    F01Y    RM      T01Y    FV      MS:F01 F01Y:R F01Y:T
MoS      -0.090
F01Y     -0.370  0.021
RM       -0.692 -0.028  0.270
T01Y     -0.359 -0.043  0.169 -0.012
FV        0.004  0.006  0.042 -0.397  0.009
MoS:F01Y  0.018 -0.389 -0.045  0.042 -0.008  0.010
F01Y:RM   0.285  0.036 -0.762 -0.367  0.034  0.124 -0.088
F01Y:T01Y 0.167 -0.010 -0.388  0.019 -0.431 -0.012  0.009 -0.082
F01Y:FV   0.036  0.012 -0.158  0.116 -0.017 -0.429 -0.042 -0.253  0.041

```

Variable	Chisq	p
Mo	32.615	8.273e-08
F01	171.48	< 2.2e-16
RM	13.663	0.001079
T01	1.8394	0.3986
T2	4.858	0.08812
FV	5.4772	0.06466
→ FVR	1.9274	0.3815
F01 : Mo	0.1973	0.6569
F01 : RM	5.2411	0.02206
F01 : T01	0.8104	0.368
F01 : T2	3.429	0.06406
F01 : FV	3.0786	0.07933
→ F01 : FVR	0.6479	0.4209
DS	79.05	< 2.2e-16
ID	58.928	1.636e-14
Lek	1.0298	0.3102
M	0.728	0.3935

Daily lek attendance, females present or absent on the lek (R-males)

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: PA ~ Mo*F01+RM.S*F01+T01*F01+FV.S*F01+(1|DS.S)+(1|ID)
          +(1|Lek)+(1|M)

```

```

AIC      BIC    logLik deviance df.resid
6357.6   6425.5  -3163.8  6327.6    668

```

Scaled residuals:

```

Min      1Q  Median      3Q      Max
-3.5055 -0.5318  0.1047  0.6732  2.3132

```

Random effects:

```

Groups   Name          Variance Std.Dev.
ID       (Intercept) 120.677 10.985
DS.S     (Intercept) 175.456 13.246
Lek      (Intercept)  24.944  4.994
M        (Intercept)   3.428  1.851
Residual                    508.035 22.540

```

Number of obs: 683, groups: ID, 54; DS.S, 33; Lek, 5; M, 2

Fixed effects:

```

Estimate Std. Error t value

```

(Intercept)	54.224	5.093	10.647
MoS	-35.100	5.193	-6.759
F01Y	21.074	3.516	5.994
RM.S	-4.192	2.191	-1.913
T01Y	2.301	4.349	0.529
FV.S	1.327	1.913	0.694
MoS:F01Y	1.899	4.275	0.444
F01Y:RM.S	-4.187	1.823	-2.296
F01Y:T01Y	3.555	3.946	0.901
F01Y:FV.S	3.237	1.840	1.759

Correlation of Fixed Effects:

	(Intr)	MoS	F01Y	RM.S	T01Y	FV.S	MS:F01	F01Y:R	F01Y:T
MoS	-0.170								
F01Y	-0.329	0.107							
RM.S	0.153	-0.028	-0.032						
T01Y	-0.551	-0.043	0.359	-0.012					
FV.S	-0.067	0.006	0.001	-0.397	0.009				
MoS:F01Y	0.090	-0.389	-0.258	0.042	-0.008	0.010			
F01Y:RM.S	-0.020	0.036	0.078	-0.367	0.034	0.124	-0.088		
F01Y:T01Y	0.270	-0.010	-0.831	0.019	-0.431	-0.012	0.009	-0.082	
F01Y:FV.S	0.010	0.012	-0.055	0.116	-0.017	-0.429	-0.042	-0.253	0.041

Lek attendance: correlates of seasonal lek attendance

Seasonal lek attendance in the presence or absence of females (all males)

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: PA ~ Mo2*F01+Ta2*F01+RM*F01+PFA*F01+(1|ID)+(1|Lek)

AIC	BIC	logLik	deviance	df.resid
3896.6	3952.0	-1935.3	3870.6	511

Scaled residuals:

Min	1Q	Median	3Q	Max
-4.1937	-0.1786	0.0002	0.1416	4.8632

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	95.75	9.785
Lek	(Intercept)	0.00	0.000
Residual		41.00	6.403

Number of obs: 524, groups: ID, 247; Lek, 5

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	1.84346	2.63352	0.700
Mo2S	-3.08049	1.76480	-1.746
F01Y	6.15220	2.40899	2.554
Ta2R	27.26893	1.60230	17.019
RM	0.18020	0.47892	0.376
PFA	-0.07940	0.08571	-0.926
Mo2S:F01Y	-0.24671	1.32040	-0.187
F01Y:Ta2R	16.57149	1.36399	12.149
F01Y:RM	-0.47681	0.46932	-1.016
F01Y:PFA	-0.11831	0.06696	-1.767

Correlation of Fixed Effects:

	(Intr)	Mo2S	F01Y	Ta2R	RM	PFA	M2S:F0	F01Y:T	F01Y:R
Mo2S	-0.203								
F01Y	-0.457	0.066							
Ta2R	-0.143	0.056	0.036						
RM	-0.656	0.008	0.376	0.080					
PFA	-0.339	0.047	0.083	-0.094	-0.413				
Mo2S:F01Y	0.080	-0.374	-0.175	-0.021	-0.004	-0.019			
F01Y:Ta2R	0.038	-0.018	-0.084	-0.426	-0.005	0.035	0.049		
F01Y:RM	0.351	-0.003	-0.766	-0.005	-0.490	0.158	0.009	0.011	
F01Y:PFA	0.097	-0.018	-0.213	0.038	0.198	-0.391	0.049	-0.090	-0.404

Variable	Chisq	p
Mo2	3.8351	0.147
Ta2	463.38	< 2.2e-16
F01	160.26	< 2.2e-16
RM	1.0494	0.5917
PFA	6.1695	0.04574
F01 : Mo2	0.0349	0.8518
F01 : Ta2	114.18	< 2.2e-16
F01 : RM	1.0303	0.3101
F01 : PFA	3.1045	0.07808
ID	198.02	< 2.2e-16
Lek	0	1

Seasonal lek attendance in the presence or absence of females (all males)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: PA ~ Mo2*F01+Ta2*F01+RM.S*F01+PFA.S*F01+(1|ID)+(1|Lek)

AIC	BIC	logLik	deviance	df.resid
3896.6	3952.0	-1935.3	3870.6	511

Scaled residuals:

Min	1Q	Median	3Q	Max
-4.1937	-0.1786	0.0002	0.1416	4.8632

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	95.75	9.785
Lek	(Intercept)	0.00	0.000
Residual		41.00	6.403

Number of obs: 524, groups: ID, 247; Lek, 5

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	0.9911	0.9149	1.083
Mo2S	-3.0805	1.7648	-1.746
F01Y	0.9904	0.7125	1.390
Ta2R	27.2689	1.6023	17.019
RM.S	0.2352	0.6251	0.376
PFA.S	-0.7303	0.7883	-0.926
Mo2S:F01Y	-0.2467	1.3204	-0.187
F01Y:Ta2R	16.5715	1.3640	12.149
F01Y:RM.S	-0.6224	0.6126	-1.016
F01Y:PFA.S	-1.0882	0.6159	-1.767

Correlation of Fixed Effects:

	(Intr)	Mo2S	F01Y	Ta2R	RM.S	PFA.S	M2S:F0	F01Y:T	F01Y:R
Mo2S	-0.462								
F01Y	-0.389	0.172							
Ta2R	-0.391	0.056	0.186						

```

RM.S      -0.029  0.008  0.004  0.080
PFA.S      0.010  0.047 -0.006 -0.094 -0.413
Mo2S:F01Y  0.179 -0.374 -0.459 -0.021 -0.004 -0.019
F01Y:Ta2R  0.170 -0.018 -0.438 -0.426 -0.005  0.035  0.049
F01Y:RM.S  0.003 -0.003 -0.008 -0.005 -0.490  0.158  0.009  0.011
F01Y:PFA.S -0.006 -0.018  0.016  0.038  0.198 -0.391  0.049 -0.090 -0.404

```

Seasonal lek attendance in the presence or absence of females, effect of lek tenure and returning tested in separate models (R-males)

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: PA ~ Mo2*F01+T2*F01+RM*F01+PFA*F01+(1|ID)+(1|Lek)

```

      AIC      BIC    logLik deviance df.resid
 936.0    971.5   -455.0    910.0     101

```

Scaled residuals:

```

      Min      1Q   Median      3Q      Max
-2.08586 -0.51499 -0.03961  0.50223  2.19937

```

Random effects:

```

Groups   Name              Variance Std.Dev.
ID       (Intercept)    167.67  12.949
Lek      (Intercept)         0.00   0.000
Residual                    75.74   8.703

```

Number of obs: 114, groups: ID, 54; Lek, 5

Fixed effects:

```

              Estimate Std. Error t value
(Intercept)   7.6859     8.2749   0.929
Mo2S          -18.9477    5.6002  -3.383
F01Y           22.0534    7.4053   2.978
T2              1.4101    0.2132   6.613
RM              0.1793    1.3304   0.135
PFA            -0.1149    0.2420  -0.475
Mo2S:F01Y      0.3151    4.1413   0.076
F01Y:T2        0.7808    0.1673   4.667
F01Y:RM       -1.8100    1.3028  -1.389
F01Y:PFA      -0.3625    0.1919  -1.889

```

Correlation of Fixed Effects:

```

              (Intr) Mo2S  F01Y  T2    RM    PFA    M2S:F0 F01Y:T F01Y:R
Mo2S         -0.140
F01Y         -0.447  0.052
T2           -0.413 -0.049  0.136
RM           -0.485  0.013  0.307 -0.178
PFA          -0.451  0.047  0.136  0.170 -0.403
Mo2S:F01Y    0.063 -0.370 -0.141  0.008 -0.002 -0.023
F01Y:T2      0.156  0.007 -0.348 -0.392  0.079 -0.068 -0.020
F01Y:RM      0.281 -0.001 -0.627  0.063 -0.490  0.153  0.004 -0.160
F01Y:PFA     0.154 -0.022 -0.343 -0.067  0.189 -0.396  0.059  0.171 -0.385

```

Variable	Chisq	p
Mo2	11.66	0.002925
F01	74.199	1.367e-14
T2	69.676	7.415e-16
→ T01	24.275	5.355e-06
RM	2.2926	0.3178
PFA	5.2121	0.07382
F01 : Mo2	0.0058	0.9393

F01 : T2	18.604	1.609e-05
→ F01 : T01	12.227	0.000471
F01 : RM	1.8997	0.1681
F01 : PFA	3.4682	0.06256
ID	42.291	7.867e-11
Lek	0	1

Seasonal lek attendance in the presence or absence of females, effect of lek tenure (R-males)

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: PA ~ Mo2*F01+T2.S*F01+RM.S*F01+PFA.S*F01+(1|ID)+(1|Lek)

      AIC      BIC    logLik deviance df.resid
  936.0    971.5   -455.0    910.0     101

Scaled residuals:
      Min       1Q   Median       3Q      Max
-2.08586 -0.51499 -0.03961  0.50223  2.19937

Random effects:
 Groups   Name      Variance Std.Dev.
 ID       (Intercept) 167.67   12.949
 Lek      (Intercept)  0.00    0.000
 Residual                75.74    8.703
Number of obs: 114, groups: ID, 54; Lek, 5

Fixed effects:
              Estimate Std. Error t value
(Intercept)  30.3142    2.3211  13.061
Mo2S         -18.9477    5.6002  -3.383
F01Y         17.2190    1.8155   9.484
T2.S         14.0902    2.1307   6.613
RM.S          0.2456    1.8222   0.135
PFA.S        -1.0726    2.2594  -0.475
Mo2S:F01Y    0.3151    4.1413   0.076
F01Y:T2.S    7.8017    1.6715   4.667
F01Y:RM.S   -2.4790    1.7845  -1.389
F01Y:PFA.S  -3.3843    1.7912  -1.889

Correlation of Fixed Effects:
      (Intr) Mo2S   F01Y   T2.S   RM.S   PFA.S   M2S:F0 F01Y:T F01Y:R
Mo2S      -0.417
F01Y      -0.391  0.163
T2.S       0.013 -0.049 -0.003
RM.S       0.003  0.013  0.001 -0.178
PFA.S     -0.030  0.047  0.010  0.170 -0.403
Mo2S:F01Y  0.172 -0.370 -0.440  0.008 -0.002 -0.023
F01Y:T2.S -0.003  0.007  0.009 -0.392  0.079 -0.068 -0.020
F01Y:RM.S  0.001 -0.001 -0.002  0.063 -0.490  0.153  0.004 -0.160
F01Y:PFA.S 0.010 -0.022 -0.026 -0.067  0.189 -0.396  0.059  0.171 -0.385

```

Seasonal lek attendance in the presence or absence of females, effect of returning (R-males)

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: PA ~ Mo2*F01+T01*F01+RM.S*F01+PFA.S*F01+(1|ID)+(1|Lek)

      AIC      BIC    logLik deviance df.resid
  981.4    1016.9   -477.7    955.4     101

Scaled residuals:
      Min       1Q   Median       3Q      Max

```

-2.10345 -0.50650 0.02605 0.45462 1.91737

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	363.32	19.061
Lek	(Intercept)	0.00	0.000
Residual		87.12	9.334

Number of obs: 114, groups: ID, 54; Lek, 5

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	21.237	4.597	4.620
Mo2S	-18.186	7.692	-2.364
F01Y	10.187	2.792	3.649
T01Y	15.758	5.996	2.628
RM.S	1.683	2.159	0.780
PFA.S	-2.118	3.079	-0.688
Mo2S:F01Y	-0.365	4.451	-0.082
F01Y:T01Y	12.760	3.669	3.478
F01Y:RM.S	-2.803	1.948	-1.438
F01Y:PFA.S	-3.464	1.932	-1.793

Correlation of Fixed Effects:

	(Intr)	Mo2S	F01Y	T01Y	RM.S	PFA.S	M2S:F0	F01Y:T	F01Y:R
Mo2S	-0.228								
F01Y	-0.304	0.074							
T01Y	-0.726	-0.077	0.219						
RM.S	0.149	0.016	-0.079	-0.198					
PFA.S	-0.161	0.040	0.051	0.191	-0.426				
Mo2S:F01Y	0.078	-0.289	-0.257	0.021	-0.008	-0.015			
F01Y:T01Y	0.218	0.020	-0.717	-0.306	0.111	-0.063	-0.069		
F01Y:RM.S	-0.053	-0.005	0.175	0.075	-0.451	0.125	0.017	-0.245	
F01Y:PFA.S	0.049	-0.014	-0.163	-0.061	0.180	-0.314	0.048	0.201	-0.398

Copulations: correlates of daily copulation success

Daily copulation success, effect of attendance and lek size (all males)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) [glmerMod]

Family: binomial (logit)

Formula: B01 ~ PA.S+RM.S+(1|DS.S)+(1|ID)+(1|Lek)+(1|M)

AIC	BIC	logLik	deviance	df.resid
287.7	315.6	-136.9	273.7	387

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.1347	-0.3391	-0.1922	-0.1720	4.6370

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	0.12144	0.3485
DS.S	(Intercept)	0.05544	0.2355
Lek	(Intercept)	0.00000	0.0000
M	(Intercept)	0.02340	0.1530

Number of obs: 394, groups: ID, 178; DS.S, 23; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-2.26335	0.30298	-7.470	8.01e-14	***
PA.S	1.29231	0.19027	6.792	1.11e-11	***
RM.S	0.06482	0.17181	0.377	0.706	

Correlation of Fixed Effects:

(Intr) PA.S
PA.S -0.623
RM.S -0.031 -0.013

Daily copulation success, effect of morph and lek size (all males)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) [glmerMod]
Family: binomial (logit)
Formula: B01 ~ Mo+RM.S+(1|DS.S)+(1|ID)+(1|Lek)+(1|M)
Control: glmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 2e+05))

AIC	BIC	logLik	deviance	df.resid
348.9	376.7	-167.4	334.9	387

Scaled residuals:

Min	1Q	Median	3Q	Max
-0.8565	-0.3259	-0.2313	-0.2029	3.1999

Random effects:

Groups Name	Variance	Std.Dev.
ID (Intercept)	2.38810	1.5453
DS.S (Intercept)	0.04558	0.2135
Lek (Intercept)	0.00000	0.0000
M (Intercept)	0.00000	0.0000

Number of obs: 394, groups: ID, 178; DS.S, 23; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-2.76766	0.67707	-4.088	4.36e-05	***
MoS	-0.01313	0.57155	-0.023	0.982	
RM.S	0.10195	0.20076	0.508	0.612	

Correlation of Fixed Effects:

(Intr) MoS
MoS -0.296
RM.S -0.013 0.026

Daily copulation success, effect of attendance, lek size and returning (R-males)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) [glmerMod]
Family: binomial (logit)
Formula: B01 ~ PA.S+RM.S+T01+(1|DS.S)+(1|ID)+(1|Lek)+(1|M)

AIC	BIC	logLik	deviance	df.resid
258.5	285.1	-121.2	242.5	199

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.0427	-0.7218	-0.5023	1.1127	2.2479

Random effects:

Groups Name	Variance	Std.Dev.
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```

ID      (Intercept) 0.000e+00 0.000e+00
DS.S    (Intercept) 1.568e-10 1.252e-05
Lek     (Intercept) 0.000e+00 0.000e+00
M       (Intercept) 2.205e-02 1.485e-01
Number of obs: 207, groups: ID, 48; DS.S, 23; Lek, 5; M, 2

```

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-1.44253	0.37980	-3.798	0.000146	***
PA.S	0.51511	0.17716	2.908	0.003643	**
RM.S	-0.02073	0.16180	-0.128	0.898062	
T01Y	0.75210	0.40253	1.868	0.061700	.

Correlation of Fixed Effects:

	(Intr)	PA.S	RM.S
PA.S	-0.176		
RM.S	0.122	0.042	
T01Y	-0.862	0.082	-0.163

Daily copulation success, effect of attendance, morph, lek size and returning (R-males). Used to predict values for Fig. 5a.

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) [glmerMod]
Family: binomial (logit)
Formula: B02 ~ PA+Mo1+RM+T01+(1|DS)+(1|ID)+(1|Lek)+(1|M)

AIC	BIC	logLik	deviance	df.resid
259.2	289.2	-120.6	241.2	198

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.1149	-0.7188	-0.4798	1.1087	2.4103

Random effects:

Groups Name	Variance	Std.Dev.
ID (Intercept)	4.814e-09	6.938e-05
DS (Intercept)	0.000e+00	0.000e+00
Lek (Intercept)	2.801e-10	1.674e-05
M (Intercept)	3.906e-02	1.976e-01

Number of obs: 207, groups: ID, 48; DS, 23; Lek, 5; M, 2

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-2.785684	0.917281	-3.037	0.00239	**
PA	0.021116	0.006992	3.020	0.00253	**
MoS	0.526900	0.465743	1.131	0.25792	
RM	-0.012566	0.087131	-0.144	0.88533	
T01Y	0.778837	0.404107	1.927	0.05394	.

Correlation of Fixed Effects:

	(Intr)	PA	MoS	RM
PA	-0.632			
MoS	-0.416	0.573		
RM	-0.664	0.027	-0.015	
T01Y	-0.306	0.103	0.067	-0.155

Copulations: correlates of seasonal copulation success

Seasonal copulation success, effect of attendance, morph, returning and lek size (R-males)

```
> ss <- getME(RMAS1,c("theta","fixef"))
> RMAS2 <- update(RMAS1,start=ss)

Generalized linear mixed model fit by maximum likelihood (Laplace
Approximation) [glmerMod]
Family: Negative Binomial(365.3706) ( log )
Formula: BN ~ PA2.S*Mo2+RM.S+T01+(1|ID)+(1|Lek)

      AIC      BIC    logLik deviance df.resid
 185.0    202.0    -83.5   167.0     40

Scaled residuals:
   Min       1Q   Median       3Q      Max
-1.2978 -0.5041 -0.1090  0.2353  1.2671

Random effects:
Groups Name      Variance Std.Dev.
ID   (Intercept) 7.417e-01 0.8612128
Lek  (Intercept) 1.328e-08 0.0001152
Number of obs: 49, groups: ID, 46; Lek, 4

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)  -0.3249    0.3966  -0.819   0.413
PA2.S         1.1623    0.2454   4.737 2.17e-06 ***
Mo2S          0.7023    0.5947   1.181   0.238
RM.S          0.1440    0.1878   0.767   0.443
T01Y         0.3447    0.4498   0.766   0.443
PA2.S:Mo2S   0.0119    0.6816   0.017   0.986

Correlation of Fixed Effects:
              (Intr) PA2.S  Mo2S   RM.S   T01Y
PA2.S        -0.282
Mo2S         -0.212  0.331
RM.S         0.104  0.112 -0.048
T01Y        -0.663 -0.293 -0.174 -0.270
PA2.S:Mo2S  0.162 -0.334  0.264 -0.200  0.023
```

Seasonal copulation success, effect of attendance, morph, returning and lek size. Model without interaction term (R-males). Model used to predict values in Fig. 5b.

```
> ss <- getME(RMAC1,c("theta","fixef"))
> RMAC2 <- update(RMAC1,start=ss)

Generalized linear mixed model fit by maximum likelihood (Laplace
Approximation) [glmerMod]
Family: Negative Binomial(365.6801) ( log )
Formula: BN ~ PA2+Mo2+RM+T01+(1|ID)+(1|Lek)

      AIC      BIC    logLik deviance df.resid
 183.0    198.1    -83.5   167.0     41

Scaled residuals:
   Min       1Q   Median       3Q      Max
-1.2975 -0.5033 -0.1087  0.2358  1.2676

Random effects:
Groups Name      Variance Std.Dev.
ID   (Intercept) 7.425e-01 0.8616698
Lek  (Intercept) 1.933e-10 0.0000139
```

Number of obs: 49, groups: ID, 46; Lek, 4

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-2.49652	0.89726	-2.782	0.0054	**
PA2	0.05300	0.01054	5.029	4.93e-07	***
Mo2S	0.69956	0.57362	1.220	0.2226	
RM	0.10586	0.13465	0.786	0.4318	
T01Y	0.34451	0.44984	0.766	0.4438	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:

	(Intr)	PA2	Mo2S	RM
PA2	-0.499			
Mo2S	-0.283	0.461		
RM	-0.783	0.050	0.005	
T01Y	0.036	-0.303	-0.187	-0.271

Seasonal proportion of copulations observed, effect of number of copulations expected (all males at least once present at a female copulation visit). Model used to predict values Fig. 6b.

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

Family: Negative Binomial(445.1277) (log)

Formula: PBO ~ PBE*Mo2+(1|ID)+(1|Lek)

AIC	BIC	logLik	deviance	df.resid
278.5	295.6	-132.3	264.5	77

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.01878	-0.25353	-0.18388	-0.03368	1.56473

Random effects:

Groups	Name	Variance	Std.Dev.
ID	(Intercept)	3.26e+00	1.805e+00
Lek	(Intercept)	2.61e-10	1.616e-05

Number of obs: 84, groups: ID, 80; Lek, 4

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-3.54433	0.75599	-4.688	2.75e-06	***
PBE	0.40249	0.05911	6.810	9.79e-12	***
Mo2S	0.97618	1.13344	0.861	0.389	
PBE:Mo2S	0.06325	0.16625	0.380	0.704	

Correlation of Fixed Effects:

	(Intr)	PBE	Mo2S
PBE	-0.865		