

Appendix 1

Table A1. All candidate models ranked based on AICc for the analyses investigating the movement behavior of 25 GPS-collared European hares *Lepus europaeus* in the first 14 days post-capture.

Model/ Fixed effects	df	logLik	AICc	delta AICc	AIC weight
<i>Distance moved $m h^{-1}$ - active hares</i>					
Sex	4	-21051	42110	0.0	1.00
Intercept only	3	-21058	42122	12.5	0.00
Days after capture + Sex	33	-21069	42204	94.6	0.00
Days after capture	32	-21076	42217	107.4	0.00
Days after capture + Sex + Days after capture : Sex	62	-21059	42244	133.8	0.00
<i>Distance moved ($m h^{-1}$) - inactive hares</i>					
Intercept only	3	-7995	15995	0.0	0.56
Sex	4	-7994	15996	0.4	0.45
Days after capture	32	-7984	16032	36.9	0.00
Days after capture + Sex	33	-7983	16033	37.5	0.00
Days after capture + Sex + Days after capture : Sex	62	-7967	16059	63.8	0.00
<i>Number of inactive GPS positions</i>					
Days after capture + Sex	16	-892	1818	0.0	1.00
Days after capture	15	-899	1830	11.9	0.00
Days after capture + Sex + Days after capture : Sex	29	-886	1836	17.9	0.00
Sex	3	-1863	3731	1913.0	0.00

Intercept only	2	-1869	3742	1923.8	0.00
<i>Daily 95% KDE home range size</i>					
Sex	4	-379	767	0.0	0.99
Intercept only	3	-385	777	9.7	0.01
Days after capture + Sex	17	-386	808	40.7	0.00
Days after capture	16	-392	817	50.4	0.00
Days after capture + Sex + Days after capture : Sex	30	-386	838	71.0	0.00
<i>50% KDE centroid shift (m)</i>					
Days after capture + Sex	17	-550	1136	0.0	0.94
Days after capture	16	-554	1142	6.1	0.04
Days after capture + Sex + Days after capture : Sex	30	-539	1144	8.1	0.02
Sex	4	-1118	2244	1107.5	0.00
Intercept only	3	-1124	2255	1118.5	0.00
<i>Distance from field edge (m)</i>					
Sex	4	-11288	22585	0.0	0.50
Intercept only	3	-11289	22585	0.0	0.49
Days after capture + Sex + Days after capture : Sex	30	-11267	22595	10.2	0.00
Days after capture + Sex	17	-11280	22595	10.2	0.00
Days after capture	16	-11281	22595	10.2	0.00
<i>Proportion in >25 cm high vegetation</i>					
Days after capture + Sex + Days after capture : Sex	29	-3956	7970	0.0	1.00
Days after capture + Sex	16	-3988	8007	37.4	0.00
Days after capture	15	-3990	8010	39.9	0.00
Sex	3	-4026	8057	87.4	0.00
Intercept only	2	-4028	8060	89.8	0.00

Table A2. Estimate (β) \pm SE and 95% confidence interval (in parenthesis) for the analyses investigating the movement behavior of 25 GPS-collared European hares *Lepus europaeus* in the first 14 days post-capture. Only variables included in the best model are shown (if Δ AICc was < 10 in two or more of the most parsimonious models, we performed model averaging). Informative parameters are in bold.

Variable	log (Distance moved (m h ⁻¹)) active hares	log (Distance moved (m/h)) inactive hares	Daily 95% KDE home range	50% KDE centroid shift	Number of inactive GPS positions	Proportion in >25 cm high vegetation
	$\beta \pm$ SE (95% CI)	$\beta \pm$ SE (95% CI)	$\beta \pm$ SE (95% CI)	$\beta \pm$ SE (95% CI)	$\beta \pm$ SE (95% CI)	$\beta \pm$ SE (95% CI)
Intercept (Day post-capture 1)	3.09 \pm 0.14 (2.82; 3.36)	2.26 \pm 0.11 (2.05; 2.47)	2.08 \pm 0.21 (1.67; 2.49)	4.17 \pm 0.3 (3.59; 4.75)	2.69 \pm 0.1 (2.49; 2.89)	1.46 \pm 0.65 (0.19; 2.73)
Day post-capture 2				0.02 \pm 0.32 (-0.61; 0.66)	-0.05 \pm 0.08 (-0.21; 0.12)	-0.06 \pm 0.23 (-0.51; 0.39)
Day post-capture 3				-0.24 \pm 0.33 (-0.88; 0.4)	-0.12 \pm 0.08 (-0.29; 0.04)	-0.11 \pm 0.23 (-0.56; 0.34)
Day post-capture 4				-0.06 \pm 0.32 (-0.7; 0.58)	-0.02 \pm 0.08 (-0.19; 0.14)	-0.27 \pm 0.23 (-0.71; 0.18)
Day post-capture 5				0.14 \pm 0.33 (-0.5; 0.78)	-0.18 \pm 0.09 (-0.35; -0.01)	-0.23 \pm 0.23 (-0.68; 0.22)
Day post-capture 6				-0.12 \pm 0.32 (-0.76; 0.52)	-0.18 \pm 0.09 (-0.35; -0.01)	0.39 \pm 0.24 (-0.08; 0.85)
Day post-capture 7				-0.49 \pm 0.32 (-1.13; 0.15)	-0.22 \pm 0.09 (-0.39; -0.05)	-0.28 \pm 0.23 (-0.72; 0.17)
Day post-capture 8				-0.37 \pm 0.33 (-1.01; 0.27)	-0.26 \pm 0.09 (-0.43; -0.08)	-0.13 \pm 0.23 (-0.58; 0.32)
Day post-capture 9				-0.33 \pm 0.32 (-0.97; 0.3)	-0.19 \pm 0.09 (-0.36; -0.02)	0.38 \pm 0.24 (-0.09; 0.84)
Day post-capture 10				-0.44 \pm 0.33 (-1.09; 0.21)	-0.21 \pm 0.09 (-0.39; -0.04)	0.07 \pm 0.23 (-0.38; 0.53)

Day post-capture 11				-0.3 ± 0.33 (-0.96; 0.35)	-0.07 ± 0.08 (-0.23; 0.1)	0.54 ± 0.24 (0.07; 1.01)
Day post-capture 12				-0.37 ± 0.34 (-1.03; 0.29)	-0.11 ± 0.09 (-0.28; 0.06)	0.27 ± 0.23 (-0.19; 0.73)
Day post-capture 13				-0.15 ± 0.34 (-0.82; 0.51)	-0.13 ± 0.09 (-0.29; 0.04)	0.01 ± 0.23 (-0.44; 0.47)
Day post-capture 14				0.09 ± 0.33 (-0.55; 0.73)	-0.25 ± 0.09 (-0.42; -0.08)	0.13 ± 0.23 (-0.32; 0.59)
Sex Male	0.83 ± 0.18 (0.48; 1.17)	0.24 ± 0.12 (0.01; 0.48)	1.06 ± 0.27 (0.54; 1.58)	0.75 ± 0.24 (0.28; 1.21)	-0.46 ± 0.11 (-0.67; -0.25)	-1.4 ± 0.83 (-3.02; 0.22)
Days post-capture 2 × Sex Male				-0.2 ± 0.65 (-1.48; 1.08)		-0.44 ± 0.3 (-1.02; 0.14)
Days post-capture 3 × Sex Male				0.53 ± 0.65 (-0.75; 1.81)		0.06 ± 0.3 (-0.52; 0.64)
Days post-capture 4 × Sex Male				0.47 ± 0.65 (-0.8; 1.75)		-0.27 ± 0.3 (-0.86; 0.31)
Days post-capture 5 × Sex Male				-0.58 ± 0.65 (-1.86; 0.7)		-1.04 ± 0.3 (-1.63; -0.45)
Days post-capture 6 × Sex Male				0.33 ± 0.65 (-0.94; 1.61)		-0.92 ± 0.3 (-1.51; -0.33)
Days post-capture 7 × Sex Male				0.48 ± 0.65 (-0.8; 1.76)		0.35 ± 0.29 (-0.22; 0.93)
Days post-capture 8 × Sex Male				0.62 ± 0.65 (-0.66; 1.9)		0.35 ± 0.29 (-0.23; 0.93)
Days post-capture 9 × Sex Male				0.07 ± 0.65 (-1.21; 1.35)		-0.95 ± 0.3 (-1.54; -0.35)
Days post-capture 10 × Sex Male				-0.46 ± 0.66 (-1.76; 0.84)		-0.56 ± 0.3 (-1.15; 0.02)

Days post-capture 11 × Sex Male	0.72 ± 0.66 (-0.58; 2.02)	-0.8 ± 0.3 (-1.39; -0.2)
Days post-capture 12 × Sex Male	0.99 ± 0.66 (-0.32; 2.29)	-0.52 ± 0.3 (-1.1; 0.07)
Days post-capture 13 × Sex Male	1.15 ± 0.66 (-0.15; 2.45)	-0.46 ± 0.3 (-1.05; 0.12)
Days post-capture 14 × Sex Male	0.09 ± 0.66 (-1.22; 1.39)	0.05 ± 0.3 (-0.53; 0.63)

Table A3. All candidate models ranked (rank = model rank) based on AICc for the analyses investigating the movement behavior of 25 GPS-collared European hares *Lepus europaeus* in response to experimental disturbance. Analyses were conducted separately for the hour before, during, and after the disturbance (distance moved and distance from field edges), and for three days before, the disturbance day, and three days after the disturbance (all analyses). The highest ranking models within ΔAICc was < 10 are indicated in bold.

Model/ Fixed effects	Hour before, during and after						Three day period					
	rank	df	logLik	AICc	delta AICc	AIC weight	rank	df	logLik	AICc	delta AICc	AIC weight
<i>Distance moved ($m h^{-1}$)</i>												
Sex + Period + Disturbance type + Period : Disturbance type	1	14	-475	979	0	0.89	10	14	-33187	66401	22	0.00
Period + Disturbance type + Period : Disturbance type	2	15	-476	983	4	0.11	9	15	-33185	66400	20	0.00
Period + Disturbance type	3	8	-553	1122	143	0.00	3	8	-33182	66381	2	0.21
Sex + Period + Disturbance type	4	9	-553	1126	147	0.00	1	9	-33181	66379	0	0.45
Disturbance type	5	6	-589	1190	211	0.00	4	6	-33185	66382	3	0.11
Period	6	5	-590	1191	212	0.00	6	5	-33190	66391	12	0.00
Sex + Period	7	6	-591	1193	215	0.00	5	6	-33189	66390	11	0.00
Sex + Disturbance type	8	7	-590	1194	215	0.00	2	7	-33183	66381	1	0.23
Intercept only	9	3	-619	1244	265	0.00	8	3	-33193	66392	13	0.00
Sex	10	4	-619	1247	268	0.00	7	4	-33192	66391	12	0.00
<i>Daily 95% KDE home range size</i>												
Sex + Period + Disturbance type							1	9	-986	1991	0	0.68
Sex + Period + Disturbance type +							2	15	-982	1994	3	0.17

Period : Disturbance type						
Period + Disturbance type	3	8	-989	1995	4	0.11
Period + Disturbance type + Period :	4	14	-984	1997	6	0.03
Disturbance type						
Sex + Disturbance type	5	7	-993	2000	9	0.01
Disturbance type	6	6	-996	2004	13	0.00
Sex + Period	7	6	-1002	2016	25	0.00
Period	8	5	-1005	2019	28	0.00
Sex	9	4	-1008	2025	34	0.00
Intercept only	10	3	-1011	2028	37	0.00

Number of GPS positions outside the three day pre-disturbance home range

Period + Disturbance type + Period :	1	13	-720	1468	0	0.73
Disturbance type						
Sex + Period + Disturbance type + Period : Disturbance type	2	14	-720	1470	2	0.27
Period + Disturbance type	3	7	-735	1485	17	0.00
Sex + Period + Disturbance type	4	8	-735	1487	19	0.00
Period	5	4	-876	1760	292	0.00
Sex + Period	6	5	-876	1761	294	0.00
Disturbance type	7	5	-1041	2093	625	0.00
Sex + Disturbance type	8	6	-1041	2095	627	0.00

Intercept only							9	2	-1182	2368	900	0.00
Sex							10	3	-1182	2370	902	0.00
<i>Distance from field edge (m)</i>												
Period + Disturbance type + Period :	9	14	-470	970	31	0.00	1	14	-54755	109537	0	0.84
Disturbance type												
Sex + Period + Disturbance type + Period : Disturbance type	10	15	-470	972	32	0.00	2	15	-54755	109540	3	0.16
Period + Disturbance type	7	8	-471	959	20	0.00	3	8	-54822	109660	123	0.00
Sex + Period + Disturbance type	8	9	-471	961	21	0.00	4	9	-54823	109663	126	0.00
Disturbance type	5	6	-469	951	11	0.00	5	6	-54839	109691	153	0.00
Sex + Disturbance type	6	7	-469	952	12	0.00	6	7	-54840	109694	157	0.00
Period	3	5	-469	948	9	0.01	7	5	-54980	109970	433	0.00
Sex + Period	4	6	-469	950	10	0.00	8	6	-54981	109973	436	0.00
Intercept only	1	3	-467	940	0	0.66	9	3	-54997	109999	462	0.00
Sex	2	4	-466	941	1	0.33	10	4	-54998	110003	466	0.00
<i>Probaility of being in >25 cm high vegetation</i>												
Period + Disturbance type + Period :							1	13	-16264	32555	0	0.69
Disturbance type												
Sex + Period + Disturbance type + Period : Disturbance type							2	14	-16264	32556	2	0.31

Period + Disturbance type	3	7	-16351	32717	162	0.00
Sex + Period + Disturbance type	4	8	-16351	32718	164	0.00
Disturbance type	5	5	-16356	32722	167	0.00
Sex + Disturbance type	6	6	-16356	32724	169	0.00
Period	7	4	-16426	32861	306	0.00
Sex + Period	8	5	-16426	32862	308	0.00
Intercept only	9	2	-16431	32866	311	0.00
Sex	10	3	-16431	32867	313	0.00

Table A4. The estimate, SE and 95% lower (LCI) and upper (UCI) confidence intervals for the analysis investigating the distance moved (m) by 12 GPS-collared European hares *Lepus europaeus* in the hour before (intercept), during and after the disturbance. Informative parameters are in bold.

log (Distance moved (m h ⁻¹)) - hour before, during and after				
Variable	Estimate	SE	LCI	UCI
Intercept	2.04	0.16	1.73	2.36
Sex	-0.07	0.12	-0.31	0.16
Period Treatment hour	-0.08	0.22	-0.52	0.36
Period Hour after	-0.18	0.23	-0.63	0.26
Disturbance Data download	-0.17	0.26	-0.67	0.34
Disturbance Disturbed without shot	-0.03	0.27	-0.56	0.50
Disturbance Shot fired	-0.13	0.31	-0.73	0.47
Period Treatment hour × Disturbance Data download	0.77	0.37	0.06	1.49
Period Hour after × Disturbance Data download	0.71	0.37	-0.01	1.43
Period Treatment hour × Disturbance Disturbed without shot	3.83	0.38	3.09	4.58
Period Hour after × Disturbance Disturbed without shot	1.15	0.38	0.40	1.90
Period Treatment hour × Disturbance Shot fired	4.25	0.43	3.41	5.10
Period Hour after × Disturbance Shot fired	0.25	0.43	-0.60	1.10

Table A5. Estimate \pm SE and 95% confidence interval (in parenthesis) for the analyses investigating the daily home range size (calculated from 95% KDEs), number of GPS positions outside the three-day pre-disturbance home range, distance from field edges, and proportion of GPS positions in >25 cm high vegetation of 12 GPS-collared European hares *Lepus europaeus* after being experimentally disturbed. Informative parameters are in bold. Note that for the analysis of the number of GPS positions outside the three-day pre-disturbance home range, we did not include the period ‘before’ in the analysis as this was by definition the same for all treatments.

Variable	Daily home range size (95% KDE)	Number of GPS positions outside the three day pre-disturbance home range	log (Distance from field edge (m))	Proportion in >25 cm high vegetation
	Estimate \pm SE (95% CI)	Estimate \pm SE (95% CI)	Estimate \pm SE (95% CI)	Estimate \pm SE (95% CI)
Intercept	2.36 \pm 0.25 (1.87; 2.84)	0.26 \pm 0.22 (-0.18; 0.69)	3.19 \pm 0.07 (3.05; 3.33)	-1.57 \pm 0.58 (-2.71; -0.43)
Sex	0.79 \pm 0.28 (0.24; 1.34)	-0.16 \pm 0.32 (-0.8; 0.47)	0.12 \pm 0.13 (-0.13; 0.37)	-0.8 \pm 0.78 (-2.33; 0.73)
Period Treatment	0.35 \pm 0.19 (-0.02; 0.72)		0.1 \pm 0.02 (0.06; 0.15)	0.09 \pm 0.07 (-0.04; 0.22)
Period 3 days after	0.06 \pm 0.08 (-0.1; 0.22)	0.53 \pm 0.16 (0.22; 0.85)	-0.14 \pm 0.02 (-0.17; -0.1)	0.23 \pm 0.05 (0.14; 0.32)
Disturbance Data download	0.49 \pm 0.09 (0.3; 0.67)	0.65 \pm 0.18 (0.3; 1)	0 \pm 0.02 (-0.05; 0.04)	0.37 \pm 0.05 (0.26; 0.47)
Disturbance Disturbed without shot	0.36 \pm 0.13 (0.12; 0.61)	1.56 \pm 0.15 (1.26; 1.85)	0.2 \pm 0.02 (0.16; 0.24)	0.14 \pm 0.06 (0.03; 0.25)
Disturbance Shot fired	0.2 \pm 0.15 (-0.09; 0.48)	1.92 \pm 0.15 (1.62; 2.22)	0.08 \pm 0.03 (0.03; 0.13)	0.27 \pm 0.06 (0.15; 0.39)
Period Treatment day \times Disturbance Data download	0.28 \pm 0.25 (-0.2; 0.76)		-0.07 \pm 0.04 (-0.15; 0.01)	0.12 \pm 0.1 (-0.08; 0.32)
Period 3 days after \times Disturbance Data download	-0.11 \pm 0.17 (-0.45; 0.24)	-0.93 \pm 0.25 (-1.43; -0.44)	0.19 \pm 0.03 (0.14; 0.25)	-0.29 \pm 0.07 (-0.44; -0.15)
Period Treatment day \times Disturbance Disturbed without shot	0.81 \pm 0.26 (0.3; 1.31)		-0.15 \pm 0.04 (-0.23; -0.07)	-0.43 \pm 0.12 (-0.65; -0.2)
Period 3 days after \times Disturbance Disturbed without shot	0.21 \pm 0.18 (-0.15; 0.56)	-0.84 \pm 0.2 (-1.23; -0.45)	0.03 \pm 0.03 (-0.03; 0.09)	-0.39 \pm 0.08 (-0.54; -0.23)

Period Treatment day × Disturbance Shot fired	0.96 ± 0.29 (0.39; 1.53)		0.15 ± 0.05 (0.05; 0.25)	-0.63 ± 0.13 (-0.88; -0.38)
Period 3 days after × Disturbance Shot fired	0.25 ± 0.21 (-0.15; 0.65)	-0.95 ± 0.21 (-1.35; -0.54)	0.37 ± 0.04 (0.3; 0.44)	-1.11 ± 0.09 (-1.29; -0.93)
