

Supplementary material

Marco Gustin, Giuseppe Giglio, Stefania Caterina Pellegrino, Annagrazia Frassanito & Alessandro Ferrarini: New evidences confirm that during the breeding season Lesser Kestrel is not a strictly diurnal raptor. — *Ornis Fennica* 94: 194–199.

Supplement A. Description of the tracked Lesser Kestrels.

ID	GPS code	Sex	Weight (g)	Data logger-individual weight ratio (%)	N. chicks	N. eggs	Tracked since	Tracked until
1	Al_fem_185	female	165	3.03	2	0	July 2nd	July 4th
2	Al_fem_186	female	159	3.14	5	0	June 23th	June 26th
3	Al_mas_41	male	135	3.70	4	0	July 4th	July 8th
4	Al_mas_49	male	138	3.62	4	0	June 26th	June 28th
5	Gr_mas_30	male	138	3.62	5	0	June 20th	June 25th
6	Gr_mas_52	male	130	3.85	4	1	June 28th	July 2nd
7	Gr_mas_65	male	139	3.60	3	0	June 25th	June 30th
8	Gr_mas_69	male	143	3.50	2	2	June 19th	June 22th
9	Gr_mas_70	male	133	3.76	4	0	June 15th	June 19th

Supplement B. Nine birds were monitored during the nestling period, between June 15th and July 8th 2013. GPS sampling frequency was 1 fix/minute. Birds were captured and fitted with data loggers at their nest boxes when they were delivering food to nestlings. All devices were tied dorsally to the base of two central tail feathers. The percentage weight of the devices in relation to tracked Lesser Kestrels was less than 4% for all of the individuals. To download the data from the data-loggers, birds were recaptured at their nest boxes after batteries were exhausted. The deployment of transmitters did not take more than 15 minutes, and on no occasion did it have visible deleterious effects on the studied birds.



Supplement C. Inferential statistics for three diurnal and nocturnal flight attributes of the tracked Lesser Kestrels. As the data points from the same individuals were most likely correlated, leading to pseudo-replication, we used a study design where the averaged night and day activities are compared.

1) Average 1-minute flight length (m)	ID	GPS code	daytime	night-time	Daytime	Night-time	(upper-tailed) paired <i>t</i> daytime Vs night-time
			n. GPS points	n. GPS points			
individuals	1	Al_fem_185	1890	1019	240.9	62.8	
	2	Al_fem_186	2586	1482	208.8	49.8	
	3	Gr_mas_30	3113	1985	207.9	75.7	
	4	Gr_mas_52	3122	1559	231.9	88.5	<i>t</i> = 8.19
	5	Gr_mas_65	4226	1188	291.4	130.2	<i>p</i> < 0.001
	6	Gr_mas_69	2578	1520	134.3	59.2	
	7	Gr_mas_70	4095	2038	259.1	51.1	
	8	Al_mas_41	3458	1530	245.4	116.8	
	9	Al_mas_49	2635	1099	186.6	140.8	
2) Average distance from nest (m)	ID	GPS code	daytime	night-time	Daytime	Night-time	(upper-tailed) paired <i>t</i> daytime Vs night-time
			n. GPS points	n. GPS points			
individuals	1	Al_fem_185	1890	1019	2602.4	892.0	
	2	Al_fem_186	2586	1482	3400.9	1745.6	
	3	Gr_mas_30	3113	1985	2150.3	1538.5	
	4	Gr_mas_52	3122	1559	3373.0	2334.1	<i>t</i> = 6.21
	5	Gr_mas_65	4226	1188	4007.5	2029.6	<i>p</i> < 0.001
	6	Gr_mas_69	2578	1520	1796.6	444.5	
	7	Gr_mas_70	4095	2038	2184.6	1739.3	
	8	Al_mas_41	3458	1530	3582.5	1186.8	
	9	Al_mas_49	2635	1099	2129.0	1221.9	
3) Average distance from nearest roost (m)	ID	GPS code	daytime	night-time	Daytime	Night-time	(upper-tailed) paired <i>t</i> daytime Vs night-time
			n. GPS points	n. GPS points			
individuals	1	Al_fem_185	1890	1019	2282.5	752.8	
	2	Al_fem_186	2586	1482	2984.1	1435.2	
	3	Gr_mas_30	3113	1985	1848.2	739.1	
	4	Gr_mas_52	3122	1559	2334.4	764.9	<i>t</i> = 11.29
	5	Gr_mas_65	4226	1188	4099.1	2079.2	<i>p</i> < 0.001
	6	Gr_mas_69	2578	1520	1934.9	494.8	
	7	Gr_mas_70	4095	2038	1982.4	444.3	
	8	Al_mas_41	3458	1530	3199.4	812.9	
	9	Al_mas_49	2635	1099	1895.0	871.6	

Supplement D. Inferential statistics for three nocturnal flight attributes of female and male Lesser Kestrels. As the data points from the same individuals were most likely correlated, leading to pseudo-replication, we used a study design where the averaged nocturnal activities are compared.

		ID	GPS code	n. GPS points	Females night-time	Males night-time	(two-tailed) independent 2-sample t females Vs males
1) Average 1-minute flight length (m)	individuals	1	Al_fem_185	1019	62.8		variance-ratio equal-variance test = 14.66 $p = 0.39$ cannot reject equal variances equal variance $t = -1.46$ $p = 0.19$
		2	Al_fem_186	1482	49.8		
		3	Gr_mas_30	1985		75.7	
		4	Gr_mas_52	1559		88.5	
		5	Gr_mas_65	1188		130.2	
		6	Gr_mas_69	1520		59.2	
		7	Gr_mas_70	2038		51.1	
		8	Al_mas_41	1530		116.8	
		9	Al_mas_49	1099		140.8	
2) Average distance from nest (m)	individuals	1	Al_fem_185	1019	892.0		variance-ratio equal-variance test = 1.06 $p = 1$ cannot reject equal variances equal variance $t = -0.36$ $p = 0.72$
		2	Al_fem_186	1482	1745.6		
		3	Gr_mas_30	1985		1538.5	
		4	Gr_mas_52	1559		2334.1	
		5	Gr_mas_65	1188		2029.6	
		6	Gr_mas_69	1520		444.5	
		7	Gr_mas_70	2038		1739.3	
		8	Al_mas_41	1530		1186.8	
		9	Al_mas_49	1099		1221.9	
3) Average distance from nearest roost (m)	individuals	1	Al_fem_185	1019	752.8		variance-ratio equal-variance test = 1.30 $p = 1$ cannot reject equal variances equal variance $t = 0.48$ $p = 0.64$
		2	Al_fem_186	1482	1435.2		
		3	Gr_mas_30	1985		739.1	
		4	Gr_mas_52	1559		764.9	
		5	Gr_mas_65	1188		2079.2	
		6	Gr_mas_69	1520		494.8	
		7	Gr_mas_70	2038		444.3	
		8	Al_mas_41	1530		812.9	
		9	Al_mas_49	1099		871.6	

Supplement E. Inferential statistics for three nocturnal flight attributes of tracked Lesser Kestrels in the two colonies of Gravina in Puglia and Altamura. As the data points from the same individuals were most likely correlated, leading to pseudo-replication, we used a study design where the averaged nocturnal activities are compared.

1) Average 1-minute flight length (m)		ID	GPS code	n. GPS points	Gravina night-time	Altamura night-time	(two-tailed) independent 2-sample t Gravina Vs Altamura
individuals	1	Gr_mas_30	1985	75.7			variance-ratio equal-variance test = 1.94 $p = 0.54$ cannot reject equal variances
	2	Gr_mas_52	1559	88.5			
	3	Gr_mas_65	1188	130.2			
	4	Gr_mas_69	1520	59.2			equal variance $t = -0.46$ $p = 0.65$
	5	Gr_mas_70	2038	51.1			
	6	Al_fem_185	1019		62.8		
	7	Al_fem_186	1482		49.8		
	8	Al_mas_41	1530		116.8		
	9	Al_mas_49	1099		140.8		

2) Average distance from nest (m)		ID	GPS code	n. GPS points	Gravina night-time	Altamura night-time	(two-tailed) independent 2-sample t Gravina Vs Altamura
individuals	1	Gr_mas_30	1985	1538.5			variance-ratio equal-variance test = 4.12 $p = 0.26$ cannot reject equal variances
	2	Gr_mas_52	1559	2334.1			
	3	Gr_mas_65	1188	2029.6			
	4	Gr_mas_69	1520	444.5			equal variance $t = 0.89$ $p = 0.40$
	5	Gr_mas_70	2038	1739.3			
	6	Al_fem_185	1019		892.0		
	7	Al_fem_186	1482		1745.6		
	8	Al_mas_41	1530		1186.8		
	9	Al_mas_49	1099		1221.9		

3) Average distance from nearest roost (m)		ID	GPS code	n. GPS points	Gravina night-time	Altamura night-time	(two-tailed) independent 2-sample t Gravina Vs Altamura
individuals	1	Gr_mas_30	1985	739.1			variance-ratio equal-variance test = 4.54 $p = 0.24$ cannot reject equal variances
	2	Gr_mas_52	1559	764.9			
	3	Gr_mas_65	1188	2079.2			
	4	Gr_mas_69	1520	494.8			equal variance $t = -0.17$ $p = 0.86$
	5	Gr_mas_70	2038	444.3			
	6	Al_fem_185	1019		752.8		
	7	Al_fem_186	1482		1435.2		
	8	Al_mas_41	1530		812.9		
	9	Al_mas_49	1099		871.6		