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## Supplementary material

### **Artificial light at night disrupts sleep in female great tits (*Parus major*) during the nestling period, and is followed by a sleep rebound**

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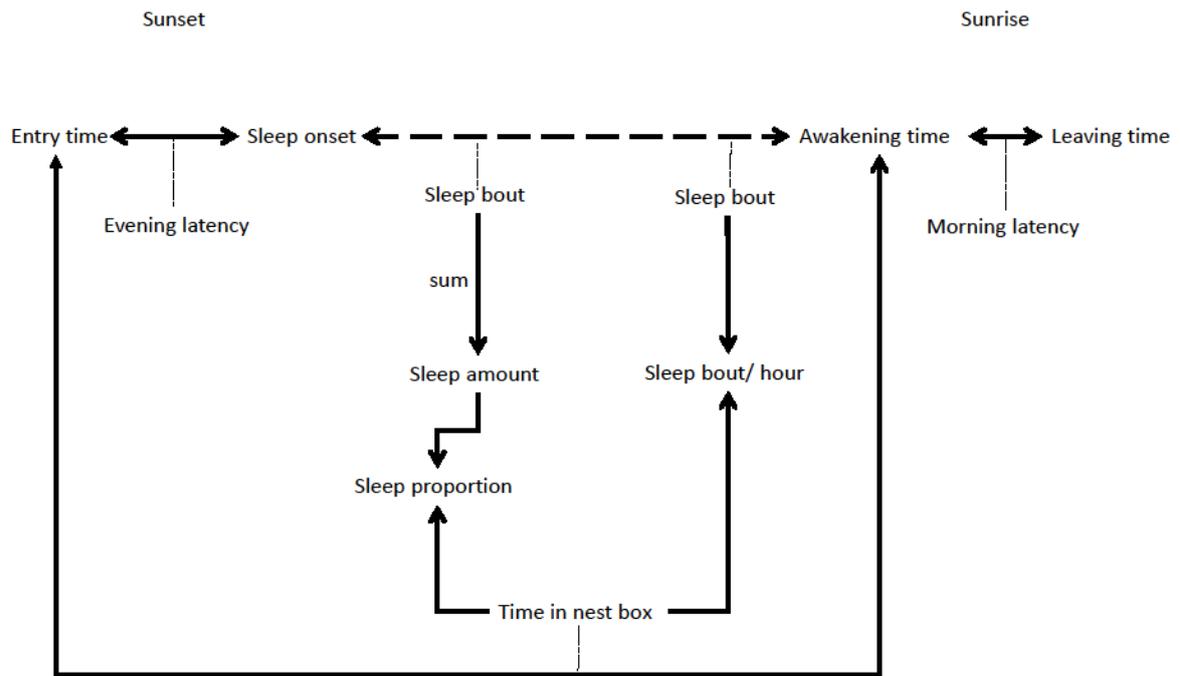
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**Table S1** Statistical output of the full mixed effect models, effect of night (pre-control, light, post-control), age, brood size and date on sleep parameters and begging. To correct for changes in day length, response variables were standardized to civil sunset (entry time, sleep onset) or sunrise (awakening time and leaving time). LMM models were used with nest identity as random factor to correct for repeated measurements. *N* is the number of observations while *Ind* is the number of individuals (female great tits), for begging amount and begging/ hour *Ind* is the number of nests. Significant *P* values are shown in bold ( $P \leq 0.05$ ) and trends are underlined ( $P < 0.10$ ).

	<i>N</i>	<i>Ind</i>	<b>Night</b>		<b>Age</b>		<b>Brood size</b>		<b>Date</b>	
			<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>
<b>Entry time</b>	57	19	1.096	0.344	1.166	0.297	3.961	<u>0.065</u>	8.104	<b>0.012</b>
<b>Sleep onset</b>	55	19	18.004	<b>&lt;0.001</b>	3.336	<u>0.089</u>	1.295	0.274	3.470	<u>0.083</u>
<b>Evening latency</b>	55	19	15.662	<b>&lt;0.001</b>	3.842	<u>0.070</u>	2.218	0.158	1.361	0.263
<b>Awakening time</b>	53	19	19.938	<b>&lt;0.001</b>	0.530	0.478	0.472	0.502	0.042	0.841
<b>Leaving time</b>	56	19	13.452	<b>&lt;0.001</b>	0.060	0.811	2.211	0.161	0.000	0.988
<b>Morning latency</b>	55	19	1.978	0.152	0.425	0.524	1.436	0.249	4.550	<b>0.050</b>
<b>Sleep bout/ hour</b>	55	19	14.412	<b>&lt;0.001</b>	2.357	0.145	0.379	0.547	0.013	0.912
<b>Sleep bout length</b>	55	19	0.091	0.913	1.455	0.247	0.798	0.386	1.101	0.311
<b>Sleep amount</b>	55	19	24.197	<b>&lt;0.001</b>	3.094	<u>0.099</u>	0.423	0.526	0.041	0.843
<b>Sleep proportion</b>	55	19	16.505	<b>&lt;0.001</b>	9.665	<b>0.007</b>	0.008	0.931	0.204	0.659
<b>Begging amount</b>	57	19	42.855	<b>&lt;0.001</b>	0.532	0.477	4.898	<b>0.043</b>	0.729	0.407
<b>Begging/ hour</b>	57	19	47.909	<b>&lt;0.001</b>	0.013	0.912	2.479	0.136	0.392	0.541



**Figure S1** Schematic representation of how sleep behaviour was defined. Entry time is around sunset which is followed by sleep onset. The time between entering the nest box and falling asleep is defined as evening latency. Animals sleep in sleep bouts and the end of the final bout is defined as awakening time. The animals usually leave the nest box around sunrise. The time between awakening and leaving time is defined as morning latency. The sum of all sleep bouts is sleep amount. Sleep proportion is defined as the time that the animal was asleep between time of entry and leaving time. The number of sleep bouts per hour is calculated using the total time in the nest box.