

Mwangi, J., Ndithia, H. K., Kentie, R., Muchai, M. and Tieleman, I. 2018. Nest survival in year-round breeding tropical red-capped larks *Calandrella cinerea* increases with higher nest abundance but decreases with higher invertebrate availability and rainfall. – J. Avian Biol. 2018: e01645

**Supplementary material**

## Appendix 1.

Model results of daily nest survival rates (DSR) of red-capped larks in Kedong Ranch for (A) temporal models showing effect of year and month and (B) model results after replacing month with monthly nest index (a measure of breeding intensity, equaling the total number of nests found in a month per 10 person-hours of effort), monthly rainfall (mm), monthly minimum ( $T_{\min}$ ) and maximum ( $T_{\max}$ ) temperature ( $^{\circ}\text{C}$ ), biomasses of ground-dwelling and flying invertebrates. Model B results exclude October 2011, September 2012, April and October 2014, months during which data on invertebrate biomass were missing.

<b>Model A</b>	<b>npar</b>	<b>AICc</b>	<b>DeltaAICc</b>	<b>Weight</b>	<b>Deviance</b>
YearMonth	39	4190.464	0.000	0.998	4111.955
Year + Month	17	4203.096	12.632	0.002	4168.996
Year	6	4205.519	15.055	0.001	4193.505
Month	12	4219.209	28.745	0.000	4195.158
Constant	1	4221.254	30.791	0.000	4219.254
<b>Model B</b>					
Rain + flying invertebrates + monthly nest index + year	9	3378.021	0.000	0.185	3359.985
Rain + $T_{\min}$ + flying invertebrates + monthly nest index + year	10	3378.649	0.628	0.135	3358.605
Rain + $T_{\max}$ + flying invertebrates + monthly nest index + year	10	3379.970	1.949	0.070	3359.925
Rain + ground invertebrates + flying invertebrates + monthly nest index + year	10	3379.998	1.977	0.069	3359.953
Rain + flying invertebrates + year	8	3380.047	2.026	0.067	3364.018
Rain + $T_{\min}$ + flying invertebrates + year	9	3380.157	2.136	0.064	3362.121
Rain + $T_{\min}$ + ground invertebrates + flying invertebrates + monthly nest index + year	11	3380.652	2.630	0.050	3358.598
Rain + $T_{\min}$ + $T_{\max}$ + flying invertebrates + monthly nest index + year	11	3380.658	2.637	0.050	3358.605
Rain + monthly nest index + year	8	3381.597	3.575	0.031	3365.568
Rain + $T_{\max}$ + ground invertebrates + flying invertebrates + monthly nest index + year	11	3381.852	3.830	0.027	3359.798
Rain + $T_{\min}$ + $T_{\max}$ + flying invertebrates + year	10	3381.989	3.967	0.026	3361.944
Rain + $T_{\max}$ + flying invertebrates + year	9	3382.018	3.996	0.025	3363.981
Rain + ground invertebrates + flying invertebrates + year	9	3382.047	4.026	0.025	3364.011
Rain + $T_{\min}$ + ground invertebrates + flying invertebrates + year	10	3382.129	4.108	0.024	3362.085
Rain + $T_{\min}$ + $T_{\max}$ + ground invertebrates + flying invertebrates + monthly nest index + year	12	3382.658	4.637	0.018	3358.595
Rain + ground invertebrates + monthly nest index + year	9	3382.886	4.864	0.016	3364.849

Rain + T <sub>min</sub> + monthly nest index + year	9	3383.349	5.328	0.013	3365.313
Rain + T <sub>max</sub> + monthly nest index + year	9	3383.566	5.545	0.012	3365.530
Rain + year	7	3383.766	5.744	0.011	3369.743
Rain + T <sub>min</sub> + T <sub>max</sub> + ground invertebrates + flying invertebrates + year	11	3383.786	5.765	0.010	3361.733
Rain + T <sub>max</sub> + ground invertebrates + flying invertebrates + year	10	3383.986	5.964	0.009	3363.941
Rain + T <sub>min</sub> + ground invertebrates + monthly nest index + year	10	3384.724	6.703	0.007	3364.680
Rain + T <sub>max</sub> + ground invertebrates + monthly nest index + year	10	3384.796	6.775	0.006	3364.751
Rain + T <sub>min</sub> + T <sub>max</sub> + monthly nest index + year	10	3385.354	7.333	0.005	3365.309
T <sub>max</sub> + Rain + year	8	3385.361	7.339	0.005	3369.331
T <sub>min</sub> + flying invertebrates + year	8	3385.363	7.341	0.005	3369.333
Rain + ground invertebrates + year	8	3385.411	7.390	0.005	3369.382
T <sub>min</sub> + Rain + year	8	3385.622	7.601	0.004	3369.593
T <sub>min</sub> + flying invertebrates + monthly nest index + year	9	3385.719	7.698	0.004	3367.683
Rain + T <sub>min</sub> + T <sub>max</sub> + ground invertebrates + monthly nest index + year	11	3386.543	8.522	0.003	3364.489
T <sub>min</sub> + ground invertebrates + flying invertebrates + year	9	3386.991	8.970	0.002	3368.954
T <sub>min</sub> + T <sub>max</sub> + flying invertebrates + year	9	3387.157	9.136	0.002	3369.121
Rain + T <sub>max</sub> + ground invertebrates + year	9	3387.263	9.242	0.002	3369.226
T <sub>min</sub> + T <sub>max</sub> + Rain + year	9	3387.314	9.292	0.002	3369.277
Rain + T <sub>min</sub> + ground invertebrates + year	9	3387.316	9.295	0.002	3369.280
T <sub>min</sub> + ground invertebrates + flying invertebrates + monthly nest index + year	10	3387.508	9.486	0.002	3367.463
T <sub>min</sub> + T <sub>max</sub> + flying invertebrates + monthly nest index + year	10	3387.691	9.670	0.002	3367.646
T <sub>min</sub> + T <sub>max</sub> + ground invertebrates + flying invertebrates + year	10	3388.247	10.226	0.001	3368.202
flying invertebrates + year	7	3388.618	10.596	0.001	3374.595
flying invertebrates + monthly nest index + year	8	3388.806	10.785	0.001	3372.777
Rain + T <sub>min</sub> + T <sub>max</sub> + ground invertebrates + year	10	3389.215	11.194	0.001	3369.171
T <sub>min</sub> + T <sub>max</sub> + ground invertebrates + flying invertebrates + monthly nest index + year	11	3389.254	11.232	0.001	3367.200
monthly nest index + year	7	3389.285	11.263	0.001	3375.262
ground invertebrates + flying invertebrates + year	8	3390.358	12.337	0.000	3374.329
T <sub>max</sub> + flying invertebrates + year	8	3390.612	12.591	0.000	3374.583
ground invertebrates + flying invertebrates + monthly nest index + year	9	3390.675	12.653	0.000	3372.638
T <sub>max</sub> + flying invertebrates + monthly nest index + year	9	3390.776	12.754	0.000	3372.739
T <sub>min</sub> + monthly nest index + year	8	3390.797	12.775	0.000	3374.767
T <sub>min</sub> + year	7	3391.075	13.053	0.000	3377.052
ground invertebrates + monthly nest index + year	8	3391.266	13.244	0.000	3375.236
T <sub>max</sub> + year	7	3391.266	13.244	0.000	3377.243

$T_{\max}$ + monthly nest index + year	8	3391.276	13.254	0.000	3375.246
ground invertebrates + year	7	3391.487	13.465	0.000	3377.464
$T_{\max}$ + ground invertebrates + flying invertebrates + year	9	3392.206	14.184	0.000	3374.169
$T_{\min}$ + $T_{\max}$ + year	8	3392.644	14.622	0.000	3376.614
$T_{\max}$ + ground invertebrates + flying invertebrates + monthly nest index + year	10	3392.683	14.662	0.000	3372.638
$T_{\min}$ + $T_{\max}$ + monthly nest index + year	9	3392.701	14.680	0.000	3374.665
$T_{\min}$ + ground invertebrates + monthly nest index + year	9	3392.720	14.699	0.000	3374.683
$T_{\min}$ + ground invertebrates + year	8	3393.056	15.035	0.000	3377.027
$T_{\max}$ + ground invertebrates + year	8	3393.224	15.203	0.000	3377.195
$T_{\max}$ + ground invertebrates + monthly nest index + year	9	3393.271	15.249	0.000	3375.234
$T_{\min}$ + $T_{\max}$ + ground invertebrates + year	9	3394.619	16.597	0.000	3376.582
$T_{\min}$ + $T_{\max}$ + ground invertebrates + monthly nest index + year	10	3394.688	16.667	0.000	3374.643
Constant	1	3417.275	39.253	0.000	3415.274