**Temperature affects predator-prey interactions in an African savanna**

**Supplementary Material**

**Figure S1** Frequency distribution of (A) start times and (B) stop times of African wild dog hunting periods, identified using collar-mounted accelerometers.



A

B

Time

|  |  |  |  |  |  |  |
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| **Table S1** Annual air temperature and rainfall values at Mpala Research Centre throughout the period of the study. | | | | | | |
|  | Temperature (°C) | | | | Rainfall (mm) | |
| Year | Minimum | Annual Mean | Maximum | | Total | Annual Mean |
| 2000 | 3.85 | 19.99 | 31.54 | | 280.17 | 0.78 |
| 2001 | 8.23 | 19.76 | 32.19 | | 670.56 | 1.84 |
| 2002 | 6.92 | 19.81 | 38.03 | | 483.62 | 1.32 |
| 2003 | 4.39 | 19.59 | 32.64 | | 684.21 | 1.77 |
| 2004 | 7.67 | 19.53 | 38.78 | | 718.05 | 1.97 |
| 2005 | 3.61 | 19.18 | 34.02 | | 508.00 | 1.40 |
| 2006 | 6.76 | 19.80 | 32.51 | | 543.81 | 1.49 |
| 2007 | 5.66 | 19.55 | 33.08 | | 505.99 | 1.39 |
| 2008 | 5.87 | 19.69 | 32.15 | | 410.96 | 1.19 |
| 2009 | 7.53 | 20.66 | 33.31 | | 244.09 | 0.67 |
| 2010 | Data not available due to the weather station being broken | | | | | |
| 2011 | 7.15 | 18.60 | 31.95 | 703.35 | | 2.87 |
| 2012 | 3.07 | 18.73 | 32.12 | 639.85 | | 1.76 |
| 2013 | 5.79 | 19.01 | 31.86 | 660.93 | | 1.90 |
| 2014 | 6.53 | 19.51 | 31.59 | 395.72 | | 1.19 |
| 2015 | 6.09 | 19.33 | 32.98 | 548.36 | | 1.61 |
| 2016 | 8.18 | 19.98 | 32.89 | 706.12 | | 1.94 |

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| **Table S2** Start and stop times of hunting periods allocated to each time period within the analysis. | | | | |
| Type of Bout | Earliest start time | Latest start time | Earliest stop time | Latest stop time |
| Morning | 04:55:39 | 06:56:04 | 07:30:41 | 12:51:33 |
| Midday | 06:56:05 | 16:01:54 | 12:51:34 | 18:47:02 |
| Evening | 16:01:55 | 18:26:52 | 18:47:03 | 21:06:56 |
| Night | 18:26:53 | 04:55:38 | 21:06:57 | 07:30:40 |

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| **Table S3** Explanatory variables, other than temperature, included in models of wild dog hunts, and justification for their inclusion. | | | |
| Explanatory variable | Included in models for which time of day  (Morning, Evening) | Justification | Citation |
| Denning status (yes/no) | All | Wild dogs are more active during the denning period | Woodroffe, Groom and McNutt 2017, Rabaiotti and Woodroffe 2019 |
| Total 24h rainfall (mm) | All | Rainfall mitigates the impact of high temperatures on wild dog activity levels so we would expect a negative interaction with temperature during the day and a positive one at night. | Rabaiotti and Woodroffe 2019 |
| Moonlight (proportion illumination\*hours of moonlight) | All (Moonlight the previous night was used in morning models, and the following night in evening models) | Wild dogs are more active on moonlit nights and would therefore expect a positive relationship between moonlight and nocturnal activity, and potentially a positive relationship with morning and evening activity. | Cozzi et al 2012, Rabaiotti and Woodroffe 2019 |
| Mean daily solar radiation (kw/m2) | All | Heat effects from exposure to the sun can outweigh those from ambient air temperature | Gates, 2012 |

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| **Table S4** Explanatory variables, other than temperature, included in models of wild dog, impala and dik-diks woody cover use and justification for their inclusion. | | | | |
| Explanatory variable | Included in models for which time of day  (Morning, Evening, Night) | Species | Justification | Citation |
| Denning status (yes/no) | All | Wild dogs | Wild dogs use more rugged areas with less vegetation during the denning period | Jackson et al 2014 |
| Total 24h rainfall (mm) | All | All | Rainfall mitigates the impact of high temperatures on activity levels and influences herbivore movement. | Rabaiotti and Woodroffe 2019, Ford et al 2014 |
| Mean daily solar radiation (kw/m2) | All | All | Heat effects from exposure to the sun can outweigh those from ambient air temperature | Gates, 2012 |

**Table S5** Variables associated with the characteristics of African wild dog hunting periods in the **morning**. The table presents estimated effects of explanatory variables included in the top model sets (ΔAICc < 2) for each outcome variable. The relative importance of each variable is shown along with the number of models in the top model set in which it was included (n).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Outcome variable | Explanatory variable | Estimate | Lower  95% CI | Upper  95% CI | Variable  importance (n) | |
| Occurrence | Intercept | 0.8005 | 0.7698 | 0.8312 | | — (1) |
| Moonlight before | -0.0097 | -0.0115 | -0.0079 | | 1.00 (1) |
| Duration  (minutes) | Intercept | 209.066 | 191.739 | 226.393 | | — (2) |
| Denning *vs* not | 17.952 | 13.633 | 22.271 | | 1.00 (2) |
| Temperature (°C) | -0.793 | -1.418 | -0.167 | | 0.72 (1) |
| Moonlight before | -2.126 | -2.461 | -1.790 | | 1.00 (2) |
| Intensity | Intercept | 50.9285 | 46.4112 | 55.4459 | | — (2) |
| Denning *vs* not | 1.5610 | 0.7941 | 2.3279 | | 1.00 (1) |
| Temperature (°C) | -0.2552 | -0.3743 | -0.1362 | | 0.52 (2) |
| Start time | Intercept | 06:31:41 | 06:24:07 | 06:39:14 | | — |
| Denning *vs* not | -00:07:46 | -00:06:14 | -00:09:18 | | 1(1) |
| Temperature (°C) | -00:01:15 | -00:01:01 | -00:01:29 | | 1(1) |

**Table S6** Variables associated with the characteristics of African wild dog hunting periods in the **evening**. The table presents estimated effects of explanatory variables included in the top model sets (ΔAICc < 2) for each outcome variable. The relative importance of each variable is shown along with the number of models in the top model set in which it was included (n).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome variable | | Explanatory variable | | Estimate | | Lower 95% CI | | Upper 95% CI | | Variable  importance (n) | | |
| Occurrence | | Intercept | | 1.2315 | | 1.1211 | | 1.3419 | | | — (1) | |
| Moonlight | | -0.0098 | | -0.0118 | | -0.0079 | | | 1.00 (1) | |
| Temperature (°C) | | -0.0167 | | -0.0206 | | -0.0129 | | | 1.00 (1) | |
| Duration  (minutes) | Intercept | | 206.230 | | 191.461 | | 220.999 | | — (2) | | |
| Temperature (°C) | | -2.275 | | -2.794 | | -1.757 | | 1.00 (2) | | |
| Moonlight | | -1.794 | | -2.048 | | -1.539 | | 1.00 (2) | | |
| Denning *vs* not | | 20.435 | | -12.132 | | 53.002 | | 1.00 (2) | | |
| Rainfall | | 2.619 | | 0.058 | | 5.180 | | 0.34 (1) | | |
| Rainfall:Temperature | | -0.083 | | -0.179 | | 0.013 | | 0.34 (1) | | |
|  | Denning:Temperature | | 0.434 | | -1.592 | | 2.429 | | 0.34 (1) | | |
| Intensity | | Intercept | | 54.602 | | 58.198 | | 51.006 | | | — (1) | |
| Temperature (°C) | | -0.335 | | -0.211 | | -0.459 | | | 1.00 (1) | |
| Denning *vs* not | | 1.772 | | 2.634 | | 0.909 | | | 1.00 (1) | |
| Moonlight | | -0.267 | | -0.201 | | -0.333 | | | 1.00 (1) | |
| Start time | | Intercept | | 15:43:55 | | 15:34:49 | | 15:53:01 | | | (2) | |
| Temperature (°C) | | 00:03:30 | | 00:03:11 | | 00:03:49 | | | 1.00 (2) | |
| Denning *vs* not | | -00:10:49 | | -00:08:52 | | -00:09:18 | | | 1.00 (2) | |
| Moonlight | | 00:01:01 | | 00:00:52 | | 00:01:10 | | | 0.90 (1) | |

**Table S7** Variables associated with the characteristics of African wild dog hunting periods in the **night**. The table presents estimated effects of explanatory variables included in the top model sets (ΔAICc < 2) for each outcome variable. The relative importance of each variable is shown along with the number of models in the top model set in which it was included (n).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome variable | | Explanatory variable | | Estimate | | Lower 95% CI | | Upper 95% CI | | Variable  importance (n) | | |
| Occurrence | | Intercept | | -0.681 | | -0.896 | | -0.467 | | | — (1) | |
| Moonlight | | 0.030 | | 0.022 | | 0.037 | | | 1.00 (1) | |
| Temperature (°C) | | 0.034 | | 0.030 | | 0.038 | | | 1.00 (1) | |
| Duration  (minutes) | Intercept | | -6.017 | | -104.114 | | 92.081 | | — (2) | | |
| Temperature (°C) | | 5.525 | | 2.125 | | 8.925 | | 1.00 (2) | | |
| Moonlight | | 2.244 | | 0.676 | | 3.811 | | 1.00 (2) | | |
| Denning *vs* not | | 10.641 | | -306.57 | | 327.854 | | 1.00 (2) | | |
| Rainfall | | -0.237 | | -17.300 | | 16.825 | | 0.71 (1) | | |
| Rainfall:Temperature | | -0.022 | | -0.670 | | 0.626 | | 0.71 (1) | | |
|  | Denning:Temperature | | 1.429 | | -12.529 | | 15.389 | | 0.71 (1) | | |
| Intensity | | Intercept | | 30.246 | | 14.590 | | 45.902 | | | — (2) | |
| Denning *vs* not | | 1.675 | | -1.423 | | 4.773 | | | 1.00 (2) | |
| Moonlight | | 0.570 | | 0.360 | | 0.780 | | | 1.00 (2) | |
| Temperature (°C) | | 0.442 | | 0.007 | | 0.878 | | | 0.59 (1) | |

**Table S8** Variables associated with woody cover use by impala, dik-diks and wild dogs across a **24h period**. This was used to determine if the data for morning and evening periods should be analysed separately or pooled. The table presents estimated effects of explanatory variables included in the top model sets (ΔAICc < 2) for each outcome variable. The relative importance of each variable is shown along with the number of models in the top model set in which it was included (n).

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| Species | Explanatory variable | | Estimate | | Lower 95% CI | | Upper 95% CI | Variable  importance (n) | | |
| Dik-dik | Intercept | | 0.0974 | | 0.0701 | | 0.1246 | | — (1) | |
| Impala | Intercept | 0.0663 | | 0.0577 | | 0.0748 | | | — (1) |
| Midday (vs morning) | 0.0172 | | 0.0164 | | 0.0180 | | | 1.00 (1) |
| Evening (vs morning) | 0.0030 | | 0.0038 | | 0.0021 | | | 1.00 (1) |
| Night (vs morning) | -0.0390 | | -0.0399 | | -0.0382 | | | 1.00 (1) |
| Temperature (°C) | 0.0011 | | 0.0009 | | 0.0013 | | | 1.00 (1) |
| Wild dogs | Intercept | | 0.1615 | | 0.1453 | | 0.1776 | | — (1) | |

**Table S9 a:d** Model selection tables for woody cover use by dik-dik

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| Table S9a: Model selection for whole day | | | | | | | | | | | |
|  | Intercept | Temperature | Period | Radiation | Rainfall | Temp:Rain | df | logLik | AICc | delta | weight |
| 13 | 0.0974 | NA | NA | NA | NA | NA | 4 | 666.38 | -1324.64 | 0.00 | 1.00 |
| 11 | 0.1082 | -0.0004 | NA | NA | NA | NA | 5 | 660.74 | -1311.29 | 13.35 | 0.00 |
| 12 | 0.0969 | NA | NA | NA | 0.0002 | NA | 5 | 659.47 | -1308.75 | 15.89 | 0.00 |
| 10 | 0.1100 | NA | NA | -0.00001 | NA | NA | 5 | 656.31 | -1302.42 | 22.21 | 0.00 |
| 9 | 0.0966 | NA | + | NA | NA | NA | 7 | 654.29 | -1294.21 | 30.43 | 0.00 |
| 8 | 0.1024 | 0.0004 | NA | -0.00001 | NA | NA | 6 | 650.80 | -1289.33 | 35.31 | 0.00 |
| 6 | 0.1072 | -0.0004 | + | NA | NA | NA | 8 | 648.65 | -1280.82 | 43.82 | 0.00 |
| 7 | 0.0962 | NA | + | NA | 0.0002 | NA | 8 | 647.37 | -1278.26 | 46.37 | 0.00 |
| 5 | 0.1094 | NA | + | -0.00001 | NA | NA | 8 | 644.23 | -1271.98 | 52.66 | 0.00 |
| 3 | 0.1013 | 0.0004 | + | -0.00001 | NA | NA | 9 | 638.73 | -1258.85 | 65.79 | 0.00 |
| 4 | 0.1073 | NA | + | -0.00001 | 0.0002 | NA | 9 | 637.20 | -1255.79 | 68.85 | 0.00 |
| 2 | 0.0870 | 0.0009 | + | -0.00001 | 0.0003 | NA | 10 | 631.87 | -1243.01 | 81.63 | 0.00 |
| 1 | 0.0863 | 0.0009 | + | -0.00001 | -0.0067 | 0.0003 | 11 | 627.29 | -1231.68 | 92.95 | 0.00 |

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| Table S9b: Model selection for locations during the combined morning and evening periods | | | | | | | | | | |
|  | Intercept | Temperature | Radiation | Rainfall | Temp:Rain | df | logLik | AICc | delta | weight |
| 9 | 0.0955 | NA | NA | NA | NA | 4 | 308 | -608.34 | 0.00 | 1.00 |
| 7 | 0.1277 | -0.0012 | NA | NA | NA | 5 | 303 | -596.03 | 12.31 | 0.00 |
| 8 | 0.0949 | NA | NA | 0.0003 | NA | 5 | 302 | -593.13 | 15.21 | 0.00 |
| 6 | 0.1231 | NA | 0.0000 | NA | NA | 5 | 299 | -587.83 | 20.50 | 0.00 |
| 3 | 0.1163 | 0.0003 | 0.0000 | NA | NA | 6 | 294 | -575.47 | 32.87 | 0.00 |
| 5 | 0.1163 | 0.0003 | 0.0000 | NA | NA | 6 | 294 | -575.47 | 32.87 | 0.00 |
| 4 | 0.1204 | NA | 0.0000 | 0.0003 | NA | 6 | 292 | -572.31 | 36.03 | 0.00 |
| 2 | 0.0983 | 0.0010 | 0.0000 | 0.0003 | NA | 7 | 287 | -560.16 | 48.18 | 0.00 |
| 1 | 0.0903 | 0.0012 | 0.0000 | -0.1459 | 0.0059 | 8 | 284 | -550.51 | 57.82 | 0.00 |

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| Table S9c: Model selection for locations during the midday period | | | | | | | | | | |
|  | Intercept | Temperature | Radiation | Rainfall | Temp:Rain | df | logLik | AICc | delta | weight |
| 9 | 0.0984 | NA | NA | NA | NA | 3 | 184 | -362.69 | 0.00 | 0.98 |
| 7 | 0.2151 | -0.0044 | NA | NA | NA | 4 | 181 | -355.06 | 7.63 | 0.02 |
| 8 | 0.0974 | NA | NA | 0.0005 | NA | 4 | 178 | -348.28 | 14.41 | 0.00 |
| 6 | 0.1409 | NA | 0.0000 | NA | NA | 4 | 177 | -345.48 | 17.20 | 0.00 |
| 3 | 0.2022 | -0.0029 | 0.0000 | NA | NA | 5 | 172 | -334.48 | 28.21 | 0.00 |
| 5 | 0.2022 | -0.0029 | 0.0000 | NA | NA | 5 | 172 | -334.48 | 28.21 | 0.00 |
| 4 | 0.1371 | NA | 0.0000 | 0.0004 | NA | 5 | 170 | -330.24 | 32.44 | 0.00 |
| 2 | 0.1864 | -0.0022 | 0.0000 | 0.0003 | NA | 6 | 165 | -318.55 | 44.13 | 0.00 |
| 1 | 0.1793 | -0.0020 | 0.0000 | -0.0916 | 0.0037 | 7 | 161 | -307.98 | 54.71 | 0.00 |

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| Table S9d: Model selection for locations during the night time period | | | | | | | | | | |
|  | Intercept | Temperature | Moonlight | Rainfall | Temp:Rainfall | df | logLik | AICc | delta | weight |
| 9 | 0.1005 | NA | NA | NA | NA | 3 | 157.1706 | -308.0079 | 0 | 0.977 |
| 7 | -0.0321 | 0.0050 | NA | NA | NA | 4 | 154.4412 | -300.3191 | 7.6887 | 0.021 |
| 6 | 0.1049 | NA | -0.0011 | NA | NA | 4 | 152.1717 | -295.7802 | 12.2277 | 0.002 |
| 8 | 0.1009 | NA | NA | -0.0002 | NA | 4 | 150.3616 | -292.1599 | 15.8479 | 0 |
| 3 | -0.0099 | 0.0042 | -0.0004 | NA | NA | 5 | 148.3469 | -285.8367 | 22.1711 | 0 |
| 5 | -0.0099 | 0.0042 | -0.0004 | NA | NA | 5 | 148.3469 | -285.8367 | 22.1711 | 0 |
| 4 | 0.1051 | NA | -0.0011 | -0.0001 | NA | 5 | 145.2840 | -279.7109 | 28.2969 | 0 |
| 2 | -0.0176 | 0.0045 | -0.0004 | 0.0001 | NA | 6 | 141.5154 | -269.8135 | 38.1943 | 0 |
| 1 | 0.0216 | 0.0032 | -0.0006 | 0.3404 | -0.0137 | 7 | 139.5672 | -263.4875 | 44.5204 | 0 |

**Table S10 a:e** Model selection tables for woody cover use by impala

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| Table S10a: Model selection for whole day | | | | | | | | | | | |
|  | Intercept | Temperature | Period | Radiation | Rainfall | Temp:Rain | df | logLik | AICc | delta | weight |
| 6 | 0.0663 | 0.0011 | + | NA | NA | NA | 8 | 33140.45 | -66264.90 | 0.00 | 1.00 |
| 9 | 0.0968 | NA | + | NA | NA | NA | 7 | 33131.42 | -66248.84 | 16.06 | 0.00 |
| 3 | 0.0664 | 0.0011 | + | 0.0000 | NA | NA | 9 | 33127.47 | -66236.93 | 27.97 | 0.00 |
| 7 | 0.0969 | NA | + | NA | 0.0000 | NA | 8 | 33122.61 | -66229.22 | 35.68 | 0.00 |
| 5 | 0.0950 | NA | + | 0.0000 | NA | NA | 8 | 33120.22 | -66224.44 | 40.46 | 0.00 |
| 2 | 0.0662 | 0.0011 | + | 0.0000 | 0.0000 | NA | 10 | 33118.57 | -66217.13 | 47.77 | 0.00 |
| 4 | 0.0951 | NA | + | 0.0000 | 0.0000 | NA | 9 | 33111.31 | -66204.61 | 60.29 | 0.00 |
| 1 | 0.0680 | 0.0011 | + | 0.0000 | -0.0008 | 0.0000 | 11 | 33109.60 | -66197.19 | 67.71 | 0.00 |
| 11 | 0.0596 | 0.0012 | NA | NA | NA | NA | 5 | 30958.75 | -61907.51 | 4357.39 | 0.00 |
| 13 | 0.0906 | NA | NA | NA | NA | NA | 4 | 30949.25 | -61890.50 | 4374.40 | 0.00 |
| 8 | 0.0599 | 0.0011 | NA | 0.0000 | NA | NA | 6 | 30945.84 | -61879.68 | 4385.22 | 0.00 |
| 12 | 0.0907 | NA | NA | NA | 0.0000 | NA | 5 | 30940.47 | -61870.93 | 4393.97 | 0.00 |
| 10 | 0.0886 | NA | NA | 0.0000 | NA | NA | 5 | 30938.52 | -61867.04 | 4397.86 | 0.00 |

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| Table S10b: Model selection for the morning period | | | | | | | | | | |
|  | Intercept | Temperature | Radiation | Rainfall | Temp:Rain | df | logLik | AICc | delta | weight |
| 7 | 0.0473 | 0.0018 | NA | NA | NA | 4.00 | 8433.19 | -16858.38 | 0.00 | 1.00 |
| 9 | 0.0964 | NA | NA | NA | NA | 3.00 | 8421.91 | -16837.81 | 20.57 | 0.00 |
| 3 | 0.0478 | 0.0018 | 0.0000 | NA | NA | 5.00 | 8420.71 | -16831.41 | 26.97 | 0.00 |
| 5 | 0.0478 | 0.0018 | 0.0000 | NA | NA | 5.00 | 8420.71 | -16831.41 | 26.97 | 0.00 |
| 8 | 0.0967 | NA | NA | -0.0001 | NA | 4.00 | 8414.15 | -16820.30 | 38.08 | 0.00 |
| 6 | 0.0933 | NA | 0.0000 | NA | NA | 4.00 | 8411.79 | -16815.58 | 42.80 | 0.00 |
| 2 | 0.0482 | 0.0018 | 0.0000 | 0.0000 | NA | 6.00 | 8412.30 | -16812.58 | 45.80 | 0.00 |
| 4 | 0.0937 | NA | 0.0000 | -0.0001 | NA | 5.00 | 8403.64 | -16797.27 | 61.11 | 0.00 |
| 1 | 0.0462 | 0.0019 | 0.0000 | 0.0009 | 0.0000 | 7.00 | 8403.58 | -16793.13 | 65.25 | 0.00 |

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| Table S10c: Model selection for the midday period | | | | | | | | | | |
|  | Intercept | Temperature | Radiation | Rainfall | Temp:Rain | df | logLik | AICc | delta | weight |
| 7 | 0.0772 | 0.0014 | NA | NA | NA | 4.00 | 8262.36 | -16516.71 | 0.00 | 0.85 |
| 9 | 0.1148 | NA | NA | NA | NA | 3.00 | 8259.66 | -16513.31 | 3.40 | 0.15 |
| 8 | 0.1153 | NA | NA | -0.0002 | NA | 4.00 | 8253.77 | -16499.52 | 17.19 | 0.00 |
| 3 | 0.0745 | 0.0016 | 0.0000 | NA | NA | 5.00 | 8252.76 | -16495.51 | 21.20 | 0.00 |
| 5 | 0.0745 | 0.0016 | 0.0000 | NA | NA | 5.00 | 8252.76 | -16495.51 | 21.20 | 0.00 |
| 6 | 0.1163 | NA | 0.0000 | NA | NA | 4.00 | 8247.57 | -16487.13 | 29.58 | 0.00 |
| 2 | 0.0769 | 0.0016 | 0.0000 | -0.0002 | NA | 6.00 | 8246.56 | -16481.10 | 35.61 | 0.00 |
| 4 | 0.1175 | NA | 0.0000 | -0.0002 | NA | 5.00 | 8242.24 | -16474.46 | 42.25 | 0.00 |
| 1 | 0.0767 | 0.0016 | 0.0000 | -0.0001 | 0.0000 | 7.00 | 8237.58 | -16461.15 | 55.57 | 0.00 |

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| Table S10d: Model selection for the evening period | | | | | | | | | | |
|  | Intercept | Temperature | Radiation | Rainfall | Temp:Rain | df | logLik | AICc | delta | weight |
| 9 | 0.0933 | NA | NA | NA | NA | 3.00 | 7735.40 | -15464.80 | 0.00 | 1.00 |
| 7 | 0.0787 | 0.0005 | NA | NA | NA | 4.00 | 7729.66 | -15451.32 | 13.49 | 0.00 |
| 8 | 0.0936 | NA | NA | -0.0001 | NA | 4.00 | 7727.69 | -15447.37 | 17.44 | 0.00 |
| 6 | 0.0903 | NA | 0.0000 | NA | NA | 4.00 | 7724.87 | -15441.73 | 23.07 | 0.00 |
| 3 | 0.0807 | 0.0004 | 0.0000 | NA | NA | 5.00 | 7718.42 | -15426.83 | 37.98 | 0.00 |
| 5 | 0.0807 | 0.0004 | 0.0000 | NA | NA | 5.00 | 7718.42 | -15426.83 | 37.98 | 0.00 |
| 4 | 0.0907 | NA | 0.0000 | -0.0001 | NA | 5.00 | 7716.81 | -15423.61 | 41.19 | 0.00 |
| 2 | 0.0816 | 0.0004 | 0.0000 | -0.0001 | NA | 6.00 | 7710.30 | -15408.58 | 56.23 | 0.00 |
| 1 | 0.0800 | 0.0004 | 0.0000 | 0.0007 | 0.0000 | 7.00 | 7701.52 | -15389.01 | 75.79 | 0.00 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S10e: Model selection for the night period | | | | | | | | | | |
|  | Intercept | Temperature | Moonlight | Rainfall | Temp:Rain | df | logLik | AICc | delta | weight |
| 9 | 0.0583 | NA | NA | NA | NA | 3 | 9095.0398 | -18184.0747 | 0 | 0.668 |
| 8 | 0.0575 | NA | NA | 0.0002 | NA | 4 | 9095.3153 | -18182.6224 | 1.4522 | 0.323 |
| 6 | 0.0573 | NA | 0.0027 | NA | NA | 4 | 9091.0891 | -18174.1701 | 9.90459 | 0.005 |
| 4 | 0.0564 | NA | 0.0028 | 0.0003 | NA | 5 | 9091.5255 | -18173.0386 | 11.0360 | 0.003 |
| 7 | 0.0429 | 0.0006 | NA | NA | NA | 4 | 9090.0870 | -18172.1658 | 11.9088 | 0.002 |
| 2 | 0.0348 | 0.0008 | 0.0034 | 0.0003 | NA | 6 | 9088.6733 | -18165.3294 | 18.7452 | 0 |
| 1 | 0.0448 | 0.0004 | 0.0033 | -0.0042 | 0.0002 | 7 | 9088.8422 | -18163.6613 | 20.41337 | 0 |
| 3 | 0.0401 | 0.0006 | 0.0031 | NA | NA | 5 | 9086.6664 | -18163.3206 | 20.7540 | 0 |
| 5 | 0.0401 | 0.0006 | 0.0031 | NA | NA | 5 | 9086.6664 | -18163.32062 | 20.7540 | 0 |

**Table S11 a:c** Model selection tables for woody cover use by African wild dogs

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S11a: Model selection for whole day | | | | | | | | | | | | | |
|  | Intercept | Temperature | Period | Radiation | Rainfall | Temp:Rain | Denning *vs* not | Temp:Denning | df | logLik | AICc | delta | weight |
| 17 | 0.1180 | NA | NA | NA | NA | NA | - | NA | 5.00 | 1173.34 | -2336.65 | 0.00 | 0.99 |
| 18 | 0.1202 | NA | + | NA | NA | NA | - | NA | 6.00 | 1170.01 | -2327.97 | 8.68 | 0.01 |
| 13 | 0.1615 | NA | NA | NA | NA | NA | NA | NA | 4.00 | 1167.29 | -2326.57 | 10.09 | 0.00 |
| 16 | 0.0889 | NA | NA | 0.0014 | NA | NA | - | NA | 6.00 | 1168.61 | -2325.17 | 11.48 | 0.00 |
| 9 | 0.1635 | NA | + | NA | NA | NA | NA | NA | 5.00 | 1164.10 | -2318.16 | 18.49 | 0.00 |
| 10 | 0.1292 | NA | NA | 0.0016 | NA | NA | NA | NA | 5.00 | 1162.77 | -2315.51 | 21.15 | 0.00 |
| 11 | 0.1501 | 0.0004 | NA | NA | NA | NA | NA | NA | 5.00 | 1162.06 | -2314.09 | 22.57 | 0.00 |
| 15 | 0.1473 | -0.0025 | NA | 0.0021 | NA | NA | - | NA | 7.00 | 1164.05 | -2314.03 | 22.62 | 0.00 |
| 12 | 0.1621 | NA | NA | NA | -0.0006 | NA | NA | NA | 5.00 | 1161.42 | -2312.80 | 23.85 | 0.00 |
| 5 | 0.1313 | NA | + | 0.0016 | NA | NA | NA | NA | 6.00 | 1159.57 | -2307.10 | 29.56 | 0.00 |
| 6 | 0.1537 | 0.0003 | + | NA | NA | NA | NA | NA | 6.00 | 1158.86 | -2305.67 | 30.98 | 0.00 |
| 8 | 0.1920 | -0.0027 | NA | 0.0022 | NA | NA | NA | NA | 6.00 | 1158.29 | -2304.53 | 32.13 | 0.00 |
| 14 | 0.0228 | 0.0018 | NA | 0.0021 | NA | NA | - | + | 8.00 | 1160.30 | -2304.51 | 32.14 | 0.00 |
| 7 | 0.1641 | NA | + | NA | -0.0006 | NA | NA | NA | 6.00 | 1158.21 | -2304.38 | 32.27 | 0.00 |
| 3 | 0.1961 | -0.0028 | + | 0.0023 | NA | NA | NA | NA | 7.00 | 1155.12 | -2296.18 | 40.47 | 0.00 |
| 4 | 0.1319 | NA | + | 0.0015 | -0.0001 | NA | NA | NA | 7.00 | 1153.53 | -2292.99 | 43.66 | 0.00 |
| 2 | 0.1964 | -0.0028 | + | 0.0022 | -0.0001 | NA | NA | NA | 8.00 | 1149.08 | -2282.07 | 54.58 | 0.00 |
| 1 | 0.1793 | -0.0021 | + | 0.0021 | 0.0081 | -0.0003 | NA | NA | 9.00 | 1142.53 | -2266.95 | 69.70 | 0.00 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S11b: Model selection during morning and evening hunts | | | | | | | | | | | | |
|  | Intercept | Temperature | Radiation | Rainfall | Temp:Rain | Denning *vs* not | Temp:Denning | df | logLik | AICc | delta | weight |
| 13 | 0.1180 | NA | NA | NA | NA | - | NA | 5.00 | 1173.343 | -2336.65 | 0.00 | 0.99 |
| 9 | 0.1615 | NA | NA | NA | NA | NA | NA | 4.00 | 1167.294 | -2326.57 | 10.09 | 0.01 |
| 12 | 0.0889 | NA | 0.0014 | NA | NA | - | NA | 6.00 | 1168.61 | -2325.17 | 11.48 | 0.00 |
| 6 | 0.1292 | NA | 0.0016 | NA | NA | NA | NA | 5.00 | 1162.77 | -2315.51 | 21.15 | 0.00 |
| 7 | 0.1501 | 0.0004 | NA | NA | NA | NA | NA | 5.00 | 1162.059 | -2314.09 | 22.57 | 0.00 |
| 11 | 0.1473 | -0.0025 | 0.0021 | NA | NA | - | NA | 7.00 | 1164.047 | -2314.03 | 22.62 | 0.00 |
| 8 | 0.1621 | NA | NA | -0.0006 | NA | NA | NA | 5.00 | 1161.417 | -2312.80 | 23.85 | 0.00 |
| 3 | 0.1920 | -0.0027 | 0.0022 | NA | NA | NA | NA | 6.000 | 1158.286 | -2304.53 | 32.13 | 0.00 |
| 5 | 0.1920 | -0.0027 | 0.0022 | NA | NA | NA | NA | 6.00 | 1158.286 | -2304.53 | 32.13 | 0.00 |
| 10 | 0.0228 | 0.0018 | 0.0021 | NA | NA | - | + | 8.00 | 1160.297 | -2304.51 | 32.14 | 0.00 |
| 4 | 0.1299 | NA | 0.0015 | -0.0001 | NA | NA | NA | 6.00 | 1156.728 | -2301.41 | 35.24 | 0.00 |
| 2 | 0.1924 | -0.0027 | 0.0022 | -0.0001 | NA | NA | NA | 7.00 | 1152.242 | -2290.42 | 46.23 | 0.00 |
| 1 | 0.1746 | -0.0020 | 0.0021 | 0.0085 | -0.0003 | NA | NA | 8.00 | 1145.713 | -2275.35 | 61.31 | 0.00 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S11c: Model selection during night hunts | | | | | | | | | | | | |
|  | Intercept | Temperature | Moonlight | Rainfall | Temp:Rain | Denning *vs* not | Temp:Denning | df | logLik | AICc | delta | weight |
| 13 | 0.1610 | NA | NA | NA | NA | - | NA | 5 | 2572.4801 | -5134.9347 | 0 | 0.989 |
| 12 | 0.1637 | NA | -0.0068 | NA | NA | - | NA | 6 | 2568.9645 | -5125.8933 | 9.0413 | 0.011 |
| 11 | -0.0193 | 0.0065 | -0.0069 | NA | NA | - | NA | 7 | 2566.1929 | -5118.3384 | 16.5963 | 0 |
| 10 | 0.0168 | 0.0052 | -0.0070 | NA | NA | - | - | 8 | 2562.5059 | -5108.9506 | 25.9841 | 0 |
| 9 | 0.1468 | NA | NA | NA | NA | NA | NA | 4 | 2531.3164 | -5054.6159 | 80.3188 | 0 |
| 7 | -0.0365 | 0.0065 | NA | NA | NA | NA | NA | 5 | 2528.2534 | -5046.4814 | 88.4533 | 0 |
| 6 | 0.1495 | NA | -0.0065 | NA | NA | NA | NA | 5 | 2527.7432 | -5045.4610 | 89.4737 | 0 |
| 8 | 0.1478 | NA | NA | -0.0008 | NA | NA | NA | 5 | 2525.8077 | -5041.5900 | 93.3447 | 0 |
| 3 | -0.0357 | 0.0065 | -0.0067 | NA | NA | NA | NA | 6 | 2524.7142 | -5037.3929 | 97.5418 | 0 |
| 5 | -0.0357 | 0.0065 | -0.0067 | NA | NA | NA | NA | 6 | 2524.7142 | -5037.3929 | 97.5418 | 0 |
| 4 | 0.1505 | NA | -0.0065 | -0.0008 | NA | NA | NA | 6 | 2522.2386 | -5032.4415 | 102.4932 | 0 |
| 2 | -0.03051 | 0.00641 | -0.0067 | -0.0004 | NA | NA | NA | 7 | 2519.0943 | -5024.1411 | 110.7935 | 0 |
| 1 | -0.1012 | 0.0089 | -0.0068 | 0.0316 | -0.0012 | NA | NA | 8 | 2514.2535 | -5012.4458 | 122.4888 | 0 |

**Tables S12 a:c** Model selection tables for hunts over a 24h period

Table S12a:Model selection table for the number of hunts in a 24h period

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Rainfall: Temperature | Denning: Temperature | df | logLik | AICc | delta | weight |
| 2 | 0.656146 | 0.008442 | NA | NA | NA | NA | NA | 3 | -3456.81 | 6919.635 | 0 | 0.44092 |
| 9 | 0.657988 | 0.008359 | NA | NA | + | NA | NA | 4 | -3456.74 | 6921.504 | 1.868626 | 0.173218 |
| 1 | 0.60832 | 0.008454 | 0.001712 | NA | NA | NA | NA | 4 | -3456.78 | 6921.586 | 1.950488 | 0.166271 |
| 4 | 0.62208 | 0.008453 | 0.00127 | -0.00103 | NA | NA | NA | 5 | -3456.72 | 6923.472 | 3.836452 | 0.064757 |
| 7 | 0.619002 | 0.008374 | 0.001391 | NA | + | NA | NA | 5 | -3456.73 | 6923.476 | 3.840344 | 0.064631 |
| 10 | 0.693584 | NA | NA | NA | + | NA | NA | 3 | -3459.37 | 6924.751 | 5.115411 | 0.034163 |
| 3 | 0.650245 | NA | 0.001479 | NA | NA | NA | NA | 3 | -3459.48 | 6924.971 | 5.335845 | 0.030598 |
| 8 | 0.664716 | NA | 0.001032 | NA | + | NA | NA | 4 | -3459.36 | 6926.737 | 7.1019 | 0.012653 |
| 5 | 0.638513 | 0.008381 | 0.000744 | -0.0042 | + | 0.000118 | NA | 7 | -3456.66 | 6927.367 | 7.731563 | 0.009236 |
| 6 | 0.623918 | 0.008286 | 0.001279 | -0.00424 | + | 0.00012 | + | 8 | -3456.61 | 6929.277 | 9.641827 | 0.003554 |

Table S12b:Model selection table for the duration of hunts in a 24h period

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Rainfall: Temperature | Denning: Temperature | df | logLik | AICc | delta | weight |
| 7 | 320.7941 | 1.331171 | -0.13959 | NA | + | NA | NA | 6 | -15537.7 | 31087.38 | 0 | 0.310881 |
| 6 | 327.4014 | 1.341433 | -0.38344 | -4.23844 | + | 0.162671 | + | 9 | -15534.8 | 31087.73 | 0.345235 | 0.261594 |
| 9 | 316.9002 | 1.333261 | NA | NA | + | NA | NA | 5 | -15538.9 | 31087.86 | 0.482148 | 0.244285 |
| 8 | 328.67 | NA | -0.2233 | NA | + | NA | NA | 5 | -15540.1 | 31090.32 | 2.936558 | 0.071603 |
| 10 | 322.4543 | NA | NA | NA | + | NA | NA | 4 | -15541.4 | 31090.82 | 3.43643 | 0.055768 |
| 5 | 327.4139 | 1.341502 | -0.38391 | -4.23837 | + | 0.162669 | NA | 8 | -15537.6 | 31091.19 | 3.805699 | 0.046366 |
| 1 | 332.2124 | 1.241501 | -0.48652 | NA | NA | NA | NA | 5 | -15543.1 | 31096.23 | 8.844889 | 0.003732 |
| 2 | 318.6731 | 1.24706 | NA | NA | NA | NA | NA | 4 | -15544.4 | 31096.81 | 9.43119 | 0.002784 |
| 4 | 330.8098 | 1.241429 | -0.44236 | 0.108819 | NA | NA | NA | 6 | -15542.8 | 31097.59 | 10.21003 | 0.001886 |
| 3 | 338.9468 | NA | -0.5455 | NA | NA | NA | NA | 4 | -15545.3 | 31098.67 | 11.28273 | 0.001103 |

Table S12c:Model selection table for the intensity of hunts in a 24h period

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Rainfall: Temperature | Denning: Temperature | df | logLik | AICc | delta | weight |
| 10 | 40.29155 | NA | NA | NA | + | NA | NA | 4 | -9913.18 | 19834.38 | 0 | 0.58114 |
| 8 | 46.48844 | NA | -0.22311 | NA | + | NA | NA | 5 | -9912.98 | 19835.99 | 1.609277 | 0.259915 |
| 9 | 40.64131 | -0.0846 | NA | NA | + | NA | NA | 5 | -9914.18 | 19838.39 | 4.013067 | 0.078137 |
| 7 | 47.02198 | -0.0883 | -0.22918 | NA | + | NA | NA | 6 | -9913.92 | 19839.87 | 5.489673 | 0.037343 |
| 3 | 47.59744 | NA | -0.25804 | NA | NA | NA | NA | 4 | -9916.12 | 19840.26 | 5.883062 | 0.030675 |
| 2 | 40.82703 | -0.09384 | NA | NA | NA | NA | NA | 4 | -9917.58 | 19843.18 | 8.799003 | 0.007138 |
| 1 | 48.13593 | -0.09714 | -0.2632 | NA | NA | NA | NA | 5 | -9916.88 | 19843.79 | 9.414014 | 0.005249 |
| 4 | 47.88485 | -0.09716 | -0.25529 | 0.019475 | NA | NA | NA | 6 | -9918.8 | 19849.63 | 15.2547 | 0.000283 |
| 5 | 47.95367 | -0.0868 | -0.26386 | -0.61888 | + | 0.023889 | NA | 8 | -9918.13 | 19852.32 | 17.94052 | 7.39E-05 |
| 6 | 47.58585 | -0.08896 | -0.2503 | -0.61937 | + | 0.023917 | + | 9 | -9917.59 | 19853.26 | 18.88138 | 4.62E-05 |

**Table S13 a:c** Model selection tables for models of morning hunts

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S13a Model selection table for models of morning hunt occurrence | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Temp:Rain | Temp:Denning | Radiation | df | logLik | AICc | delta | weight |
| 2 | 0.8011 | -0.0098 | NA | NA | NA | NA | NA | NA | 4.00 | -1580.60 | 3169.21 | 0.00 | 0.95 |
| 9 | 0.7986 | -0.0097 | NA | NA | + | NA | NA | NA | 5.00 | -1582.80 | 3175.62 | 6.42 | 0.04 |
| 1 | 0.6760 | -0.0097 | 0.0045 | NA | NA | NA | NA | NA | 5.00 | -1584.52 | 3179.05 | 9.85 | 0.01 |
| 7 | 0.6538 | -0.0096 | 0.0052 | NA | + | NA | NA | NA | 6.00 | -1586.47 | 3184.98 | 15.77 | 0.00 |
| 21 | 0.7618 | NA | NA | NA | NA | NA | NA | NA | 3.00 | -1590.18 | 3186.37 | 17.17 | 0.00 |
| 12 | 0.8135 | -0.0100 | NA | NA | NA | NA | NA | 0.0000 | 5.00 | -1588.87 | 3187.75 | 18.55 | 0.00 |
| 4 | 0.7029 | -0.0097 | 0.0037 | -0.0021 | NA | NA | NA | NA | 6.00 | -1589.00 | 3190.02 | 20.81 | 0.00 |
| 10 | 0.7592 | NA | NA | NA | + | NA | NA | NA | 4.00 | -1592.13 | 3192.27 | 23.07 | 0.00 |
| 19 | 0.8106 | -0.0099 | NA | NA | + | NA | NA | 0.0000 | 6.00 | -1591.32 | 3194.67 | 25.46 | 0.00 |
| 3 | 0.6176 | NA | 0.0052 | NA | NA | NA | NA | NA | 4.00 | -1593.85 | 3195.70 | 26.50 | 0.00 |
| 11 | 0.6504 | -0.0099 | 0.0060 | NA | NA | NA | NA | -0.0001 | 6.00 | -1592.23 | 3196.50 | 27.29 | 0.00 |
| 8 | 0.5919 | NA | 0.0060 | NA | + | NA | NA | NA | 5.00 | -1595.46 | 3200.94 | 31.74 | 0.00 |
| 17 | 0.6347 | -0.0098 | 0.0064 | NA | + | NA | NA | 0.0000 | 7.00 | -1594.50 | 3203.04 | 33.83 | 0.00 |
| 20 | 0.7711 | NA | NA | NA | NA | NA | NA | 0.0000 | 4.00 | -1598.96 | 3205.94 | 36.74 | 0.00 |
| 14 | 0.6773 | -0.0099 | 0.0051 | -0.0021 | NA | NA | NA | -0.0001 | 7.00 | -1596.71 | 3207.45 | 38.25 | 0.00 |
| 5 | 0.6942 | -0.0096 | 0.0039 | -0.0092 | + | 0.0003 | NA | NA | 8.00 | -1597.23 | 3210.51 | 41.30 | 0.00 |
| 13 | 0.5950 | NA | 0.0065 | NA | NA | NA | NA | 0.0000 | 5.00 | -1602.12 | 3214.25 | 45.05 | 0.00 |
| 6 | 0.6627 | -0.0098 | 0.0050 | -0.0101 | + | 0.0003 | + | NA | 9.00 | -1599.78 | 3217.62 | 48.41 | 0.00 |
| 18 | 0.5754 | NA | 0.0070 | NA | + | NA | NA | 0.0000 | 6.00 | -1604.04 | 3220.11 | 50.90 | 0.00 |
| 15 | 0.6765 | -0.0098 | 0.0051 | -0.0099 | + | 0.0003 | NA | 0.0000 | 9.00 | -1605.24 | 3228.53 | 59.33 | 0.00 |
| 16 | 0.6437 | -0.0100 | 0.0063 | -0.0108 | + | 0.0003 | + | 0.0000 | 10.00 | -1607.73 | 3235.53 | 66.32 | 0.00 |

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| Table S13b Model selection table for models of morning hunt duration | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Temp:Rain | Temp: Denning | Radiation | df | logLik | AICc | delta | weight |
| 7 | 218.7957 | -2.1324 | -0.7925 | NA | + | NA | NA | NA | 6.00 | -11570.44 | 23152.92 | 0.00 | 0.45 |
| 9 | 196.6202 | -2.1167 | NA | NA | + | NA | NA | NA | 5.00 | -11571.69 | 23153.42 | 0.49 | 0.35 |
| 6 | 218.9927 | -2.1157 | -0.8223 | -1.1762 | + | 0.0592 | + | NA | 9.00 | -11568.63 | 23155.34 | 2.42 | 0.13 |
| 5 | 217.0115 | -2.1334 | -0.7485 | -1.2691 | + | 0.0626 | NA | NA | 8.00 | -11570.63 | 23157.33 | 4.40 | 0.05 |
| 17 | 217.6989 | -2.1282 | -0.7937 | NA | + | NA | NA | 0.0073 | 7.00 | -11573.91 | 23161.88 | 8.95 | 0.01 |
| 19 | 195.5132 | -2.1124 | NA | NA | + | NA | NA | 0.0072 | 6.00 | -11575.16 | 23162.37 | 9.44 | 0.00 |
| 16 | 217.7628 | -2.1115 | -0.8217 | -1.1443 | + | 0.0585 | + | 0.0077 | 10.00 | -11572.03 | 23164.17 | 11.25 | 0.00 |
| 15 | 215.7657 | -2.1292 | -0.7471 | -1.2379 | + | 0.0618 | NA | 0.0077 | 9.00 | -11574.04 | 23166.16 | 13.24 | 0.00 |
| 1 | 230.6945 | -2.1815 | -1.1503 | NA | NA | NA | NA | NA | 5.00 | -11581.06 | 23172.16 | 19.23 | 0.00 |
| 4 | 226.2411 | -2.1878 | -1.0110 | 0.4230 | NA | NA | NA | NA | 6.00 | -11580.25 | 23172.54 | 19.61 | 0.00 |
| 2 | 198.6186 | -2.1616 | NA | NA | NA | NA | NA | NA | 4.00 | -11583.22 | 23174.46 | 21.53 | 0.00 |
| 11 | 229.8870 | -2.1785 | -1.1524 | NA | NA | NA | NA | 0.0056 | 6.00 | -11584.88 | 23181.80 | 28.88 | 0.00 |
| 14 | 225.3269 | -2.1848 | -1.0120 | 0.4325 | NA | NA | NA | 0.0060 | 7.00 | -11584.01 | 23182.08 | 29.15 | 0.00 |
| 12 | 197.7833 | -2.1584 | NA | NA | NA | NA | NA | 0.0055 | 5.00 | -11587.04 | 23184.10 | 31.18 | 0.00 |
| 10 | 188.2002 | NA | NA | NA | + | NA | NA | NA | 4.00 | -11591.24 | 23190.50 | 37.57 | 0.00 |
| 8 | 206.2062 | NA | -0.6453 | NA | + | NA | NA | NA | 5.00 | -11590.26 | 23190.54 | 37.62 | 0.00 |
| 18 | 205.0565 | NA | -0.6453 | NA | + | NA | NA | 0.0076 | 6.00 | -11593.66 | 23199.36 | 46.43 | 0.00 |
| 3 | 218.5219 | NA | -1.0220 | NA | NA | NA | NA | NA | 4.00 | -11601.67 | 23211.35 | 58.43 | 0.00 |
| 21 | 190.0923 | NA | NA | NA | NA | NA | NA | NA | 3.00 | -11603.45 | 23212.91 | 59.98 | 0.00 |
| 13 | 217.6450 | NA | -1.0221 | NA | NA | NA | NA | 0.0058 | 5.00 | -11605.43 | 23220.90 | 67.97 | 0.00 |
| 20 | 189.2357 | NA | NA | NA | NA | NA | NA | 0.0058 | 4.00 | -11607.21 | 23222.44 | 69.52 | 0.00 |

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| Table S13c Model selection table for models of morning hunt intensity | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Temp:Rain | Temp: Denning | Radiation | df | logLik | AICc | delta | weight |
| 7 | 57.9213 | -0.2354 | -0.6886 | NA | + | NA | NA | NA | 6.00 | -7336.15 | 14684.34 | 0.00 | 0.88 |
| 8 | 56.1659 | NA | -0.6582 | NA | + | NA | NA | NA | 5.00 | -7339.99 | 14690.00 | 5.66 | 0.05 |
| 5 | 57.4583 | -0.2356 | -0.6795 | -0.5226 | + | 0.0246 | NA | NA | 8.00 | -7337.16 | 14690.39 | 6.05 | 0.04 |
| 6 | 57.4993 | -0.2354 | -0.6810 | -0.5224 | + | 0.0246 | + | NA | 9.00 | -7336.82 | 14691.73 | 7.39 | 0.02 |
| 17 | 57.7690 | -0.2348 | -0.6658 | NA | + | NA | NA | -0.0036 | 7.00 | -7339.96 | 14693.99 | 9.64 | 0.01 |
| 18 | 56.0134 | NA | -0.6351 | NA | + | NA | NA | -0.0036 | 6.00 | -7343.78 | 14699.60 | 15.26 | 0.00 |
| 15 | 57.4747 | -0.2349 | -0.6646 | -0.5618 | + | 0.0258 | NA | -0.0032 | 9.00 | -7341.30 | 14700.70 | 16.35 | 0.00 |
| 16 | 57.4894 | -0.2348 | -0.6652 | -0.5617 | + | 0.0258 | + | -0.0032 | 10.00 | -7340.96 | 14702.04 | 17.69 | 0.00 |
| 9 | 38.8272 | -0.2111 | NA | NA | + | NA | NA | NA | 5.00 | -7347.99 | 14706.01 | 21.66 | 0.00 |
| 10 | 38.0075 | NA | NA | NA | + | NA | NA | NA | 4.00 | -7350.70 | 14709.43 | 25.08 | 0.00 |
| 19 | 39.5148 | -0.2113 | NA | NA | + | NA | NA | -0.0050 | 6.00 | -7350.79 | 14713.62 | 29.27 | 0.00 |
| 4 | 59.2266 | -0.2754 | -0.7226 | 0.1333 | NA | NA | NA | NA | 6.00 | -7354.39 | 14720.82 | 36.48 | 0.00 |
| 1 | 60.8725 | -0.2728 | -0.7745 | NA | NA | NA | NA | NA | 5.00 | -7355.65 | 14721.33 | 36.99 | 0.00 |
| 3 | 58.9864 | NA | -0.7439 | NA | NA | NA | NA | NA | 4.00 | -7361.31 | 14730.64 | 46.30 | 0.00 |
| 11 | 60.7388 | -0.2722 | -0.7524 | NA | NA | NA | NA | -0.0037 | 6.00 | -7359.34 | 14730.73 | 46.38 | 0.00 |
| 14 | 59.2030 | -0.2747 | -0.7063 | 0.1260 | NA | NA | NA | -0.0032 | 7.00 | -7358.45 | 14730.96 | 46.61 | 0.00 |
| 13 | 58.8554 | NA | -0.7216 | NA | NA | NA | NA | -0.0037 | 5.00 | -7364.97 | 14739.97 | 55.63 | 0.00 |
| 2 | 39.4398 | -0.2489 | NA | NA | NA | NA | NA | NA | 4.00 | -7370.76 | 14749.54 | 65.20 | 0.00 |
| 21 | 38.4916 | NA | NA | NA | NA | NA | NA | NA | 3.00 | -7375.12 | 14756.25 | 71.90 | 0.00 |
| 12 | 40.1238 | -0.2490 | NA | NA | NA | NA | NA | -0.0050 | 5.00 | -7373.35 | 14756.74 | 72.39 | 0.00 |
| 20 | 39.1752 | NA | NA | NA | NA | NA | NA | -0.0050 | 4.00 | -7377.72 | 14763.47 | 79.12 | 0.00 |

**Table S14 a:c** Model selection tables for models of evening hunts

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| Table S14a Model selection table for models of evening hunt occurrence | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Temp:Rain | Temp: Denning | Radiation | df | logLik | AICc | delta | weight |
| 1 | 1.2217 | -0.0099 | -0.0164 | NA | NA | NA | NA | NA | 5.00 | -1832.37 | 3674.77 | 0.00 | 0.88 |
| 7 | 1.1929 | -0.0097 | -0.0155 | NA | + | NA | NA | NA | 6.00 | -1833.88 | 3679.80 | 5.03 | 0.07 |
| 2 | 0.7677 | -0.0097 | NA | NA | NA | NA | NA | NA | 4.00 | -1836.60 | 3681.22 | 6.45 | 0.04 |
| 9 | 0.7622 | -0.0095 | NA | NA | + | NA | NA | NA | 5.00 | -1837.03 | 3684.07 | 9.31 | 0.01 |
| 4 | 1.2276 | -0.0099 | -0.0166 | -0.0005 | NA | NA | NA | NA | 6.00 | -1837.91 | 3687.84 | 13.08 | 0.00 |
| 3 | 1.1683 | NA | -0.0159 | NA | NA | NA | NA | NA | 4.00 | -1840.10 | 3688.21 | 13.44 | 0.00 |
| 8 | 1.1364 | NA | -0.0149 | NA | + | NA | NA | NA | 5.00 | -1841.26 | 3692.54 | 17.78 | 0.00 |
| 21 | 0.7286 | NA | NA | NA | NA | NA | NA | NA | 3.00 | -1843.75 | 3693.51 | 18.75 | 0.00 |
| 10 | 0.7233 | NA | NA | NA | + | NA | NA | NA | 4.00 | -1843.77 | 3695.55 | 20.78 | 0.00 |
| 11 | 1.2167 | -0.0099 | -0.0161 | NA | NA | NA | NA | 0.0000 | 6.00 | -1841.95 | 3695.93 | 21.17 | 0.00 |
| 17 | 1.1915 | -0.0097 | -0.0154 | NA | + | NA | NA | 0.0000 | 7.00 | -1843.52 | 3701.07 | 26.30 | 0.00 |
| 12 | 0.7771 | -0.0098 | NA | NA | NA | NA | NA | 0.0000 | 5.00 | -1845.55 | 3701.12 | 26.36 | 0.00 |
| 19 | 0.7691 | -0.0096 | NA | NA | + | NA | NA | 0.0000 | 6.00 | -1846.34 | 3704.70 | 29.93 | 0.00 |
| 5 | 1.2046 | -0.0097 | -0.0159 | -0.0036 | + | 0.0001 | NA | NA | 8.00 | -1845.67 | 3707.38 | 32.62 | 0.00 |
| 14 | 1.2226 | -0.0099 | -0.0163 | -0.0005 | NA | NA | NA | 0.0000 | 7.00 | -1847.49 | 3709.01 | 34.24 | 0.00 |
| 13 | 1.1669 | NA | -0.0158 | NA | NA | NA | NA | 0.0000 | 5.00 | -1849.73 | 3709.48 | 34.72 | 0.00 |
| 18 | 1.1382 | NA | -0.0150 | NA | + | NA | NA | 0.0000 | 6.00 | -1850.89 | 3713.80 | 39.03 | 0.00 |
| 20 | 0.7354 | NA | NA | NA | NA | NA | NA | 0.0000 | 4.00 | -1852.99 | 3714.00 | 39.23 | 0.00 |
| 6 | 1.2172 | -0.0097 | -0.0164 | -0.0032 | + | 0.0001 | + | NA | 9.00 | -1848.83 | 3715.73 | 40.96 | 0.00 |
| 15 | 1.2032 | -0.0097 | -0.0158 | -0.0036 | + | 0.0001 | NA | 0.0000 | 9.00 | -1855.30 | 3728.65 | 53.89 | 0.00 |
| 16 | 1.2158 | -0.0097 | -0.0163 | -0.0033 | + | 0.0001 | + | 0.0000 | 10.00 | -1858.47 | 3737.00 | 62.23 | 0.00 |

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| Table S14b Model selection table for models of evening hunt duration | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Temp:Rain | Temp: Denning | Radiation | df | logLik | AICc | delta | weight |
| 7 | 209.0423 | -1.7896 | -2.3690 | NA | + | NA | NA | NA | 6.00 | -9762.37 | 19536.78 | 0.00 | 0.56 |
| 6 | 200.7047 | -1.8021 | -2.0915 | 2.6190 | + | -0.0829 | + | NA | 9.00 | -9760.02 | 19538.13 | 1.35 | 0.28 |
| 5 | 199.9908 | -1.8058 | -2.0651 | 2.6151 | + | -0.0827 | NA | NA | 8.00 | -9761.67 | 19539.41 | 2.63 | 0.15 |
| 17 | 209.0136 | -1.7892 | -2.3725 | NA | + | NA | NA | 0.0011 | 7.00 | -9766.54 | 19547.14 | 10.36 | 0.00 |
| 16 | 200.6117 | -1.8019 | -2.0981 | 2.6339 | + | -0.0833 | + | 0.0022 | 10.00 | -9764.15 | 19548.42 | 11.64 | 0.00 |
| 15 | 199.8964 | -1.8055 | -2.0717 | 2.6299 | + | -0.0831 | NA | 0.0022 | 9.00 | -9765.80 | 19549.69 | 12.91 | 0.00 |
| 9 | 143.1082 | -1.7078 | NA | NA | + | NA | NA | NA | 5.00 | -9774.40 | 19558.82 | 22.04 | 0.00 |
| 19 | 143.2810 | -1.7072 | NA | NA | + | NA | NA | -0.0009 | 6.00 | -9778.55 | 19569.14 | 32.35 | 0.00 |
| 8 | 195.7952 | NA | -2.1446 | NA | + | NA | NA | NA | 5.00 | -9786.37 | 19582.77 | 45.99 | 0.00 |
| 4 | 216.6160 | -1.9599 | -2.5710 | 0.4218 | NA | NA | NA | NA | 6.00 | -9789.27 | 19590.58 | 53.80 | 0.00 |
| 1 | 221.8428 | -1.9517 | -2.7360 | NA | NA | NA | NA | NA | 5.00 | -9791.03 | 19592.09 | 55.31 | 0.00 |
| 18 | 195.7607 | NA | -2.1469 | NA | + | NA | NA | 0.0009 | 6.00 | -9790.53 | 19593.10 | 56.32 | 0.00 |
| 10 | 136.4080 | NA | NA | NA | + | NA | NA | NA | 4.00 | -9796.08 | 19600.18 | 63.40 | 0.00 |
| 14 | 216.5634 | -1.9594 | -2.5711 | 0.4226 | NA | NA | NA | 0.0005 | 7.00 | -9793.50 | 19601.05 | 64.27 | 0.00 |
| 11 | 221.8008 | -1.9510 | -2.7325 | NA | NA | NA | NA | -0.0003 | 6.00 | -9795.26 | 19602.56 | 65.78 | 0.00 |
| 2 | 145.8686 | -1.8691 | NA | NA | NA | NA | NA | NA | 4.00 | -9806.73 | 19621.48 | 84.70 | 0.00 |
| 12 | 146.2192 | -1.8683 | NA | NA | NA | NA | NA | -0.0023 | 5.00 | -9810.85 | 19631.73 | 94.95 | 0.00 |
| 3 | 208.4644 | NA | -2.5235 | NA | NA | NA | NA | NA | 4.00 | -9819.02 | 19646.05 | 109.27 | 0.00 |
| 13 | 208.4175 | NA | -2.5184 | NA | NA | NA | NA | -0.0005 | 5.00 | -9823.22 | 19656.47 | 119.69 | 0.00 |
| 21 | 138.6940 | NA | NA | NA | NA | NA | NA | NA | 3.00 | -9832.09 | 19670.18 | 133.40 | 0.00 |
| 20 | 139.0639 | NA | NA | NA | NA | NA | NA | -0.0024 | 4.00 | -9836.18 | 19680.39 | 143.61 | 0.00 |

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| Table S14c Model selection table for models of evening hunt intensity | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Temp:Rain | Temp: Denning | Radiation | df | logLik | AICc | delta | weight |
| 7 | 54.6017 | -0.2671 | -0.3349 | NA | + | NA | NA | NA | 6.00 | -8169.99 | 16352.01 | 0.00 | 0.70 |
| 9 | 45.2759 | -0.2599 | NA | NA | + | NA | NA | NA | 5.00 | -8172.44 | 16354.91 | 2.90 | 0.16 |
| 1 | 55.7525 | -0.2720 | -0.3702 | NA | NA | NA | NA | NA | 5.00 | -8172.87 | 16355.76 | 3.75 | 0.11 |
| 2 | 45.4791 | -0.2648 | NA | NA | NA | NA | NA | NA | 4.00 | -8176.19 | 16360.40 | 8.39 | 0.01 |
| 4 | 55.9070 | -0.2717 | -0.3750 | -0.0149 | NA | NA | NA | NA | 6.00 | -8174.83 | 16361.70 | 9.69 | 0.01 |
| 8 | 52.9900 | NA | -0.3145 | NA | + | NA | NA | NA | 5.00 | -8176.32 | 16362.66 | 10.65 | 0.00 |
| 17 | 54.6099 | -0.2674 | -0.3276 | NA | + | NA | NA | -0.0015 | 7.00 | -8175.03 | 16364.11 | 12.09 | 0.00 |
| 5 | 53.7826 | -0.2690 | -0.3046 | 0.6510 | + | -0.0249 | NA | NA | 8.00 | -8174.21 | 16364.48 | 12.47 | 0.00 |
| 10 | 44.2589 | NA | NA | NA | + | NA | NA | NA | 4.00 | -8178.33 | 16364.68 | 12.66 | 0.00 |
| 6 | 53.8326 | -0.2686 | -0.3065 | 0.6533 | + | -0.0249 | + | NA | 9.00 | -8173.95 | 16365.99 | 13.98 | 0.00 |
| 19 | 45.5471 | -0.2605 | NA | NA | + | NA | NA | -0.0019 | 6.00 | -8177.31 | 16366.65 | 14.64 | 0.00 |
| 3 | 54.1918 | NA | -0.3519 | NA | NA | NA | NA | NA | 4.00 | -8179.49 | 16367.00 | 14.99 | 0.00 |
| 11 | 55.7547 | -0.2722 | -0.3622 | NA | NA | NA | NA | -0.0015 | 6.00 | -8177.88 | 16367.81 | 15.79 | 0.00 |
| 21 | 44.4522 | NA | NA | NA | NA | NA | NA | NA | 3.00 | -8182.36 | 16370.73 | 18.72 | 0.00 |
| 12 | 45.7696 | -0.2653 | NA | NA | NA | NA | NA | -0.0020 | 5.00 | -8180.99 | 16372.01 | 20.00 | 0.00 |
| 14 | 55.9482 | -0.2719 | -0.3679 | -0.0186 | NA | NA | NA | -0.0016 | 7.00 | -8179.82 | 16373.70 | 21.69 | 0.00 |
| 18 | 52.9985 | NA | -0.3073 | NA | + | NA | NA | -0.0014 | 6.00 | -8181.37 | 16374.78 | 22.77 | 0.00 |
| 15 | 53.8520 | -0.2692 | -0.2992 | 0.6300 | + | -0.0242 | NA | -0.0015 | 9.00 | -8179.24 | 16376.57 | 24.56 | 0.00 |
| 16 | 53.8901 | -0.2688 | -0.3007 | 0.6318 | + | -0.0243 | + | -0.0015 | 10.00 | -8178.99 | 16378.08 | 26.07 | 0.00 |
| 13 | 54.1947 | NA | -0.3441 | NA | NA | NA | NA | -0.0015 | 5.00 | -8184.52 | 16379.07 | 27.05 | 0.00 |
| 20 | 44.7325 | NA | NA | NA | NA | NA | NA | -0.0020 | 4.00 | -8187.19 | 16382.40 | 30.39 | 0.00 |

**Table S15 a:c** Model selection tables for models of night hunts

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| Table S15a Model selection table for models of night hunt occurrence | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Rainfall: Temperature | Denning: Temperature | df | logLik | AICc | delta | weight |
| 1 | -0.68156 | 0.034711 | 0.030317 | NA | NA | NA | NA | 5 | -1814.67 | 3639.367 | 0 | 0.845099 |
| 7 | -0.64562 | 0.034549 | 0.029204 | NA | + | NA | NA | 6 | -1815.4 | 3642.832 | 3.464519 | 0.149485 |
| 4 | -0.64877 | 0.034672 | 0.029297 | -0.00262 | NA | NA | NA | 6 | -1818.72 | 3649.475 | 10.10769 | 0.005396 |
| 5 | -0.71231 | 0.034428 | 0.031792 | 0.049816 | + | -0.00197 | NA | 8 | -1822.3 | 3660.654 | 21.28675 | 2.02E-05 |
| 6 | -0.75199 | 0.03423 | 0.033238 | 0.048693 | + | -0.00193 | + | 9 | -1824.46 | 3666.978 | 27.61124 | 8.53E-07 |
| 9 | 0.166012 | 0.034121 | NA | NA | + | NA | NA | 5 | -1838.34 | 3686.691 | 47.32361 | 4.47E-11 |
| 2 | 0.158119 | 0.034346 | NA | NA | NA | NA | NA | 4 | -1840.28 | 3688.575 | 49.20738 | 1.74E-11 |
| 3 | -0.49683 | NA | 0.02871 | NA | NA | NA | NA | 4 | -1965.72 | 3939.46 | 300.0929 | 5.79E-66 |
| 8 | -0.44815 | NA | 0.027181 | NA | + | NA | NA | 5 | -1964.9 | 3939.813 | 300.4454 | 4.85E-66 |
| 10 | 0.305587 | NA | NA | NA | + | NA | NA | 4 | -1982.05 | 3972.122 | 332.7551 | 4.68E-73 |

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| Table S15b Model selection table for models of night hunt duration | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Rainfall: Temperature | Denning: Temperature | df | logLik | AICc | delta | weight |
| 6 | -2.21332 | 2.230846 | 5.404372 | -0.23757 | + | -0.02187 | + | 9 | -6337.56 | 12693.29 | 0 | 0.636885 |
| 7 | -15.3327 | 2.275768 | 5.819867 | NA | + | NA | NA | 6 | -6341.5 | 12695.08 | 1.791508 | 0.26004 |
| 5 | -4.01047 | 2.21129 | 5.471069 | -0.42998 | + | -0.01485 | NA | 8 | -6340.46 | 12697.07 | 3.779333 | 0.096248 |
| 8 | 2.693304 | NA | 5.653256 | NA | + | NA | NA | 5 | -6346.25 | 12702.56 | 9.27E+00 | 0.006179 |
| 9 | 149.5547 | 2.17751 | NA | NA | + | NA | NA | 5 | -6349.12 | 12708.3 | 1.50E+01 | 0.00035 |
| 4 | 34.54606 | 2.182483 | 4.224807 | -0.85083 | NA | NA | NA | 6 | -6348.9 | 12709.88 | 1.66E+01 | 0.000159 |
| 1 | 22.32268 | 2.249267 | 4.604501 | NA | NA | NA | NA | 5 | -6350.17 | 12710.4 | 1.71E+01 | 0.000123 |
| 10 | 162.2833 | NA | NA | NA | + | NA | NA | 4 | -6353.5 | 12715.04 | 2.18E+01 | 1.20E-05 |
| 3 | 39.62298 | NA | 4.457497 | NA | NA | NA | NA | 4 | -6354.79 | 12717.63 | 2.43E+01 | 3.30E-06 |
| 2 | 152.1305 | 2.17583 | NA | NA | NA | NA | NA | 4 | -6355.63 | 12719.29 | 2.60E+01 | 1.44E-06 |

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| Table S15c Model selection table for models of night hunt intensity | | | | | | | | | | | | | |
|  | Intercept | Moonlight | Temperature | Rainfall | Denning *vs* not | Rainfall: Temperature | Denning: Temperature | df | logLik | AICc | delta | weight |
| 7 | 25.11385 | 0.574055 | 0.442775 | NA | + | NA | NA | 6 | -4231.8 | 8475.674 | 0 | 0.399925 |
| 9 | 37.62351 | 0.56466 | NA | NA | + | NA | NA | 5 | -4233.17 | 8476.4 | 0.725564 | 0.278243 |
| 2 | 37.74302 | 0.563865 | NA | NA | NA | NA | NA | 4 | -4234.87 | 8477.774 | 2.099238 | 0.140002 |
| 1 | 26.95177 | 0.571678 | 0.383783 | NA | NA | NA | NA | 5 | -4233.93 | 8477.925 | 2.250815 | 0.129784 |
| 4 | 29.10262 | 0.559778 | 0.317895 | -0.16156 | NA | NA | NA | 6 | -4234.07 | 8480.23 | 4.555455 | 0.040999 |
| 6 | 27.6654 | 0.571977 | 0.361433 | 0.269839 | + | -0.01622 | + | 9 | -4232.97 | 8484.112 | 8.437704 | 0.005885 |
| 5 | 26.77696 | 0.562518 | 0.394042 | 0.183041 | + | -0.01305 | NA | 8 | -4234.12 | 8484.378 | 8.703706 | 0.005152 |
| 10 | 40.91005 | NA | NA | NA | + | NA | NA | 4 | -4245.44 | 8498.927 | 23.2527 | 3.57E-06 |
| 8 | 29.91897 | NA | 0.390812 | NA | + | NA | NA | 5 | -4244.53 | 8499.11 | 23.43521 | 3.26E-06 |
| 11 | 41.01939 | NA | NA | NA | NA | NA | NA | 3 | -4247.11 | 8500.233 | 24.55845 | 1.86E-06 |

**Table S16** Model selection tables for models of wild dog diet

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Intercept | Mean maximum temperature (7 days) | Land Use | Denning *vs* not | Moonlight (7 days) | Rainfall (7 days) | df | logLik | AICc | delta | weight |
| 1 | 0.7427 | -0.0207 | NA | NA | NA | NA | 4 | -141.00 | 290.07 | 0.00 | 0.90 |
| 2 | 0.7731 | -0.0203 | + | NA | NA | NA | 5 | -142.28 | 294.65 | 4.58 | 0.09 |
| 3 | 0.7163 | -0.0195 | + | + | NA | NA | 6 | -143.47 | 299.06 | 8.99 | 0.01 |
| 4 | 0.7781 | -0.0205 | + | NA | NA | 0.0000 | 6 | -149.43 | 310.98 | 20.91 | 0.00 |
| 7 | 0.7235 | -0.0197 | + | + | NA | 0.0000 | 7 | -150.61 | 315.39 | 25.32 | 0.00 |
| 6 | 0.7466 | -0.0202 | + | + | 0.0000 | NA | 7 | -151.58 | 317.34 | 27.27 | 0.00 |
| 5 | 0.7515 | -0.0204 | + | + | 0.0000 | 0.0000 | 8 | -158.73 | 333.67 | 43.60 | 0.00 |

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