

S1. Baseline weather conditions.

image1image2image3image4image5image6image7image8S2. Summary statistics of the three climatic variables measured with an infrared laser (temperature of the substrate) and a multimeter (temperature of the air (°C)

and humidity (%).at the direct finding spot in approx. 70 cm above ground.

**temp. substrate (ifr) temp. air humidity (%)**

**min.** 13.10 13.90 15.10

**1st quantile** 24.30 23.70 29.60

**median** 28.50 26.60 35.40

**mean** 29.16 26.57 35.77

**3rd quantile** 33.00 29.60 41.00

**max.** 54.10 39.50 71.00

image9image10image11image12image13image14image15image16S3. Summary statistics of weather data used for statistical analysis comprising current temperature in 5 cm and 200 cm above ground (°C), relative humidity in

200 cm above ground (%), maximum and minimum temperature 200 cm above ground (°C), minimum temperature 5 cm above ground (°C), global radiation (in

joule), sunshine duration (in hours), precipitation duration (in hours), precipitation height (in mm), maximum, minimum and mean windspeed (in m/s), given for

every ten minutes. Source: DWD data server.

**temp. temp. rel. max. min. min. global sunshine precip. precip. max. min. mean**

**200 cm 5 cm hum. temp. temp. temp. radiation dura- dura- height wind- wind- wind-**

**200 cm 200 cm 200 cm 5 cm (joule) tion tion speed speed speed**

**min.** 8.80 8.60 19.50 9.00 8.80 8.60 0.00 0.00 0.00 0.00 1.00 0.00 0.60

**1st quantile** 20.30 22.50 38.95 20.55 19.70 22.05 21.40 0.03 0.00 0.00 4.10 0.50 2.50

**median** 23.00 26.70 44.50 23.30 22.70 26.10 34.20 0.15 0.00 0.00 5.70 1.50 3.40

**mean** 23.14 26.31 45.21 23.39 22.70 25.82 33.94 0.11 0.42 0.00 5.82 1.61 3.63

**3rd quantile** 26.10 29.70 51.40 26.60 25.90 29.30 48.40 0.17 0.00 0.00 7.20 2.20 4.50

**max.** 39.30 43.70 84.60 40.00 39.00 43.70 62.60 0.17 10.00 0.96 15.10 5.70 10.90

image17image18image19image20image21image22image23image24image25image26image27image28image29image30image31image32image33image34image35image36image37image38image39image40image41image42image43image44image45image46image47image48image49S4. Generalized linear Model (GLM) summary statistics performed for distance Principal components

(PCs) depending on all weather PC's, microclimate PC’s, microhabitat structure PC’s, time in minutes

since the first encounter (tsz), calendar week (CW) and julian date.

**dependent variable independent estimate standard t-value PR(>|t|) variable error**

**distPC1** weatherPC1 0.010 0.012 0.857 0.392 weatherPC2 -0.009 0.022 -0.412 0.681 weatherPC3 -0.034 0.028 -1.2 0.231 weatherPC4 -0.024 0.067 -0.357 0.721 weatherPC5 0.003 0.083 0.034 0.973 weatherPC6 -0.074 0.126 -0.593 0.554 mic\_climPC1 0.088 0.143 0.616 0.538 mic\_climPC2 -0.088 0.188 -0.467 0.641 mic\_strucPC1 0.036 0.157 0.229 0.819 mic\_strucPC2 0.191 0.193 0.991 0.322 mic\_strucPC3 0.098 0.196 0.5 0.617 tsz 0.000 0.000 -2.288 0.022\* CW 0.053 0.827 0.064 0.949 julian\_date 0.004 0.119 0.034 0.973**distPC2** weatherPC1 0.004 0.007 0.541 0.589 weatherPC2 -0.010 0.012 -0.806 0.420 weatherPC3 0.023 0.016 1.454 0.146 weatherPC4 0.006 0.037 0.15 0.881 weatherPC5 0.102 0.046 2.222 0.027\* weatherPC6 -0.015 0.070 -0.209 0.835 mic\_climPC1 -0.046 0.079 -0.582 0.561 mic\_climPC2 -0.115 0.104 -1.105 0.269 mic\_strucPC1 -0.159 0.087 -1.831 0.067 mic\_strucPC2 0.037 0.107 0.35 0.726 mic\_strucPC3 -0.045 0.108 -0.412 0.681 tsz 0.000 0.000 2.23 0.026\* KW -0.043 0.458 -0.094 0.925 julian\_date -0.005 0.066 -0.071 0.944**distPC3** weatherPC1 -0.014 0.005 -2.796 0.005\*\* weatherPC2 -0.007 0.009 -0.715 0.475 weatherPC3 -0.015 0.012 -1.279 0.201

image50image51image52image53image54image55image56image57image58image59image60image61image62image63image64image65image66image67image68image69image70image71image72image73image74image75image76image77image78image79image80image81image82image83image84image85image86image87image88image89weatherPC4 -0.013 0.029 -0.447 0.655

weatherPC5 -0.006 0.035 -0.168 0.867

weatherPC6 0.117 0.053 2.199 0.028\*

mic\_climPC1 -0.057 0.061 -0.934 0.350

mic\_climPC2 -0.003 0.080 -0.032 0.975

mic\_strucPC1 0.047 0.067 0.699 0.485

mic\_strucPC2 0.045 0.082 0.547 0.585

mic\_strucPC3 0.043 0.083 0.517 0.605

tsz 0.000 0.000 -0.632 0.528

KW -0.180 0.351 -0.514 0.607

julian\_date 0.024 0.050 0.48 0.631

**distPC4** weatherPC1 -0.006 0.004 -1.604 0.109

weatherPC2 -0.010 0.007 -1.553 0.121

weatherPC3 0.007 0.009 0.767 0.444

weatherPC4 0.013 0.020 0.657 0.512

weatherPC5 0.012 0.025 0.496 0.620

weatherPC6 -0.013 0.038 -0.355 0.722

mic\_climPC1 -0.023 0.043 -0.541 0.588

mic\_climPC2 -0.074 0.057 -1.306 0.192

mic\_strucPC1 0.012 0.047 0.245 0.807

mic\_strucPC2 -0.057 0.058 -0.972 0.331

mic\_strucPC3 0.050 0.059 0.854 0.393

tsz 0.000 0.000 -0.616 0.538

KW 0.136 0.250 0.544 0.587

julian\_date -0.020 0.036 -0.548 0.584

**distPC5** weatherPC1 0.004 0.002 1.774 0.076

weatherPC2 -0.001 0.004 -0.173 0.862weatherPC3 -0.006 0.005 -1.152 0.250weatherPC4 0.008 0.012 0.674 0.500weatherPC5 0.012 0.015 0.822 0.411weatherPC6 -0.028 0.023 -1.243 0.214mic\_climPC1 -0.052 0.026 -2.027 0.043\*mic\_climPC2 0.032 0.034 0.962 0.336mic\_strucPC1 0.039 0.028 1.383 0.167 mic\_strucPC2 0.030 0.035 0.856 0.392 mic\_strucPC3 0.003 0.035 0.090 0.928 tsz 0.000 0.000 2.043 0.041\* KW -0.357 0.148 -2.405 0.016\* julian\_date 0.052 0.021 2.436 0.015\*

image90image91image92image93image94image95image96image97image98image99image100image101image102image103image104image105image106S5. Generalized linear Model (GLM) summary statistics performed for microhabitat structure Principal

components (PCs) depending on all microclimate PC’s, time in minutes since the first encounter (tsz),

calendar week (CW) and julian date.

**dependent independent estimate standard error t-value PR(>t)**

**variable variable**

**mic\_strucPC1** mic\_climPC1 0.013 0.029 0.450 0.653

mic\_climPC2 -0.126 0.039 -3.238 0.001\*\*

tsz 0.000 0.000 -1.357 0.175

KW 0.189 0.165 1.142 0.254

julian\_date -0.030 0.024 -1.292 0.197

**mic\_strucPC2** mic\_climPC1 -0.025 0.024 -1.036 0.300

mic\_climPC2 -0.001 0.032 -0.019 0.985

tsz 0.000 0.000 -2.108 0.035\*

KW -0.315 0.135 -2.328 0.020\*

julian\_date 0.038 0.019 1.951 0.051

**mic\_strucPC3** mic\_climPC1 -0.063 0.023 -2.683 0.007\*\*

mic\_climPC2 0.047 0.031 1.520 0.129

tsz 0.000 0.000 1.049 0.294

KW 0.052 0.133 0.392 0.695

julian\_date -0.013 0.019 -0.668 0.504

image107image108image109image110image111image112image113image114image115image116image117image118image119image120image121image122image123S6. Generalized linear Model (GLM) summary statistics performed for significant outcomes of the

distance GLMs and computed R-squared when PR(>|t|) values were still significant. \* p < 0.05 and \*\* p <

0.01

**dependent independent estimate standard t-value PR(>|t|) R-**

**variable variable error squared**

**distPC1** tsz 0.000 0.000 -2.162 0.031\* 0.005

**distPC2** weatherPC5 0.104 0.045 2.308 0.021\* 0.006

tsz 0.000 0.000 2.032 0.042\* 0.004

**distPC3** weatherPC1 -0.013 0.005 -2.621 0.009\*\* 0.007

weatherPC6 0.120 0.052 2.292 0.022\* 0.006

**distPC5** mic\_climPC1 -0.045 0.025 -1.801 0.072 -

tsz 0.000 0.000 1.717 0.086 -

KW 0.001 0.007 0.147 0.883 -

julian\_date 0.001 0.001 0.247 0.805 -

S7. Generalized linear Model (GLM) summary statistics performed again for significant outcomes of the

microhabitat structure GLMs and computed R-squared when PR(>|t|) values were still significant. \* p <

0.05 and \*\* p < 0.01 and \*\*\* p < 0.005

**dependent independent estimate standard t-value PR(>|t|) R-squared**

**variable variable error**

**mic\_strucPC1** mic\_climPC2 -0.093 0.038 -2.468 0.014\* 0.006

**mic\_strucPC2** tsz 0.000 0.000 -4.797 0.000\*\*\* 0.024

KW -0.056 0.007 -8.340 0.000\*\*\* 0.069

**mic\_strucPC3** mic\_climPC1 -0.060 0.024 -2.537 0.011\* 0.007