

Table S5. Conditional probability tables for each node in the Bayesian network model of *Arhopalus fesus* flight activity as discretized from case data using the expectation maximization algorithm.

Table S5A. Conditional probability table for node

| Flight |           |
|--------|-----------|
| Yes    | 0.0266629 |
| No     | 0.973337  |

Table S5B. Conditional probability table for node time since sunrise (mins)

| Flight | Time since sunset (mins) | Outcome  |          |          |          |           |            |          |
|--------|--------------------------|----------|----------|----------|----------|-----------|------------|----------|
|        |                          | < -20    | -20 to 6 | 6 to 40  | 40 to 65 | 65 to 191 | 191 to 373 | >= 373   |
| Yes    |                          | 0.01579  | 0.294737 | 0.052632 | 0.210526 | 0.247368  | 0.131579   | 0.047368 |
| No     |                          | 0.028691 | 0.013264 | 0.02105  | 0.014562 | 0.087226  | 0.128604   | 0.706603 |

Table S5C. Conditional probability table for node Photon flux density ( $\mu\text{mol photons m}^{-2}\text{s}^{-1}$ )

| Flight | Time since sunset (mins) | Outcome  |          |
|--------|--------------------------|----------|----------|
|        |                          | < 0.23   | >= 0.23  |
| Yes    | < -20                    | 0.999997 | 3.33E-06 |
| Yes    | -20 to 6                 | ~1       | 1.79E-07 |
| Yes    | 6 to 40                  | 0.899999 | 0.100001 |
| Yes    | 40 to 65                 | ~1       | 2.50E-07 |
| Yes    | 65 to 191                | ~1       | 2.13E-07 |
| Yes    | 191 to 373               | ~1       | 4.00E-07 |
| Yes    | >= 373                   | 1.11E-06 | 0.999999 |
| No     | < -20                    | 0.492462 | 0.507538 |
| No     | -20 to 6                 | 0.978261 | 0.021739 |
| No     | 6 to 40                  | 0.979452 | 0.020548 |
| No     | 40 to 65                 | 0.990099 | 0.009901 |
| No     | 65 to 191                | 0.971901 | 0.028099 |
| No     | 191 to 373               | 0.980942 | 0.019058 |
| No     | >= 373                   | 0.079372 | 0.920628 |

Table S5D. Conditional probability table for node wind speed ( $\text{m}^{-1}\text{s}^{-1}$ )

| Flight | Maximum temperature (C) | Outcome  |          |
|--------|-------------------------|----------|----------|
|        |                         | < 4.2    | >= 4.2   |
| Yes    | < 12.6                  | 0.888888 | 0.111111 |
| Yes    | >= 12.6                 | 0.877907 | 0.122093 |
| No     | < 12.6                  | 0.831106 | 0.168894 |
| No     | >= 12.6                 | 0.657473 | 0.342527 |

Table S5E. Conditional probability table for node maximum temperature (°C)

| Flight | Photon flux density ( $\mu\text{mol photons m}^{-2}\text{s}^{-1}$ ) | Outcome  |          |
|--------|---------------------------------------------------------------------|----------|----------|
|        |                                                                     | < 12.6   | >= 12.6  |
| Yes    | < 0.23                                                              | 0.1      | 0.9      |
| Yes    | >= 0.23                                                             | 1.00E-06 | 0.999999 |
| No     | < 0.23                                                              | 0.593955 | 0.406045 |
| No     | >= 0.23                                                             | 0.287556 | 0.712444 |

Table S5F. Conditional probability table for node Day of year

| Flight | Maximum temperature (°C) | Outcome  |          |           |          |
|--------|--------------------------|----------|----------|-----------|----------|
|        |                          | < 14     | 14 to 41 | 41 to 325 | >= 325   |
| Yes    | < 12.6                   | 5.56E-07 | 0.444444 | 5.56E-07  | 0.555555 |
| Yes    | >= 12.6                  | 0.040698 | 0.796511 | 5.81E-08  | 0.162791 |
| No     | < 12.6                   | 3.71E-09 | 0.133259 | 0.44098   | 0.425761 |
| No     | >= 12.6                  | 0.001179 | 0.489863 | 0.214286  | 0.294672 |

Table S5G. Conditional probability table for node temperature range (°C)

| Flight | Time since sunset (mins) | Outcome  |          |
|--------|--------------------------|----------|----------|
|        |                          | < 1.1    | >= 1.1   |
| Yes    | < -20                    | 0.333334 | 0.666666 |
| Yes    | -20 to 6                 | 0.678571 | 0.321429 |
| Yes    | 6 to 40                  | 0.200001 | 0.799999 |
| Yes    | 40 to 65                 | 0.750000 | 0.250000 |
| Yes    | 65 to 191                | 0.638298 | 0.361702 |
| Yes    | 191 to 373               | 0.440000 | 0.560000 |
| Yes    | >= 373                   | 0.333334 | 0.666666 |
| No     | < -20                    | 0.59799  | 0.40201  |
| No     | -20 to 6                 | 0.804348 | 0.195652 |
| No     | 6 to 40                  | 0.582192 | 0.417808 |
| No     | 40 to 65                 | 0.861386 | 0.138614 |
| No     | 65 to 191                | 0.657851 | 0.342149 |
| No     | 191 to 373               | 0.600897 | 0.399103 |
| No     | >= 373                   | 0.314426 | 0.685574 |