**Section A: supplementary statistic tables**

**Supplementary file 1a. Movement extent model summaries.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | *A. femoralis*loge (movement extent) | *D. tinctorius*loge (movement extent) | *O. sylvatica*loge (movement extent) |
| *Predictors* | *Estimates (CI)* | *p* | *Estimates (CI)* | *p* | *Estimates (CI)* | *p* |
| (Intercept) | 2.9(0.65 – 5.2) | **0.014** | 5.9(4.7 – 7.2) | **<0.001** | 3.4(2.50 – 4.35) | **<0.001** |
| Sex [male] | 1.0(0.2 – 1.8) | **0.019** | 0.6(-0.45 – 1.7) | 0.240 | -0.8(-1.3 – -0.4) | **0.001** |
| Trackingduration | 0.1(-0.03 – 0.3) | 0.101 | -0.02(-0.1 – 0.1) | 0.564 | 0.01(-0.1 – 0.1) | 0.831 |
| Observations | 25 | 19 | 29 |
| R2 / R2 adjusted | 0.34 / 0.28 | 0.085 / -0.03 | 0.38 / 0.33 |

Statistical summary of three linear models with loge-transformed movement extent area in *A. femoralis*, *D. tinctorius*, and *O. sylvatica* as the response variable, sex as the predictor, and tracking duration (days) as a covariate. Statistical significance with p < 0.05 is highlighted in bold.

**Supplementary file 1b. Explored area after 50-m translocation model summaries.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | *A. femoralis* 50-mloge (explored area) | *D. tinctorius* 50-mloge (explored area) | *O. sylvatica* 50-mloge (explored area) |
| *Predictors* | *Estimates* | *p* | *Estimates* | *p* | *Estimates* | *p* |
| (Intercept) | 17.5(10.1 – 24.9) | **<0.001** | 5.7(-0.5 – 11.8) | 0.068 | -19.5(-84.4 – 45.5) | 0.530 |
| Sex [male] | 0.6(0.3 – 0.9) | **<0.001** | 0.1(-0.3 – 0.5) | 0.681 | 0.2(-0.4 – 0.8) | 0.514 |
| Temp. | -0.5(-0.8 – -0.3) | **<0.001** | 0.03(-0.2 – 0.3) | 0.835 | 1.0(-1.8 – 3.8) | 0.459 |
| Weight | 0.7(-0.1 – 1.5) | 0.084 | 0.01(-0.2 – 0.2) | 0.954 | 1.3(-0.3 – 2.9) | 0.109 |
| Observations | 32 | 31 | 18 |
| R2 / R2 adjusted | 0.59 / 0.55 | 0.015 / -0.09 | 0.23 / 0.06 |

Statistical summary of three linear models with loge-transformed explored area in *A. femoralis*, *D. tinctorius*, and *O. sylvatica* as the response variable, sex as the predictor, and ambient daytime temperature (Temp.) and frog weight as covariates. Statistical significance with p < 0.05 is highlighted in bold.

**Supplementary file 1c. Homing duration model summaries.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *A. femoralis* 50-mloge (homing duration) | *D. tinctorius* 50-mloge (homing duration) | *D. tinctorius* 200-mloge (homing duration) | *O.* *sylvatica* 50-mloge (homing duration) |
| *Predictors* | *Estimates* | *p* | *Estimates* | *p* | *Estimates* | *p* | *Estimates* | *p* |
| (Intercept) | -23.0(-47.2 – 1.2) | 0.061 | 2.3(-15.95 – 20.5) | 0.801 | -2.8(-19.7 – 14.1) | 0.720 | -70.8(-140.2 – -1.45) | **0.046** |
| Sex [male] | -2.0(-3.15 – -0.9) | **0.002** | -0.7(-1.95 – 0.5) | 0.218 | -1.55(-4.1 – 1.0) | 0.202 | 0.4(-0.4 – 1.1) | 0.294 |
| Temp. | 1.2(0.2 – 2.3) | **0.021** | 0.1(-0.6 – 0.8) | 0.795 | 0.4(-0.2 – 1.0) | 0.203 | 3.15(0.15 – 6.1) | **0.042** |
| Weight | -1.7(-4.3 – 0.85) | 0.175 | -0.6(-1.2 – 0.05) | 0.069 | -0.5(-1.8 – 0.7) | 0.364 | 0.2(-2.05 – 2.4) | 0.860 |
| Observations | 19 | 30 | 14 | 14 |
| R2 / R2 adjusted | 0.54 / 0.44 | 0.13 / 0.03 | 0.31 / 0.10 | 0.385 / 0.20 |

Statistical summary of four linear models with loge-transformed homing duration in *A. femoralis*, *D. tinctorius*, and *O. sylvatica* as the response variable, sex as the predictor, and ambient daytime temperature (Temp.) and frog weight as covariates. Statistical significance with p < 0.05 is highlighted in bold.

**Supplementary file 1d. Sex difference in androgen levels.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | *A. femoralis*loge (androgens) | *D. tinctorius*loge (androgens) | *O. sylvatica*loge (androgens) |
| *Predictors* | *Estimates* | *p* | *Estimates* | *p* | *Estimates* | *p* |
| (Intercept) | 2.42(2.16 – 2.68) | **<0.001** | 3.16(2.58 – 3.74) | **<0.001** | 2.26(2.01 – 2.52) | **<0.001** |
| Sex [m] | 0.40(0.09 – 0.72) | **0.012** | 1.04(0.33 – 1.75) | **0.004** | 0.41(0.08 – 0.74) | **0.015** |
| Time point [back home] | 0.12(-0.19 – 0.44) | 0.444 | -0.16(-0.71 – 0.38) | 0.556 | 0.07(-0.21 – 0.35) | 0.631 |
| **Random Effects** |
| σ2 | 0.42 | 0.95 | 0.24 |
| τ00 | 0.00 id | 0.52 id | 0.08 id |
| ICC |  | 0.35 | 0.25 |
| N | 35 id | 35 id | 34 id |
| Observations | 66 | 56 | 51 |
| Marginal R2 / Conditional R2 | 0.095 / NA | 0.157 / 0.455 | 0.125 / 0.342 |

Statistical summary of three linear mixed models with loge-transformed androgen levels in *A. femoralis*, *D. tinctorius*, and *O. sylvatica* as the response variable, sex and sampling point as the predictors, frog identity as the random factor. Statistical significance with p < 0.05 is highlighted in bold.

**Supplementary file 1e. Androgen influence on spatial variables in *A. femoralis****.*

|  |  |  |  |
| --- | --- | --- | --- |
|  | *A. femoralis*loge (explored area) | *A. femoralis*loge (explored area) | *A. femoralis*loge (explored area) |
| *Predictors* | *Estimates* | *p* | *Estimates* | *p* | *Estimates* | *p* |
| (Intercept) | 5.8(5.4 – 6.1) | **<0.001** | 0.04(0.02 – 0.1) | **0.014** | 0.9(0.8 – 0.95) | **<0.001** |
| Androgens | 0.04(-0.2 – 0.2) | 0.725 | 0.00(-0.02 – 0.02) | 0.804 | 0.02(-0.02 – 0.1) | 0.343 |
| Sex [male] | 0.3(-0.2 – 0.8) | 0.261 | NA |  | NA |  |
| Translocation dist.[50m] | -0.7(-1.1 – -0.3) | **0.002** | 0.03(-0.02 – 0.01) | 0.259 | -0.1(-0.2 – -0.03) | **0.029** |
| Homing success[1] | 1.2(0.7 – 1.8) | **<0.001** | NA |  | NA |  |
| Temp. | NA |  | -0.02(-0.03 – -0.00) | 0.057 | -0.1(-0.1 – -0.02) | **0.011** |
| Observations | 35 | 12 | 12 |
| R2 / R2 adjusted | 0.67 / 0.62 | 0.705 | 0.61 |

Statistical summary of three linear models with log-transformed explored area, homing duration, and homing trajectory straightness in *A. femoralis* as the response variables, androgen levels and sex as the predictors, translocation distance, homing success, and average daytime temperature (Temp.) as covariates. Statistical significance with p < 0.05 is highlighted in bold.

**Supplementary file 1f. Androgen influence on spatial variables in *D. tinctorius.***

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***D. tinctorius*****Log explored area** | ***D. tinctorius*****homing duration** | ***D. tinctorius*****trajectory straightness** |
| *Predictors* | *Estimates* | *p* | *Estimates* | *p* | *Estimates* | *p* |
| (Intercept) | 7.24(6.64 – 7.84) | **<0.001** | 0.02(-0.02 – 0.09) | 0.462 | 0.52(0.27 – 0.90) | **0.009** |
| Androgens | 0.33(0.04 – 0.61) | **0.027** | 0.00(-0.04 – 0.06) | 0.898 | -0.07(-0.20 – 0.06) | 0.310 |
| Sex [male] | 0.92(0.04 – 1.80) | **0.042** | 0.01(-0.06 – 0.09) | 0.769 | -0.04(-0.30 – 0.21) | 0.761 |
| Translocation dist.[50m] | -1.62(-2.44 – -0.80) | **0.001** | 0.06(-0.01 – 0.12) | 0.092 | 0.17(-0.21 – 0.46) | 0.307 |
| Homing success[1] | 0.51(-0.34 – 1.36) | 0.222 | NA |  | NA |  |
| Weight | 0.60(0.18 – 1.02) | **0.008** | NA |  | NA |  |
| Observations | 23 | 16 | 12 |
| R2 / R2 adjusted | 0.762 / 0.691 | 0.308 | 0.207 |

Statistical summary of three linear models with loge-transformed transformed explored area, homing duration, and homing trajectory straightness in *D. tinctorius* as the response variables, androgen levels and sex as the predictors, translocation distance, homing success, and frog weight as covariates. Statistical significance with p < 0.05 is highlighted in bold.

**Supplementary file 1g. Androgen influence on spatial variables in *O. sylvatica.***

|  |  |  |  |
| --- | --- | --- | --- |
|  | *O. sylvatica*Log explored area | *O. sylvatica*homing duration | *O. sylvatica*trajectory straightness |
| *Predictors* | *Estimates* | *p* | *Estimates* | *p* | *Estimates* | *p* |
| (Intercept) | 6.40(6.00 – 6.81) | **<0.001** | 0.05(0.03 – 0.07) | **0.001** | 0.70(0.54 – 0.91) | **<0.001** |
| Androgens | -0.06(-0.31 – 0.18) | 0.589 | 0.01(-0.00 – 0.02) | 0.188 | 0.21(0.09 – 0.32) | **0.003** |
| Sex [male] | 0.23(-0.25 – 0.71) | 0.333 | -0.01(-0.03 – 0.02) | 0.549 | -0.13(-0.35 – 0.09) | 0.219 |
| Translocation dist.[50m] | -0.99(-1.62 – -0.37) | **0.003** | NA |  | NA |  |
| Homing success[1] | 1.07(0.47 – 1.67) | **0.001** | NA |  | NA |  |
| Observations | 28 | 13 | 13 |
| R2 / R2 adjusted | 0.433 / 0.334 | 0.113 | 0.451 |

Statistical summary of three linear models with loge-transformed transformed explored area, homing duration, and homing trajectory straightness in *O. sylvatica* as the response variables, androgen levels and sex as the predictors, translocation distance and homing success as covariates. Statistical significance with p < 0.05 is highlighted in bold.

**Supplementary file 1h. Exploration influence on delta androgen levels.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | *A. femoralis*delta androgens | *D. tinctorius*delta androgens | *O. sylvatica*delta androgens |
| *Predictors* | *Estimates* | *p* | *Estimates* | *p* | *Estimates* | *p* |
| (Intercept) | 7.84(-2.75 – 18.44) | 0.140 | -47.48(-382.53 – 287.57) | 0.768 | 2.64(-12.97 – 18.25) | 0.717 |
| Explored area | 12.70(3.37 – 22.03) | **0.010** | 12.77(-107.77 – 133.31) | 0.825 | 0.53(-7.61 – 8.67) | 0.889 |
| Sex [male] | 12.70(-3.73 – 29.13) | 0.124 | 41.74(-144.22 – 227.70) | 0.641 | -6.99(-21.00 – 7.03) | 0.296 |
| Trackingduration | -7.18(-14.87 – 0.52) | 0.066 | 4.14(-187.48 – 195.76) | 0.964 | 4.01(-10.97 – 18.99) | 0.567 |
| Homing success[1] | -28.63(-53.37 – -3.88) | **0.025** | 39.40(-449.42 – 528.21) | 0.866 | 6.24(-22.51 – 34.99) | 0.642 |
| Observations | 31 | 21 | 16 |
| R2 / R2 adjusted | 0.353 / 0.254 | 0.027 / -0.216 | 0.141 / -0.171 |

Statistical summary of three linear models with delta androgen levels in *A. femoralis*, *D. tinctorius*, and *O. sylvatica* as the response variable, explored area and sex as the predictors, tracking duration and homing success as covariates. Statistical significance with p < 0.05 is highlighted in bold.

**Section B: supplementary method tables**

**Supplementary file 1i. Study site characteristics.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Site name** | **Locality** | **Coordinates** | **Area (ha)** | **Site characteristic** | **Breeding sites** |
| Nouragues island | Nouragues Nature Reserve, French Guiana | 4°02' N, 52°41' W | 4.6 | Free-range experimental island population | Mostly artificial |
| Nouragues main | Nouragues Nature Reserve, French Guiana | 4°02' N, 52°41' W | 25 | Natural population | Mostly natural |
| Florida | La Florida, Ecuador | 0°15' S, 79°02' W | 0.5 | Free-range experimental enclosure population | Natural and artificial |
| Canandé | Reserva Canandé, Ecuador | 0°32' N, 79°13' W | 5.5 | Natural population | Natural |

**Supplementary file 1j. Data type and dataset descriptive.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Data types** | **Dataset id** | **Study period** | **Species** | **Site** | **N frogs tagged** | **N frogs included** | **Note** |
| Space use tracking | af16 | 2016/02/08 - 2016/03/20 | *A. femoralis* | Nouragues island | 24 | 17 | Only females tracked |
| af18 | 2018/03/17 - 2018/04/18 | *A. femoralis* | Nouragues island | 12 | 12 | Only males tracked |
| dt16 | 2016/01/27 - 2016/03/19 | *D. tinctorius* | Nouragues main | 31 | 26 |  |
| os17 | 2017/04/23 - 2017/05/16 | *O. sylvatica* | Florida | 31 | 29 |  |
| Space use recapture | dt\_recap | 2009/01/09 - 2011/06/05 | *D. tinctorius* | Nouragues main | *NA* | 154 | Long-term recapture data |
| af\_recap | 2014/01/24 - 2019/04/22 | *A. femoralis* | Nouragues main | *NA* | 165 | Long-term recapture data |
| Navigation | af17 | 2017/01/27 - 2017/03/11 | *A. femoralis* | Nouragues main | 34 | 28 |  |
| dt17 | 2017/02/26 - 2017/03/23 | *D. tinctorius* | Nouragues main | 36 | 29 |  |
| Navigation, androgens, space use tracking | os19 | 2019/05/21 - 2019/06/25 | *O. sylvatica* | Canandé | 52 | 39 | Dataset also used for space use validation |
| Navigation, androgens | dt19 | 2019/02/19 - 2019/03/26 | *D. tinctorius* | Nouragues main | 47 | 38 |  |
| af20 | 2020/01/21 - 2020/03/16 | *A. femoralis* | Nouragues main | 44 | 36 |  |

**Supplementary file 1k. Dependent variables definitions used in the statistical analyses.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data types** | **Variable name** | **Definition** | **Datasets** |
| Space use | home range | Area under the 95% utilization density contour | af16, af18, dt16, os17 (tracked > 7 days) |
| extent area | Area under the minimum convex polygon | af16, af18, dt16, os17 (tracked > 7 days) |
| daily travel | Cumulative daily distance traveled | af16, af18, dt16, os17, os19 (tracked > 2 days) |
| extent distance | Maximum linear distance between locations of one individual | af16, af18, dt16, os17, os19 (tracked > 2 days) dt\_recap, af\_recap (recaptured >30 days) |
| Navigation androgens | homing success | Homing (yes/no) at least 70% of translocation distance | af17, dt17, os19, dt19, af20 (all translocated frogs) |
| explored area | Area within five meters of the movement trajectory | af17, dt17, os19, dt19, af20 (all translocated frogs) |
| trajectory straightness | Ratio between straight-line and cumulative distance from the release site to the end of the homing trajectory | af17, dt17, os19, dt19, af20 (successfully homing frogs) |
| homing duration | Daytime hours from the release time to the arrival within 10-meters of the home area polygon | af17, dt17, os19, dt19, af20 (homing frogs) |
| Navigation | angular deviation | Angular deviation from home center direction measured at ~20% of the translocation distance from the release site | af17, dt17, os19, dt19, af20 (all translocated frogs) |
| Androgens | androgen level | Water-borne androgen concentration measured within 2 day before translocation and after returning home | os19, dt19, af20 (all translocated frogs) |
| delta androgens | Difference between androgen concentrations measured back at the home site and baseline androgens. | os19, dt19, af20 (all translocated frogs) |

**Supplementary file 1l. Predictor variable definitions use in the statistical analyses.**

|  |  |
| --- | --- |
| **Predictor** | **Definition** |
| Species | Three level factor: *A. femoralis, D. tinctorius, O. sylvatica* |
| Sex | Two level factor: male, female |
| Behavior | Three or two level factor: parental, mating, other |
| Weight | Continuous numeric: frog weight in grams |
| Daytime temperature | Continuous numeric: average daytime temperature measured between sunrise and sunset |
| Mean temperature | Continuous numeric: daytime temperature averaged over the entire tracking period of an individual |
| Translocation distance | Two level factor: 50-m, 200-m |
| Homing success | Two level factor: yes, no |
| Explored area | Continuous numeric: area within five meters of the movement trajectory |
| Tracking duration | Continuous numeric: total tracking duration of an individual |
| Period | Count numeric: Number of days between recaptures of the same individual |
| Baseline androgens | Continuous numeric: Water-borne androgen concentration measured within 2 day before translocation |
| Time point | Two level factor: baseline, back home |

**Supplementary file 1m. All models performed for the statistical analyses.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Data type** | **Dependent variable** | **Predictors** | **Model id** | **Datasets** | **Data subset** |
| Space use | Loge (home range) | species, sex, tracking duration | m11\_allud | af16 + af18 + dt16 + os17 | All species |
| sex, tracking duration | m12\_afud | af16 + af18 | *A. femoralis* |
| sex, tracking duration | m13\_dtud | dt16 | *D. tinctorius* |
| sex, tracking duration | m14\_osud | os17 | *O. sylvatica* |
| Loge  (extent area) | species, sex, tracking duration | m15\_allmcp | af16 + af18 + dt16 + os17 | All species |
| sex, tracking duration | m16\_afmcp | af16 + af18 | *A. femoralis* |
| sex, tracking duration | m17\_dtmcp | dt16 | *D. tinctorius* |
| sex, tracking duration | m18\_osmcp | os17 | *O. sylvatica* |
| Loge (daytime travel) | sex, species, points per day | m1\_alldl | af16 + af18 + dt16 + os17 | All species |
| sex, behavior, daytime temperature, points per day1 | m2\_afdl | af16 + af18 | *A. femoralis* |
| behavior, daytime temperature | m4\_affdl | af16 | *A. femoralis* females |
| behavior, daytime temperature | m3\_afmdl | af18 | *A. femoralis* males |
| sex, behavior, daytime temperature, points per day1 | m5\_dtdl | dt16 | *D. tinctorius* |
| behavior2 | m7\_dtfl | dt16 | *D. tinctorius* females |
| behavior2 | m6\_dtml | dt16 | *D. tinctorius* males |
| sex, behavior, daytime temperature, points per day1 | m8\_osdl | os17 | *O. sylvatica* |
| behavior2 | m10\_osmdl | os17 | *O. sylvatica* females |
| behavior2 | m9\_osfdl | os17 | *O. sylvatica* males |
| Space use validation | Loge  (extent distance) | sex, tracking duration | m19\_aftr | af16 + af18 | *A. femoralis* tracking |
| sex, period | m20\_afcr | af\_recap | *A. femoralis* recapture |
| sex, tracking duration | m21\_dttr | dt16 | *D. tinctorius* tracking |
| sex, period | m22\_dtcr | dt\_recap | *D. tinctorius* recapture |
| sex, tracking duration | m23\_oscan | os19 | *O. sylvatica* tracking natural site |
| sex, tracking duration | m24\_osoto | os17 | *O. sylvatica* tracking enclosures |
| Loge (daytime travel) | sex | m25\_oscan | os19 | *O. sylvatica* tracking natural site |
| sex | m26\_osoto | os17 | *O. sylvatica* tracking enclosures |
| Navigation | Homing success | sex, weight, mean temperature | m1\_afprob | af17 + af20 | *A. femoralis* 50-m |
| sex, weight, mean temperature | m2\_dtprob | dt17 + dt19 | *D. tinctorius* 200-m |
| sex, mean temperature3 | m3\_osprob | os19 | *O. sylvatica* 50-m |
| Loge (explored area) | sex, weight, mean temperature | m4\_af50ex | af17 + af20 | *A. femoralis* 50-m |
| sex, weight, mean temperature | m5\_af200ex | af17 + af20 | *A. femoralis* 200-m |
| sex, weight, mean temperature | m6\_dt50ex | dt17 + dt19 | *D. tinctorius* 50-m |
| sex, weight, mean temperature | m7\_dt200ex | dt17 + dt19 | *D. tinctorius* 200-m |
| sex, weight, mean temperature | m8\_os50ex | os19 | *O. sylvatica* 50-m |
| sex, weight, mean temperature | m9\_os200ex | os19 | *O. sylvatica* 200-m |
| Trajectory straightness | sex, mean temperature | m10\_af50sc | af17 + af20 | *A. femoralis* 50-m homing |
| sex, mean temperature | m11\_dt50sc | dt17 + dt19 | *D. tinctorius* 50-m homing |
| sex, mean temperature | m12\_dt200sc | dt17 + dt19 | *D. tinctorius* 200-m homing |
| sex, mean temperature | m13\_os50sc | os19 | *O. sylvatica* 50-m homing |
| Loge (homing duration) | sex, weight, mean temperature | m14\_af50dr | af17 + af20 | *A. femoralis* 50-m homing |
| sex, weight, mean temperature | m15\_dt50dr | dt17 + dt19 | *D. tinctorius* 50-m homing |
| sex, weight, mean temperature | m16\_dt200dr | dt17 + dt19 | *D. tinctorius* 200-m homing |
| sex, weight, mean temperature | m17\_os50dr | os19 | *O. sylvatica* 50-m homing |
| Angular deviation | sex | m18\_af50cr | af17 + af20 | *A. femoralis* 50-m |
| sex | m19\_dt50cr | dt17 + dt19 | *D. tinctorius* 50-m |
| sex | m20\_dt200cr | dt17 + dt19 | *D. tinctorius* 200-m |
| sex | m21\_os50cr | os19 | *O. sylvatica* 50-m |
| Androgens | Loge (baseline androgens) | sex, time point | m1\_afT | af20 | *A. femoralis* |
| sex, time point | m1\_dtT | dt19 | *D. tinctorius* |
| sex, time point | m1\_osT | os19 | *O. sylvatica* |
| Homing success | baseline androgens, sex, translocation distance4 | m2\_afT | af20 | *A. femoralis* |
| baseline androgens, sex, translocation distance4 | m2\_dtT | dt19 | *D. tinctorius* |
| baseline androgens, sex, translocation distance, weight4 | m1\_osT | os19 | *O. sylvatica* |
| Loge (explored area) | baseline androgens, sex, translocation distance, homing success4 | m3\_afT | af20 | *A. femoralis* |
| baseline androgens, sex, translocation distance, homing success, weight4 | m3\_dtT | dt19 | *D. tinctorius* |
| baseline androgens, sex, translocation distance, homing success4 | m3\_osT | os19 | *O. sylvatica* |
| Homing duration | baseline androgens, translocation distance, mean temperature4 | m4\_afT | af20 | *A. femoralis* homing |
| baseline androgens, sex, translocation distance4 | m4\_dtT | dt19 | *D. tinctorius* homing |
| baseline androgens, sex4 | m4\_osT | os19 | *O. sylvatica* homing |
| Trajectory straightness | baseline androgens, translocation distance, mean temperature4 | m5\_afT | af20 | *A. femoralis* homing |
| baseline androgens, sex, translocation distance4 | m5\_dtT | dt19 | *D. tinctorius* homing |
| baseline androgens, sex4 | m5\_osT | os19 | *O. sylvatica* homing |
| Delta androgens | explored area, sex, tracking duration, homing success4 | m6\_afT | af20 | *A. femoralis* homing |
| explored area, sex, tracking duration, homing success4 | m6\_dtT | dt19 | *D. tinctorius* homing |
| explored area, sex, tracking duration, homing success4 | m6\_osT | os19 | *O. sylvatica* homing |

1 Full model.

2 Daytime temperature excluded based on model selection for both sexes.

3 Weight excluded because the model with weight didn’t converge.

4 Weight and/or mean temperature were excluded to reduce the number of predictors if the model excluding these predictors (separately) was not significantly different (P > 0.1) from the full model.