Table S1. LMM males testo

| **Parameter** | **Estimate** | **SE** | **Statistic** | **p** |
| --- | --- | --- | --- | --- |
| Intercept | 0.545 | 0.054 | 10.158 | 0.000 |
| Species (red phalarope) | -0.259 | 0.092 | -2.816 | 0.005 |
| Day of the year (linear) | -6.534 | 0.652 | -10.022 | 0.000 |
| Day of the year (quadratic) | -4.582 | 0.552 | -8.293 | 0.000 |
| Scaled mass index | 0.034 | 0.016 | 2.098 | 0.036 |
| Random intercept (year) | 0.147 |  |  |  |
| Random intercept (ID) | 0.000 |  |  |  |
| R² conditional | 0.283 |  |  |  |
| R² marginal | 0.223 |  |  |  |

Table S2. LMM females testo

| **Parameter** | **Estimate** | **SE** | **Statistic** | **p** |
| --- | --- | --- | --- | --- |
| Intercept | 1.544 | 0.501 | 3.081 | 0.002 |
| Species (red phalarope) | 0.026 | 0.111 | 0.236 | 0.814 |
| Day of the year | -0.012 | 0.003 | -3.993 | 0.000 |
| Scaled mass index | 0.033 | 0.022 | 1.479 | 0.139 |
| Random intercept (year) | 0.312 |  |  |  |
| Random intercept (ID) | 0.265 |  |  |  |
| R² conditional | 0.671 |  |  |  |
| R² marginal | 0.051 |  |  |  |

Table S3. LMM males GnRH

| **Parameter** | **Estimate** | **SE** | **Statistic** | **p** |
| --- | --- | --- | --- | --- |
| Intercept | 0.907 | 0.121 | 7.482 | 0.000 |
| Species (red phalarope) | -0.845 | 0.142 | -5.934 | 0.000 |
| GnRH induced | 0.474 | 0.141 | 3.356 | 0.001 |
| Low GnRH concentration | -0.163 | 0.108 | -1.514 | 0.130 |
| Species (red phalarope):GnRH induced | 0.278 | 0.181 | 1.536 | 0.125 |
| Random intercept (ID) | 0.161 |  |  |  |
| R² conditional | 0.707 |  |  |  |
| R² marginal | 0.638 |  |  |  |

Table S4. LMM females GnRH

| **Parameter** | **Estimate** | **SE** | **Statistic** | **p** |
| --- | --- | --- | --- | --- |
| Intercept | -0.285 | 0.080 | -3.545 | 0.000 |
| Species (red phalarope) | -0.100 | 0.103 | -0.964 | 0.335 |
| GnRH induced | 0.623 | 0.098 | 6.371 | 0.000 |
| Low GnRH concentration | -0.219 | 0.074 | -2.964 | 0.003 |
| Species (red phalarope):GnRH induced | -0.005 | 0.144 | -0.034 | 0.973 |
| Random intercept (ID) | 0.037 |  |  |  |
| R² conditional | 0.646 |  |  |  |
| R² marginal | 0.639 |  |  |  |

Table S5. LMM haematocrit PESA

| **Parameter** | **Estimate** | **SE** | **Statistic** | **p** |
| --- | --- | --- | --- | --- |
| Intercept | 56.627 | 3.175 | 17.833 | 0.000 |
| Sex (female) | -7.634 | 0.814 | -9.373 | 0.000 |
| Day of the year | 0.015 | 0.019 | 0.764 | 0.445 |
| Testosterone (logarithmic) | 0.614 | 0.241 | 2.546 | 0.011 |
| Scaled mass index | 1.009 | 0.131 | 7.683 | 0.000 |
| Random intercept (year) | 1.242 |  |  |  |
| Random intercept (ID) | 2.477 |  |  |  |
| R² conditional | 0.645 |  |  |  |
| R² marginal | 0.241 |  |  |  |

Table S6. LMM haematocrit REPH

| **Parameter** | **Estimate** | **SE** | **Statistic** | **p** |
| --- | --- | --- | --- | --- |
| Intercept | 35.984 | 3.832 | 9.390 | 0.000 |
| Sex (female) | 2.039 | 0.391 | 5.221 | 0.000 |
| Day of the year | 0.106 | 0.023 | 4.579 | 0.000 |
| Testosterone (logarithmic) | 1.020 | 0.304 | 3.354 | 0.001 |
| Scaled mass index | 0.666 | 0.159 | 4.184 | 0.000 |
| Random intercept (year) | 1.253 |  |  |  |
| Random intercept (ID) | 3.290 |  |  |  |
| R² conditional | 0.863 |  |  |  |
| R² marginal | 0.103 |  |  |  |