Supplemental Information Table 1. Highest-ranked models (with lowest AICc scores) in candidate sets for models testing the relationship between intra-individual variation in migratory timing between consecutive years and the effects of year and device in continental black-tailed godwits tracked from 2013 – 2017 (*n* = 27). *K* indicates the number of parameters in each model.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Response Variable | Predictor Variable(s) | *K* | Deviance | AICc | ΔAICc | *wi* |
| Intra-Individual Variation in Migratory Timing  | Intercept | 3 | 733.2 | 739.4 | 0.0 | 0.69 |
|  | Device | 5 | 730.9 | 741.6 | 2.1 | 0.24 |
|  | Year | 6 | 731.6 | 744.6 | 5.1 | 0.05 |
|  | Device + Year | 8 | 729.4 | 747.1 | 7.7 | 0.01 |

Supplemental Information Table 2. Model-averaged coefficients for the factors from models relating year and device to intra-individual variation in the timing of migratory flights of black-tailed godwits tracked from 2013 – 2017 (*n* = 57). Geolocators and 2014 were used as reference levels for the predictor variables ‘Device’ and ‘Year.’

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Model | Variable | *β* | SE | 95% CI | Random Effect | σ2 | St. Dev. |
| Intra-Individual Variation | Intercept | 11.44 | 5.05 | 1.54, 21.34 | Individual | 49.76 | 7.054 |
|  | Year: 2015 | 1.87 | 4.45 | -6.86, 10.59 |  |  |  |
|  | Year: 2016 | 4.23 | 4.23 | -4.06, 12.52 |  |  |  |
|  | Year: 2017 | 1.17 | 4.81 | -8.26, 10.59 |  |  |  |
|  | Device: Satellite Transmitters | 6.72 | 7.60 | -8.19, 21.62 |  |  |  |
|  | Device: UvA-Bits | 17.86 | 11.61 | -4.89, 40.61 |  |  |  |

Supplemental Information Table 3. Model comparison of Andersen-Gill models relating mortality rates to events during the annual cycle of black-tailed godwits (*Limosa limosa limosa*) from 2013 – 2017.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Predictor Variable(s) | *K* | AICc | ΔAICc | *wi* |
| Event + strata(Year) + cluster (Individual) | 9 | 196.1 | 0.0 | 1.00 |
| Event | 9 | 285.8 | 89.7 | 0.00 |

Supplemental Information Table 4. Model-averaged coefficients for the factors from Andersen-Gill models relating annual cycle events to the survival of black-tailed godwits tracked from 2013 – 2017 (*n* = 57). Coefficients were averaged across models with each type of event, in turn, used as the model’s reference.

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | *β* | SE | 95% CI |
| Nonbreeding Season | -2.90 | 7.29 | -17.19, 11.39 |
| Northward Migration Over Africa | 18.97 | 3.68 | 11.75, 26.19 |
| Iberian Staging Period | -0.53 | 7.30 | -14.84, 13.79 |
| Northward Migration Over Europe | 0.16 | 7.34 | -14.23, 14.55 |
| European Stopover Period | -0.75 | 7.33 | -15.11, 13.61 |
| Breeding Season | -1.11 | 7.29 | -15.41, 13.18 |
| Post-Breeding Season | -15.60 | 5.96 | -27.29, -3.91 |
| Southward Migration Over Europe | 0.67 | 7.34 | -13.72, 15.05 |
| Iberian Stopover Period | -1.94 | 7.28 | -16.20, 12.32 |
| Southward Migration Over Africa | 2.03 | 7.34 | -12.35, 16.42 |