**Supplementary Material Table S1.** List of vocal parameters measured and their descriptions, many of which were first described in Price et al. (2007).

|  |  |
| --- | --- |
| Character | Description |
| Average note length | Summed note duration divided by the number of notes in a song |
| Average pause length | Summed pause duration divided by the number of pauses in a song |
| Minimum frequency | Minimum fundamental frequency occurring in a song |
| Maximum frequency | Maximum fundamental frequency occurring in a song |
| Peak frequency | Fundamental frequency with the highest amplitude in the entire song |
| Average note bandwidth | The average frequency range of notes within a song |
| Song bandwidth | Difference between the maximum and minimum fundamental frequencies in a song |
| Frequency shift rate | Number of frequency sweeps that span >1 kHz and ≤20 ms divided by the song duration |
| Maximum frequency shift | Greatest change in frequency within a 20 msec time window |
| Note rate | Number of notes in a song divided by the song duration |
| Trill rate | Number of notes per second in a trill. A minimum of five repeated notes within a second duration defined a trill |

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**Figure S1.** Plot demonstrating the collinearity between body mass and tarsus length (Spearman’s Rank Correlation, *r*2 = 0.60, *p* = 2.2e–16). The positive association between these two characters illustrates the positive scaling relationship between the two different proxies for body size, hence our confidence in using tarsus length in our study.

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**Figure S2.** Plot of the residual distribution of the song variables before log-transformation.

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**Figure S3.** Plot of the residual distribution of the song variables after log-transformation.