SUPPLEMENTARY INFORMATION

(a) Acoustic complexity – 10-minute samples

(b) Acoustic complexity – 30-minute samples

SI Figure 1a-b. Histograms showing variation in frequency of the acoustic complexity index calculated on 10- and 30-minute sound recording segments from Singapore.
(c) Acoustic diversity – 10-minute samples

(d) Acoustic diversity – 30-minute samples

(e) Acoustic diversity – 60-minute samples
SI Figure 1c-e. Histograms showing variation in frequency of the acoustic diversity index calculated on 10-, 30- and 60-minute sound recording segments from Singapore.

(f) Bioacoustic index – 10-minute samples

(g) Bioacoustic index – 30-minute samples

(h) Bioacoustic index – 60-minute samples
SI Figure 1f-h. Histograms showing variation in frequency of the bioacoustic index calculated on 10-, 30- and 60-munite sound recording segments from Singapore.
(i) NDSI – 10-minute samples

(ii) NDSI – 30-minute samples

(iii) NDSI – 60-minute samples
SI Figure 1i-k. Histograms showing variation in frequency of the Normalised Difference Soundscape index calculated on 10-, 30- and 60-minute sound recording segments from Singapore.
Table S1. Settings used for processing the acoustic indices in R. Optimal parameters for each index were determined after sensitivity analyses on a subset of sound recordings.

<table>
<thead>
<tr>
<th>Index</th>
<th>J (cluster size) (s)</th>
<th>Min freq (Hz)</th>
<th>Max freq (Hz)</th>
<th>dB threshold (Hz)</th>
<th>Freq step (Hz)</th>
<th>Anthro min (Hz)</th>
<th>Anthro max (Hz)</th>
<th>Bio min (Hz)</th>
<th>Bio max (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acoustic complexity (AC)</td>
<td>10</td>
<td>—</td>
<td>11025</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Acoustic diversity (AD)</td>
<td>—</td>
<td>—</td>
<td>11025</td>
<td>-30</td>
<td>1000</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Bio-acoustic (BA)</td>
<td>—</td>
<td>2000</td>
<td>11025</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Normalised difference soundscape (NDSI)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1000</td>
<td>2000</td>
<td>2000</td>
<td>11025</td>
<td></td>
</tr>
</tbody>
</table>

**J**: cluster size in seconds (e.g. a cluster size of 10 s will partition analyses into 10-second clusters); **Min freq**: minimum frequency used when calculating the value, in Hz. Applied only to BA; **Max freq**: maximum frequency used when calculating the value, in Hz. Applied to AC, AD and BA; **dB threshold**: threshold to use in the calculation and a dB of -30 dBFS was chosen as it was the most optimal based on a visual comparison of boxplots and histograms. Applied only to AD; **Freq step**: size of frequency bands. Soundscape studies typically use 1000 Hz bands; **Anthro min and Anthro max**: minimum and maximum values of the range of anthrophony (human-generated sound); **Bio min and Bio max**: minimum and maximum values of the range of biophony (biologically-generated sounds).