Table S2. Comparison of the features used to describe the advertisement call of *Brachycephalus*.

| Feature | *B. pernix* group | | | | | *B. ephippium* group | | | | | | | | *B. didactylus* group | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *B. mirissimus* | *B. actaeus* | *B. albolineatus* | *B. tridactylus* | *B. crispus* | | *B. darkside* | *B. ephippium* | *B. ephippium* | *B. pitanga* | *B. pitanga* | *B. pitanga* | *B. hermogenesi* | | *B. sulfuratus* |
| Call duration (s) | 111.834 ± 46.604 (37.700–255.205) [25/11] | 0.04 ± 0.01 (0.03–0.04) [110/6]1 | 88.367 ± 35.733 (39.933–191.141) [24/16] | 0.11 ± 0.02 (?–? ) [?/17]1 | ? ± ? (?–300) [5/?] | | 30.4 ± 25.3 (2.9–66.2) [7/5] | ? ± ? (120–360) [?/?] |  |  |  |  | ? ± ? (0.2–1.9) [?/?]2 | | 1.8 ± 0.2 (1.5–2.3) [95/11] |
| Call rate (calls per second) |  | 0.20 ± 0.07 (0.13–0.30) [110/6] |  |  |  | |  |  |  |  |  |  | 0.19 ±? (?–?) [?/?]2 | |  |
| Interval between calls (s) |  | 5.42 ± 1.83 (3.27–7.68) [104/6] |  |  |  | | 6.2, 11.2 [2/?] |  |  |  |  |  |  | | 5.1 ± 1.4 (3.1–7.4) [95/11] |
| Note rate (notes per minute) | 11.694 ± 2.119 (7.484–15.935) [30/11] |  | 11.439 ± 3.216 (5.891–18.088) [24/16] |  |  | | 211.4 ± 25.6 (186.4–243.4) [5/?] |  |  | 159 ± 11 (?–?) [?/2] |  |  |  | |  |
| Note rate (notes per second) |  |  |  | 0.16 ± 0.03 (?–?) [11/?] | 1.67 ± 0.09 (?–?) [5/?] | |  |  |  |  |  |  | 1.09 ± ? (?–?) [?/?]2 | | 0.2 ± 0.0 (0.1–0.3) [485/11] |
| Pulse rate (pulses per second) |  | 0.42 ± 0.15 (0.26–0.63) [229/6] |  |  | 17.4 ± 2.12 (?–?) [5/?] | | 56.9 ± 4.9 (36.8–78.4) [790/5] |  |  | 62 ± 8 (?–?) [?/2]3 |  |  |  | | 9.3 ± 1.8 (6.1–12.3) [?/11] |
| Number of notes per call | 23.552 ± 10.287 (6–52) [29/12] |  | 17.26 ± 6.38 (8–29) [27/16] | 1 |  | | 114 ± 97.1 (9–253) [7/5] |  |  |  |  |  | ? ± ? (1–7) [?/?]2 | | 5.3 ± 0.9 (4–7) [485/11] |
| Number of pulses per notes |  | ? ± ? (2–3) [?/?] |  |  |  | |  |  |  |  |  |  |  | |  |
| Number of pulses per isolated notes | 1.691 ± 0.475 (1–3) [362/12] |  | 2.00 ± 0.595 (1–3) [323/20] | 0 | 10 ± 1.19 (7–12) [100/5] | | 6.3 ± 0.7 (5–8) [790/5] | 12 ± 1.96 (5–15) [57/?] |  | 11.1 ± 1.2 (?–?) [?/2] | 10.86 ± 1.62 (6.90–14.30) [?/?] |  |  | | 8.8 ± 1.3 (7–11) [?/11] |
| Number of pulses per note in note groups | 1.958 ± 0.325 (1–3) [308/10] |  | 2.70 ± 0.459 (2–3) [230/16] |  |  | |  |  |  |  |  |  |  | |  |
| Number of pulses in each note groups | 3.916 ± 0.604 (2–6) [154/10] |  | 5.40 ± 0.825 (4–6) [115/16] |  |  | |  |  |  |  |  |  |  | |  |
| Note duration of isolated notes (s) | 0.010 ± 0.007 (0.002–0.027) [115/10] |  | 0.020 ± 0.007 (0.002–0.037) [96/19] | 0.11 ± 0.02 (?–?) [?/17] | 0.28 ± 0.02 (?–?) [100/5] | | 0.111 ± 0.014 (0.083–0.163) [790/5] | 0.112 ± 0.006 (0.093–0.125) [19/?] |  | 0.170 ± 0.013 (?–?) [?/2] | 0.19 ± 0.03 (0.15–0.25) [400/40] |  |  | | 0.195 ± 0.013 (0.131–0.233) [485/11] |
| Duration of note groups (s) | 0.426 ± 0.044 (0.361–0.590) [56/10] |  | 0.465 ± 0.053 (0.360–0.578) [62/16] |  |  | |  |  |  |  |  |  |  | |  |
| Pulse duration (s) |  |  |  |  | 0.027 ± 0.004 (?–?) [517/5] | |  |  |  |  |  |  |  | | 0.024 ± 0.005 (0.02–0.03) [?/11] |
| Inter-note interval in isolated notes (s) | 5.815 ± 1.328 (3.919–10.625) [84/10] |  | 6.663 ± 1.705 (4.092–12.248) [62/15] |  | 0.35 ± 0.02 (?–?) [100/5] | | 0.159 ± 0.014 (0.122–0.215) [783/5] | 0.134 ± 0.007 (0.123–0.149) [18/?] |  |  | 0.28 ± 0.05 (0,20–0.43) [400/40] |  |  | |  |
| Inter-note group interval (s) | 7.022 ± 1.133 (5.321–10.930) [34/10] |  | 6.871 ± 1.768 (4.322–10.678) [32/13] |  |  | |  |  |  |  |  |  |  | |  |
| Inter-note interval within note groups (s) | 0.389 ± 0.030 (0.346–0.490) [56/10] |  | 0.412 ± 0.050 (0.319–0.526) [55/16] |  |  | |  |  |  |  |  |  |  | |  |
| Note dominant frequency (kHz) | 6.645 ± 0.272 (6.000–7.230) [227/10 | 6.9 ± 0.3 (6.6–7.3) [110/6] | 6.376 ± 0.304 (5.340–7.321) [256/10] | 4.8 ± 0.2 (?–?) [?/17] | 4.6 ± 0.19 (?–?) [100/5] | | 3.382 ± 0.185 (2.856–3.797) [790/5]4 |  | 3.94 ± 0.24 (?–? ) [?/5] | 4.9 ± 0.2 (?–?) [?/2] | 4.816 ± 0.414 (4.311–5.550) [400/40] | 5.43 ± 0.30 (?–?) [?/8] |  | | 6.7 ± 0.3 (6.2–7.2) [?/11] |
| Call dominant frequency (kHz) |  |  |  |  |  | |  |  |  |  |  |  | ?–? (6.8 ± 0.8) [5/?]5 | |  |
| Highest frequency (kHz) | 8.311 ± 0.518 (7.143–10.060) [227/10] | 9.1 ± 0.4 (8.5–9.7) [110/6] | 8.437 ± 0.492 (7.113–9.852) [145/19] | ? ± ? (6.4) [?/17]6 | 5.7 ± 0.17 (?–?) [100/5]6 | |  | ? ± ? (5.3) [?/?]6 |  |  |  |  |  | | 9.3 ± 0.3 (8.2–10.3) [?/11]6 |
| Lowest frequency (kHz) | 4.369 ± 0.767 (2.667–5.841) [277/10] | 4.8 ± 0.7 (3.9–5.9) [110/6] | 4.066 ± 0.448 (3.092–5.212) [145/19] | ? ± ? (3.2) [?/17]6 | 3.5 ± 0.19 (?–?) [100/5]6 | |  | 3.4 (? ± ?) [?/?]6 |  |  |  |  |  | | 4.9 ± 0.3 (4.5–5.5) [?/11]6 |
| 5%–95% frequency7 |  |  |  |  |  | | ? ± ? (2.484–5.766) [?/?] |  |  |  |  |  |  | |  |
| “Highest sound pressure” (dB) |  |  |  | 110 ± 5.6 (?–?) [?/17] |  | |  |  | 47.0 ± 5.7 (?–?) [3/?] | ? ± ? (56–66) [4/?] |  | 57.6 ± 1.8 (?–?) [8/?] |  | |  |
| Approach (*sensu* Köhler *et al.* 2017) | note-centered | call-centered | note-centered | call-centered | note-centered | | note-centered | note-centered | not applicable | note-centered2 | note-centered | not applicable | note-centered2 | | note-centered |
| Source | this study | Monteiro *et al.* (2018) | Bornschein *et al*. (2018) | Garey *et al.* (2012) | Condez *et al.* (2014) | | Guimarães *et al.* (2017) | Pombal Jr., Sazima & Haddad (1994) | Goutte *et al.* (2017) | Araújo *et al.* (2012) | Tandel *et al.* (2014) | Goutte *et al.* (2017) | Verdade *et al.* (2008) | | Condez *et al.* (2016) |

**Notes:**

Values are expressed by: mean ± SD (range) [sample/specimens]. Abbreviation: SD = standard deviation.

1Represents note duration under note-centered approach.

2Note-centered approach and call-centered approach probably mixed in this measurement.

3The unit of measure was erroneously cited as Hz.

4Feature cited as “peak frequency” by Guimarães *et al.* (2017) but refers to our dominant frequency.

5We are not sure if in the measurement was not mixed with note dominant frequency.

6The measurement procedure has not been explained and data may be not comparable.

7Feature cited as “dominant frequency” by Guimarães *et al.* (2017).

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