

**Table S1.** Carrier frequencies ( $f_c$ ), sound pressure levels (SPL) of some Tettigoniidae species, and microphone distance from the specimen.

| Species                         | $f_c$ (kHz) | SPL (dB) | Microphone distance (cm) | Source                           |
|---------------------------------|-------------|----------|--------------------------|----------------------------------|
| <i>Panacanthus pallicornis</i>  | 4.7         | 97.6     | 10                       | Montealegre-Z & Morris 2004 [1]  |
| <i>Panacanthus gibbosus</i>     | 6.4         | 95       | 10                       | Montealegre-Z & Morris 2004 [1]  |
| <i>Copiphora rhinoceros</i>     | 8.7         | 94       | 10                       | Morris 1980 [2]                  |
| <i>Typophyllum mortuifolium</i> | 9.4         | 93       | 7                        | Morris et al. 1989 [3]           |
| <i>Panacanthus intensus</i>     | 11.7        | 113      | 10                       | Montealegre-Z & Morris 2004 [1]  |
| <i>Poecilimon affinis</i>       | 13          | 112      | 10                       | Heller & von Helversen, 1993 [4] |
| <i>Typophyllum bolivary</i>     | 14          | 83       | 10                       | Morris et al. 1989 [3]           |
| <i>Choeroparnops gigliotosi</i> | 15          | 102      | 10                       | Morris et al. 1994 [5]           |
| <i>Isophya taurica</i>          | 15          | 105      | 10                       | Heller 1988 [6]                  |
| <i>Isophya rossica</i>          | 15          | 106      | 10                       | Heller 1988 [6]                  |
| <i>Decticus verrucivorus</i>    | 15          | 110      | 10                       | Heller 1988 [6]                  |
| <i>Isophya stysi</i>            | 18          | 100      | 10                       | Heller 1988 [6]                  |
| <i>Isophya stepposa</i>         | 19          | 92       | 10                       | Heller 1988 [6]                  |
| <i>Metrioptera bicolor</i>      | 20          | 105      | 10                       | Heller 1988 [6]                  |
| <i>Platycleis intermedia</i>    | 22          | 101      | 3                        | Heller 1988 [6]                  |
| <i>Docidocercus gigliotosi</i>  | 23          | 94       | 10                       | Morris et al. 1994 [5]           |
| <i>Docidocercus chlorops</i>    | 24          | 104      | 9                        | Morris et al. 1989 [3]           |
| <i>Isophya sp.</i>              | 25          | 95       | 10                       | Heller 1988 [6]                  |
| <i>Isophya brunneri</i>         | 25          | 125      | 10                       | Heller 1988 [6]                  |
| <i>Metrioptera roeselii</i>     | 25          | 105      | 10                       | Heller 1988 [6]                  |
| <i>Metrioptera brachyptera</i>  | 30          | 110      | 10                       | Heller 1988 [6]                  |
| <i>Copiphora brevirostris</i>   | 31.3        | 95       | 30                       | Morris et al. 1994 [5]           |
| <i>Tettigonia cantans</i>       | 35          | 100      | 10                       | Heller 1988 [6]                  |
| <i>Kawanaphila yarraga</i>      | 40.3        | 116.5    | 10                       | Mason & Bailey 1998 [7]          |
| <i>Kawanaphila mirla</i>        | 70.5        | 114.9    | 10                       | Mason & Bailey 1998 [7]          |
| <i>Arachnoscelis</i>            | 74          | 115      | 10                       | Chivers et al, 2013 [8]          |

*arachnoides*

|                              |       |         |         |                         |
|------------------------------|-------|---------|---------|-------------------------|
| <i>Mypophyllum speciosum</i> | 83.3  | 100.2   | 9.5     | Morris et al. 1994 [5]  |
| <i>Ectomoptera nepicauda</i> | 100   | unknown | unknown | Heller & Hemp, 2014 [9] |
| <i>Haenschiella sp.</i>      | 105.5 | 79.7    | 10      | Morris et al. 1994 [5]  |
| <i>Supersonus undulus</i>    | 115.2 | 113     | 15      | this paper              |
| <i>Supersonus piercei</i>    | 124.5 | 111     | 15      | this paper              |
| <i>Supersonus aequoreus</i>  | 148.3 | 115     | 15      | this paper              |

---

**References**

1. Montealegre-Z F, Morris GK (2004) The spiny devil katydids, *Panacanthus* Walker (Orthoptera : Tettigoniidae): an evolutionary study of acoustic behaviour and morphological traits. *Syst Entomol* 29: 21-57.
2. Morris GK (1980) Calling display and mating behaviour of *Copiphora rhinoceros* Pictet (Orthoptera, Tettigoniidae). *Anim Behav* 28: 42-51.
3. Morris GK, Klimas DE, Nickle DA (1989) Acoustic signals and systematics of false-leaf Katydid from Ecuador (Orthoptera, Tettigoniidae, Pseudophyllinae). *Trans Am Entomol Soc (Phila)* 114: 215-263.
4. Heller K-G, Helvesen D (1993) Calling behavior in bushcrickets of the genus *Poecilimon* with differing communication systems (Orthoptera: Tettigoniidae, Phaneropteridae). *J Insect Behav* 6: 361-377.
5. Morris GK, Mason AC, Wall P, Belwood JJ (1994) High ultrasonic and tremulation signals in neotropical katydids (Orthoptera, Tettigoniidae). *J Zool (Lond)* 233: 129-163.
6. Heller KG (1988) *Bioakustik der Europäischen Laubheuschrecken*. Weikersheim: Verlag Josef Margraf.
7. Mason AC, Bailey WJ (1998) Ultrasound hearing and male-male communication in Australian katydids (Tettigoniidae : Zaprochilinae) with sexually dimorphic ears. *Physiol Entomol* 23: 139-149.
8. Chivers B, Jonsson T, Cadena-Castaneda OJ, Montealegre-Z F (2013) Ultrasonic reverse stridulation in the spider-like katydid *Arachnoscelis* (Orthoptera: Listrosceledinae). *Bioacoustics* 23: 67–77.
9. Heller KG, Hemp C (2014) Fiddler on the Tree - A Bush-Cricket Species with Unusual Stridulatory Organs and Song. *PLoS ONE* 9: e92366.