**Supplementary Material**

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| **Table S1 - Statistical results of the correlations (Pearson or Spearmann) between the acoustic parameters (LApeak, LAmax and LAeq) and the behavioural categories recorded during the 15-minute acoustic measurements in the study of *Choloepus didactylus* housed in a walk-through enclosure, in a zoo in the United Kingdom.** | | | | | | |
| **Behavioural Category** | **LApeak** | | **LAmax** | | **LAeq** | |
|  | **P** | **r** | **P** | **r** | **P** | **r** |
| Inactivity | 0.931 F  0.002 M | -0.02 (P)  -0.51 (P) | 0.924 F  0.001 M | -0.02 (P)  -0.52 (P) | 0.445 F  0.001 M | -0.13 (P)  -0.53 (P) |
| Locomotion | 0.867 F  <0.001 M | 0.03 (S)  0.56 (P) | 0.884 F  <0.001 M | 0.03 (S)  0.56 (P) | 0.676 F  0.002 M | 0.07 (S)  0.51 (P) |
| Maintenance | 0.479 F  0.008 M | 0.12 (S)  0.44 (P) | 0.478 F  0.008 M | 0.12 (S)  0.44 (P) | 0.379 F  0.015 M | 0.15 (S)  0.41 (P) |
| Foraging | 0.811 F  0.216 M | -0.04 (S)  -0.21 (S) | 0.831 F  0.193 M | -0.04 (S)  -0.23 (S) | 0.745 F  0.183 M | -0.06 (S)  -0.23 (S) |
| Sexual behaviour | 0.436 F  0.436 M | -0.14 (S)  -0.14 (S) | 0.436 F  0.436 M | -0.14 (S)  -0.14 (S) | 0.436 F  0.436 M | -0.14(S)  -0.14 (S) |
| Affiliative interaction | 0.445 F  0.403 M | 0.13 (S)  0.15 (S) | 0.472 F  0.432 M | 0.13 (S)  0.14 (S) | 0.237 F  0.201 M | 0.20 (S)  0.22 (S) |
| Agonistic interaction | 0.560 F  0.560 M | -0.10 (S)  -0.10 (S) | 0.560 F  0.560 M | -0.10 (S)  -0.10 (S) | 0.771 F  0.771 M | -0.05 (S)  -0.05 (S) |
| Non-visible | 0.017 F  0.254 M | 0.40 (S)  0.20 (S) | 0.017 F  0.254 M | 0.40 (S)  0.20 (S) | 0.069 F  0.222 M | 0.31(S)  0.21 (S) |

\*M – Male / F – Female

\*\*S – Spearman / P – Pearson

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| **Table S2 - Statistical results of the correlations (Pearson or Spearmann) between the acoustic parameters (LApeak, LAmax and LAeq) and the behavioural categories recorded during the 24 hours after acoustic measurements in the study of *Choloepus didactylus* housed in a walk-through enclosure, in a zoo in the United Kingdom.** | | | | | | |
| **Behavioural Category** | **LApeak** | | **LAmax** | | **LAeq** | |
|  | **P** | **r** | **P** | **r** | **P** | **r** |
| Inactivity | 0.217 F  0.075 M | -0.46 (P)  -0.62 (P) | 0.197 F  0.063 M | -0.47 (P)  -0.64 (P) | 0.371 F  0.252 M | 0.34 (P)  0.43 (P) |
| Locomotion | 0.952 F  0.085 M | 0.02 (P)  0.60 (P) | 0.971 F  0.086 M | 0.01 (P)  0.60 (P) | 0.463 F  0.990 M | 0.28 (P)  -0.005 (P) |
| Maintenance | 0.822 F  0.285 M | 0.09 (P)  0.40 (P) | 0.843 F  0.288 M | 0.08 (P)  0.40 (P) | 0.548 F  0.981 M | 0.23 (P)  0.009 (P) |
| Foraging | 0.443 F  0.058 M | 0.29 (P)  -0.65 (P) | 0.437 F  0.050 M | 0.30 (P)  -0.67 (P) | 0.505 F  0.577 M | -0.26 (P)  0.22 (P) |
| Sexual behaviour | 0.270 F  0.270 M | -0.41 (S)  -0.41 (S) | 0.270 F  0.270 M | -0.41(S)  -0.41 (S) | 0.948 F  0.948 M | 0.02(S)  0.02 (S) |
| Affiliative interaction | 0.318 F  0.322 M | 0.38 (P)  0.37 (P) | 0.316 F  0.320 M | 0.38 (P)  0.37 (P) | 0.870 F  0.875 M | 0.60 (P)  0.06 (P) |
| Agonistic interaction | 0.194 F  0.194 M | 0.48 (S)  0.48 (S) | 0.194 F  0.194 M | 0.48 (S)  0.48 (S) | 0.270 F  0.270 M | 0.41 (S)  0.41 (S) |
| Non-visible | 0.374 F  0.735 M | -0.34 (P)  0.13 (P) | 0.363 F  0.713 M | -0.35 (P)  0.14 (P) | 0.488 F  0.603 M | -0.27(P)  -0.20 (P) |

\*M – Male / F – Female

\*\*S – Spearman / P – Pearson

Figure S1

a)

b)

**Figure S1 – Activity budget of the male (a) and the female (b) *Choloepus didactylus* housed in a walk-through enclosure, in a zoo in the United Kingdom. Data collected during nine days, with different intensities of visitation.**