Supplementary Table 1: List of all bat fly individuals examined, assigned habitat use on their host bat and measurements of the right hind leg (in pixels).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # | species | habitat use | femur length | tibia length | tarsus length | femur width |
| 1 | M. aranea | fur runner | 1886003 | 1898564 | 620825 | 133222 |
| 2 | A. phyllostomatis | wing crawler | 618466 | 515197 | 320031 | 266308 |
| 3 | A. phyllostomatis | wing crawler | 609734 | 524061 | 331204 | 271065 |
| 4 | A. phyllostomatis | wing crawler | 604831 | 495411 | 352726 | 269533 |
| 5 | A. phyllostomatis | wing crawler | 616917 | 454771 | 314772 | 253511 |
| 6 | M. pseudopterus | fur swimmer | 973480 | 650246 | 504143 | 244900 |
| 7 | P. longicrus | fur runner | 1889695 | 1730259 | 542129 | 96747 |
| 8 | T. parasiticus | wing crawler | 434990 | 358898 | 223294 | 194031 |
| 9 | M. pseudopterus | fur swimmer | 905989 | 585969 | 435118 | 234691 |
| 10 | M. pseudopterus | fur swimmer | 977613 | 656597 | 446067 | 238193 |
| 11 | P. longicrus | fur runner | 1963394 | 1716514 | 564128 | 102176 |
| 12 | S. wiedemanni | fur swimmer | 992814 | 709118 | 564191 | 322273 |
| 13 | S. wiedemanni | fur swimmer | 1030080 | 719525 | 538966 | 322552 |
| 14 | S. wiedemanni | fur swimmer | 1022820 | 701820 | 535649 | 316058 |
| 15 | T. parasiticus | wing crawler | 424487 | 340589 | 239944 | 182877 |
| 16 | T. dugesioides | wing crawler | 483373 | 399676 | 258940 | 180400 |
| 17 | T. dugesioides | wing crawler | 480009 | 406054 | 279258 | 181593 |
| 18 | T. dugesioides | wing crawler | 424487 | 365520 | 278111 | 158405 |
| 19 | T. dugesioides | wing crawler | 506005 | 409024 | 265648 | 176567 |
| 20 | N. stenopterus | fur runner | 1944463 | 1918546 | 606119 | 136953 |
| 21 | T. joblingi | wing crawler | 490112 | 384246 | 259062 | 170658 |
| 22 | S. guajiro | fur swimmer | 946347 | 614495 | 478535 | 271662 |
| 23 | S. ambigua | fur runner | 1631404 | 1466322 | 544548 | 164754 |
| 24 | S. guajiro | fur swimmer | 939532 | 629971 | 481834 | 256320 |
| 25 | S. guajiro | fur swimmer | 945262 | 666675 | 438657 | 261603 |
| 26 | S. ambigua | fur runner | 1665678 | 1410000 | 552033 | 183565 |
| 27 | S. ambigua | fur runner | 1556049 | 1399904 | 524202 | 146110 |
| 28 | S. ambigua | fur runner | 1623796 | 1477633 | 518714 | 165517 |
| 29 | T. longipes | wing crawler | 723715 | 585177 | 363235 | 251677 |
| 30 | T. longipes | wing crawler | 674406 | 571766 | 326711 | 236753 |
| 31 | T. costalimai | wing crawler | 662205 | 572112 | 354203 | 320055 |
| 32 | T. costalimai | wing crawler | 758306 | 625843 | 326049 | 309926 |
| 33 | T. costalimai | wing crawler | 692474 | 606712 | 355826 | 296014 |
| 34 | T. longipes | wing crawler | 884466 | 753759 | 412588 | 302321 |
| 35 | T. longipes | wing crawler | 902836 | 801803 | 451278 | 297893 |
| 36 | T. longipes | wing crawler | 978018 | 807217 | 421753 | 354457 |
| 37 | T. perspicillatus | wing crawler | 453506 | 373449 | 259114 | 169706 |
| 38 | T. perspicillatus | wing crawler | 459643 | 367051 | 256750 | 168749 |
| 39 | T. perspicillatus | wing crawler | 483028 | 376090 | 272918 | 187542 |
| 40 | T. perspicillatus | wing crawler | 500919 | 368353 | 283019 | 183663 |
| 41 | T. perspicillatus | wing crawler | 499011 | 414391 | 262084 | 165517 |
| 42 | M. guimaraesi | wing crawler | 630714 | 495391 | 390000 | 236677 |
| 43 | M. guimaraesi | wing crawler | 706804 | 570126 | 432000 | 248620 |
| 44 | M. guimaraesi | wing crawler | 622383 | 506281 | 381035 | 246000 |
| 45 | M. guimaraesi | wing crawler | 602515 | 528307 | 402403 | 253211 |
| 46 | T. costalimai | wing crawler | 595211 | 522310 | 282255 | 247095 |
| 47 | T. costalimai | wing crawler | 565562 | 482991 | 294245 | 227130 |
| 48 | S. hertigi | fur swimmer | 1096212 | 923298 | 531534 | 255265 |
| 49 | S. hertigi | fur swimmer | 1040494 | 869068 | 475214 | 258070 |
| 50 | S. hertigi | fur swimmer | 1142366 | 917824 | 520377 | 239550 |
| 51 | S. hertigi | fur swimmer | 1065317 | 890955 | 522793 | 232998 |
| 52 | S. hertigi | fur swimmer | 983597 | 828304 | 498325 | 229103 |
| 53 | N. stenopterus | fur runner | 1961275 | 1909141 | 590444 | 145245 |
| 54 | P. longicrus | fur runner | 1576573 | 1366209 | 443554 | 90200 |
| 55 | P. longicrus | fur runner | 1572424 | 1381525 | 451278 | 96747 |
| 56 | P. dunni | fur runner | 827261 | 698736 | 306470 | 100578 |
| 57 | P. dunni | fur runner | 807217 | 668186 | 282064 | 94868 |
| 58 | P. dunni | fur runner | 820159 | 700151 | 271131 | 104957 |
| 59 | P. dunni | fur runner | 818929 | 716441 | 283591 | 89196 |
| 60 | P. dunni | fur runner | 874025 | 722047 | 300540 | 102176 |
| 61 | S. galindoi | fur swimmer | 1133746 | 779030 | 522586 | 335839 |
| 62 | S. galindoi | fur swimmer | 1108702 | 811687 | 529226 | 332662 |
| 63 | S. galindoi | fur swimmer | 1093993 | 787464 | 489506 | 355269 |
| 64 | M. aranea | fur runner | 2023388 | 2004332 | 672669 | 157035 |
| 65 | M. aranea | fur runner | 1894518 | 1925710 | 663916 | 139943 |
| 66 | N. stenopterus | fur runner | 1230629 | 1075809 | 422052 | 180499 |
| 67 | M. aranea | fur runner | 1889228 | 1851902 | 611794 | 128825 |
| 68 | A. phyllostomatis | wing crawler | 706320 | 543621 | 331361 | 282446 |
| 69 | M. aranea | fur runner | 2009167 | 1982961 | 634810 | 138000 |
| 70 | M. aranea | fur runner | 2043923 | 1995259 | 640990 | 144250 |
| 71 | S. guajiro | fur swimmer | 866413 | 608490 | 470340 | 246293 |
| 72 | T. joblingi | wing crawler | 438041 | 370108 | 267320 | 169706 |
| 73 | T. joblingi | wing crawler | 475214 | 352369 | 233692 | 170658 |
| 74 | T. joblingi | wing crawler | 442090 | 357994 | 235228 | 165952 |
| 75 | S. ambigua | fur runner | 1496805 | 1352770 | 488365 | 186097 |
| 76 | P. longicrus | fur runner | 1978236 | 1690265 | 517602 | 123693 |
| 77 | T. parasiticus | wing crawler | 455763 | 365015 | 247168 | 193866 |
| 78 | M. pseudopterus | fur swimmer | 936250 | 639303 | 457301 | 246000 |
| 79 | M. pseudopterus | fur swimmer | 1021076 | 693305 | 473354 | 257721 |
| 80 | S. ambigua | fur runner | 1688731 | 1556824 | 544713 | 177685 |
| 81 | T. joblingi | wing crawler | 464797 | 356786 | 216333 | 168107 |
| 82 | A. phyllostomatis | wing crawler | 628827 | 528613 | 358647 | 292773 |
| 83 | A. phyllostomatis | wing crawler | 618553 | 532380 | 346237 | 292588 |
| 84 | M. aranea | fur runner | 1996883 | 1952279 | 675526 | 140456 |
| 85 | N. stenopterus | fur runner | 1897461 | 1898021 | 678955 | 142239 |
| 86 | T. joblingi | wing crawler | 484516 | 389307 | 255265 | 163878 |
| 87 | T. joblingi | wing crawler | 356483 | 332175 | 237360 | 152971 |
| 88 | S. ambigua | fur runner | 1625812 | 1508687 | 531059 | 176465 |
| 89 | T. dugesioides | wing crawler | 483735 | 395818 | 263454 | 194330 |
| 90 | S. guajiro | fur swimmer | 875774 | 622383 | 465725 | 285237 |
| 91 | T. parasiticus | wing crawler | 445982 | 363830 | 241495 | 184830 |
| 92 | S. wiedemanni | fur swimmer | 1121807 | 777805 | 525985 | 326049 |
| 93 | P. longicrus | fur runner | 1861287 | 1625380 | 552424 | 114000 |
| 94 | N. stenopterus | fur runner | 1595255 | 1361564 | 543721 | 206194 |
| 95 | S. galindoi | fur swimmer | 1386052 | 950295 | 683710 | 398898 |
| 96 | S. galindoi | fur swimmer | 1344214 | 989436 | 636113 | 408705 |
| 97 | M. guimaraesi | wing crawler | 978497 | 821628 | 631341 | 402313 |
| 98 | T. parasiticus | wing crawler | 896473 | 697266 | 469421 | 360050 |
| 99 | S. wiedemanni | fur swimmer | 1343317 | 718022 | 943146 | 397135 |
| 100 | S. mirabilis | fur swimmer | 1409323 | 1038485 | 758235 | 425027 |
| 101 | S. mirabilis | fur swimmer | 1360426 | 1228492 | 789450 | 410156 |
| 102 | S. mirabilis | fur swimmer | 1024886 | 697000 | 531969 | 278726 |
| 103 | S. mirabilis | fur swimmer | 1489420 | 1075220 | 720593 | 421084 |
| 104 | S. mirabilis | fur swimmer | 1275688 | 922304 | 619048 | 346237 |
| 105 | S. christinae | fur swimmer | 1666831 | 1383139 | 824379 | 427880 |
| 106 | S. christinae | fur swimmer | 1295446 | 1008460 | 702612 | 353898 |
| 107 | S. christinae | fur swimmer | 1635636 | 1371482 | 914602 | 422436 |
| 108 | S. christinae | fur swimmer | 1360850 | 1137819 | 699971 | 396406 |
| 109 | S. christinae | fur swimmer | 1159553 | 1018799 | 601827 | 318509 |
| 110 | S. christinae | fur swimmer | 1188485 | 873469 | 603947 | 349141 |