**Supplementary Data Table S1.** Body mass (BM), maximum tibia articular length (TL), maximum calcaneum length (CL), and maximum calcaneal tuberosity length (CTL) for selected extant and extinct (†) macropodiform taxa. BM = kg; TL, CL, CTL = mm. Body mass data from Silva & Downing (1995) and Wagstaff *et al.* (2022). Institutional abbreviations are explained in the main text.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Taxon** | **Specimen** | **BM** | **TL** | **CL** | **CTL** |
| HYPSIPRYMNODONTIDAE | | | | | |
| *Hypsiprymnodon moschatus* | SAMA M11940 | 0.5 | 67.21 | 8.7 | 2.94 |
| BALBARIDAE | | | | | |
| †*Ganawamaya gillespieae* | QM F34532 | 6 | 189.7 | - | - |
| POTOROIDAE (Bettonginae) | | | | | |
| *Aepyprymnus rufescens* | AMNH 65283 | 3 | 126.19 | 18.33 | 8.46 |
| *Aepyprymnus rufescens* | QM J5579 | 3 | 130.48 | 22.22 | 12.13 |
| *Aepyprymnus rufescens* | SAM M9017 | 3 | 139.437 | 21.71 | 12.07 |
| *Bettongia leseur* | AM M2132 | 1.1 | 108.95 | 16.9 | 9.56 |
| *Bettongia leseur* | SAMA M2135 | 1.1 | - | 20.16 | 11.55 |
| *Bettongia penicillata* | SAMA M18986 | 1.3 | 99.96 | 15.68 | 9.03 |
| *Bettongia penicillata* | FMNH 129431 | 1.3 | 99.85 | - | - |
| *Bettongia tropica* | AM M40067 | 1.6 | 106.89 | 16.73 | 9.02 |
| †*Caloprymnus campestris* | NT 48050 | 0.8 | 108.17 | 17.86 | 9.83 |
| †*Caloprymnus campestris* | NTMU 8048-3 | 0.8 | 108.17 | - | - |
| POTOROIDAE (Potoroinae) | | | | | |
| †*Potorous longipes* | NMV C32723 | 1.9 | 102.17 | 20.48 | 10.49 |
| *Potorous tridactylus* | AMNH 65297 | 1.1 | 94.01 | 17.71 | 10.44 |
| *Potorous tridactylus* | FMNH 57805 | 1.1 | 78.44 | - | - |
| MACROPODIDAE (Lagostrophinae) | | | | | |
| *Lagostrophus fasciatus* | WAM M16285 | 1.7 | 117.13 | 18.48 | 10.59 |
| *Lagostrophus fasciatus* | WAM M4393 | 1.7 | 109.37 | 17.97 | 9.92 |
| *Lagostrophus fasciatus* | AM M40303 | 1.7 | 116.9 | 20.07 | 2.63 |
| *Lagostrophus fasciatus* | WAM M22911 | 1.7 | 118.34 | 19.48 | 11.11 |
| *Lagostrophus fasciatus* | WAM 6791 | 1.7 | 119.33 | - | - |
| MACROPODIDAE (Macropodinae) | | | | | |
| *Dendrolagus bennettianus* | WAM M5530 | 13 | 155.1 | 33.93 | 15.09 |
| *Dendrolagus dorianus* | AM M9109 | 8.8 | 120.73 | 25.5 | 11.11 |
| *Dendrolagus goodfellowi* | NMV C.25092 | 6.7 | 121.24 | 25.5 | 14.23 |
| *Dendrolagus inustus* | UMZC A12.72/1 | 12.5 | - | 31.17 | 12.71 |
| *Dendrolagus lumholtzi* | AMNH 65265 | 5.9 | 127.64 | 31.05 | 17.87 |
| *Dendrolagus lumholtzi* | SAMA M7206 | 7.4 | 138.33 | 27.3 | 11.18 |
| *Dendrolagus matschiei* | WAM M21013 | 8 | 133.86 | 24.01 | 9.42 |
| *Dendrolagus matschei* | QM J5287 | 10 | 145.19 | 33.14 | 15.38 |
| *Dorcopsis atrata* | AM M19461 | 2.3 | 166.1 | 28 | 15.26 |
| *Dorcopsis luctuosa* | SAMA M15178 | 3.6 | 164.871 | 24.48 | 12.03 |
| *Dorcopsis muelleri* | AM M32341 | 9 | 226.21 | 35.78 | 18.95 |
| *Dorcopsis muelleri* | AMNH 22262 | 9 | 189.7 | - | - |
| *Dorcopsis muelleri* | NHM 1933.11.4.4 | 9 | 175.815 | - | - |
| *Dorcopsis veterum* | AMNH 22262 | 5 | - | 26.41 | 13.46 |
| *Dorcopsis* sp. | SAMA M12259 | 5 | - | 26.19 | 13.02 |
| *Lagorchestes conspicillatus* | WAM M7032 | 3.1 | 145.09 | 22.02 | 11.9 |
| *Lagorchestes conspicillatus* | WAM M7632 | 3.1 | 146.826 | - | - |
| *Lagorchestes conspicillatus* | AMNH 197659 | 3.1 | 153.15 | 23.66 | 12.85 |
| *Lagorchestes hirsutus* | SAMA M3587 | 1.7 | 127.93 | 17.92 | 8.59 |
| *Lagorchestes hirsutus* | SAMA M3590 | 1.7 | 128.229 | 17.88 | 8.69 |
| *Lagorchestes hirsutus* | AM M40031 | 1.7 | 118.52 | 18.47 | 10.1 |
| *Macropus fuliginosus* | SAMA M21497 | 70 | 545 | 75.04 | 43.33 |
| *Macropus fuliginosus* | SAMA M16578 | 38 | 480 | 63.07 | 36.13 |
| *Macropus giganteus* | AMNH 35747 | 58 | 401.2 | 74.25 | 43.41 |
| *Macropus giganteus* | AMNH 35186 | 58 | 401.2 | 63.57 | 34.79 |
| *Macropus giganteus* | QM J11525 | 58 | 530 | 78.42 | 45.22 |
| *Macropus giganteus* | NMV C5532 | 28 | 410 | 64.17 | 35.25 |
| *Notamacropus agilis* | AMNH 35750 | 11 | 247.59 | 37.08 | 16.86 |
| *Notamacropus dorsalis* | NMV C6490 | 16 | 211.748 | 34.77 | 18.02 |
| *Notamacropus eugenii* | NMV C7908 | 5.5 | 159.98 | 28.85 | 15.67 |
| *Notamacropus eugenii* | CMJ unregistered | 5.5 | 171.526 | 28.86 | 13.89 |
| *Notamacropus parma* | SAM M7192 | 3.8 | 145.77 | 26.44 | 14.52 |
| *Notamacropus parryi* | AMNH 65054 | 11 | 261.69 | 43.64 | 21.07 |
| *Onychogalea fraenata* | NMV C6400 | 4.5 | 172.4 | 27.06 | 15.02 |
| *Onychogalea fraenata* | SAMA M24347 | 5.5 | 195.025 | 27.0 | 14.57 |
| *Onychogalea fraenata* | UMCZ-a12.59/3 | 5.5 | 155.55 | - | - |
| *Onychogalea unguifera* | WAM M11611 | 7.5 | 216.66 | - | - |
| *Onychogalea unguifera* | WAM M11622 | 7.5 | 205.18 | 34.95 | 17.85 |
| *Osphranter antilopinus* | AMNH 70449 | 37 | 359.26 | 63.13 | 36.75 |
| *Osphranter robustus* | SAMA M3695 | 40 | 431.466 | 60.8 | 33.63 |
| *Osphranter robustus* | AMNH 65036 | 40 | 507 | 60.27 | 33 |
| *Osphranter robustus* | SAM M13977 | 40 | 466 | 69.63 | 41.52 |
| *Osphranter rufus* | SAM M6559 | 70 | 421 | 58.83 | 30.37 |
| *Osphranter rufus* | AMNH 200473 | 70 | 486.81 | 70.3 | 38.09 |
| *Osphranter rufus* | SAMA M2195 | 28 | 387 | 58.56 | 34.05 |
| *Osphranter rufus* | NHM 205 | 70 | 591.159 | 79.84 | 48.97 |
| *Osphranter rufus* | UMZC A12.21/3 | 36.5 | - | 67.02 | 38.51 |
| *Petrogale assimilis* | QM J4470 | 4.5 | 156.09 | 25.09 | 10.89 |
| *Petrogale assimilis* | NHM 223 | 4.5 | 147.413 | 22.3 | 12.23 |
| *Petrogale godmani* | SAMA M7189 | 5.2 | 142.423 | - | - |
| *Petrogale herberti* | AMNH 65241 | 6 | 173.7 | 31.13 | 15.95 |
| *Petrogale lateralis* | AM M24183 | 4.6 | 151.72 | 24.84 | 13.11 |
| *Petrogale penicillata* | FMNH 64435 | 7.45 | 130.7 | - | - |
| *Petrogale xanthopus* | AMNH 35642 | 6.5 | 152.48 | 29.75 | 13.84 |
| *Petrogale xanthopus* | WAM M11469 | 6.1 | - | 35.34 | 18.67 |
| *Setonix brachyurus* | WAM M6792 | 2.9 | 118.47 | 24.67 | 13.85 |
| *Setonix brachyurus* | NMV C23029 | 3.6 | 119.7 | 24.96 | 13.77 |
| *Thylogale billardieri* | NHM 49.6.20.3 | 5.5 | 163.486 | 28.67 | 13.72 |
| *Thylogale stigmatica* | AMNH 65153 | 5.1 | 184.4 | 23.32 | 11 |
| *Thylogale stigmatica* | UMCZ-a12.44/1 | 5.1 | 176.14 | - | - |
| *Thylogale thetis* | AM M51512 | 4.7 | 135.93 | 24.71 | 11.97 |
| *Wallabia bicolor* | AMNH 65722 | 12 | 243.1 | 40.73 | 21.26 |
| *Wallabia bicolor* | SAM M11364 | 17 | 312.213 | 50.24 | 27.56 |
| †*Macropus ferragus* | NMV-P25290 | 150 | 646 | - | - |
| †*Macropus titan* | AMNH 18362 | 168 | - | 96.88 | 53.21 |
| †*Macropus* cf. *titan* | NHMUK-PV M10702a | 176 | - | 109.73 | 82.3 |
| †*Macropus titan* | NMV unregistered | 135 | - | 99.42 | 55.07 |
| †*Protemnodon anak* | NMV P39105 | 126 | 535 | 84.33 | 42.92 |
| †*Protemnodon brehus* | AMNH 145501 | 97 | - | 85.12 | 48.14 |
| MACROPODIDAE (Sthenurinae) | | | | | |
| †*Hadronomas puckridgi* | NT P1279 | 73 | 493 | - | - |
| †*Hadronomas puckridgi* | NT P9336 | 73 | - | 71.14 | 32.81 |
| †*Rhizisthenurus flanneryi* | QM F31456 | 26 | - | 50.97 | 24.97 |
| †*Procoptodon* sp. (cf. *goliah*) | NMV unregistered | 232 | 575 | 93.26 | 36.22 |
| †*Procoptodon gilli* | SAM P20803 | 66 | 340 | - | - |
| †*Procoptodon browneorum* | WAM 65.4.78 | 54 | - | 58.84 | 43.07 |
| †*Simosthenurus occidentalis* | SAMA P20820 | 120 | 412 | 68.54 | 26.93 |
| †*Sthenurus andersoni* | SAMA P13673 | 66 | 418 | 55.37 | 26.55 |
| †*Sthenurus stirlingi* | AMNH 140809 | 199 | 552 | 81.91 | 29.34 |
| †*Sthenurus stirlingi* | NMV P150278 | 116 | - | 72.22 | 32.28 |
| †*Sthenurus stirlingi* | AMNH 117496 | 157 | 535 | 75.25 | 32.16 |
| †*Sthenurus stirlingi* | AMNH 117497 | 133 | 502 | 75.31 | 33.36 |
| †*Sthenurus stirlingi* | AMNH 117494A | 174 | - | 86.42 | 41.09 |
| †*Sthenurus stirlingi* | SAMA P22533 | 187 | - | 78.88 | 33.97 |
| †*Sthenurus tindalei* | AMNH 117493 | 129 | 500.1 | 79.91 | 36.29 |
| †*Sthenurus tindalei* | AMNH 117499 | 129 | 494 | - | - |