Table S1.List of samples used to determine the phylogenetic position of Ethiopian *Mastomys* and construct the haplotype network. The abbreviations A-I to B-VI and A-D indicate intraspecific lineages of *M. natalensis* (sensu Colangelo et al. 2013) and *M. erythroleucus* (sensu Brouat et al. 2009), respectively.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **ID** | **Locality** | **Phylogroup** | **Haplogroup** | **GenBank№** | **References** |
| *Mastomys awashensis* | 2568 | Ethiopia, Dhati-Welel NP |  | H\_4 | MG225415 | Martynov andLavrenchenko, 2018 |
| 2605 | Ethiopia, Dhati-Welel NP |  | H\_7 | MT053345 | This study |
| 2606 | Ethiopia, Dhati-Welel NP |  | H\_8 | MT053346 |
| 1724 | Ethiopia, Babile Elephant Sanctuary 1 |  | H\_5 | MT053347 |
| 1717 | Ethiopia, Babile Elephant Sanctuary 1 |  | H\_6 | MT053348 |
| 1715 | Ethiopia, Babile Elephant Sanctuary 1 |  | H\_1 | MT053349 |
| 1711 | Ethiopia, Babile Elephant Sanctuary 1 |  | H\_3 | MT053350 |
| 1698 | Ethiopia, Babile Elephant Sanctuary 1 |  | H\_2 | MG225414 | Martynov andLavrenchenko, 2018 |
| 814 | Ethiopia, Gojeb River  |  | H\_11 | MT053351 | This study |
| 807 | Ethiopia, Gojeb River  |  | H\_12 | MT053352 |
| 801 | Ethiopia, Gojeb River  |  | H\_16 | MT053353 |
| 800 | Ethiopia, Gojeb River  |  | H\_15 | MT053354 |
| 769 | Ethiopia, Gojeb River  |  | H\_14 | MG225412 | Martynov andLavrenchenko, 2018 |
| ETH1956 | Ethiopia, Ankober |  | H\_19 | MT053355 | This study |
| ETH1948 | Ethiopia, Ankober |  | H\_21 | MT053356 |
| ETH1947 | Ethiopia, Ankober |  | H\_20 | MT053357 |
| ETH1257 | Ethiopia, Kube |  | H\_10 | MT053358 |
| ETH1230 | Ethiopia, Adi Mancarre |  | H\_18 | MT053359 |
| ETH 1229 | Ethiopia, Adi Mancarre |  | H\_17 | MT053360 |
| ETH646 | Ethiopia, Didessa River |  | H\_13 | MT053361 |
| ETH508 | Ethiopia, Adi Aba Musa |  | H\_9 | MT053362 |
| *Mastomys natalensis* | 3340 | Ethiopia, Amanuel | A-3 | H\_31 | MT053363 |  |
| 3309 | Ethiopia, Amanuel | A-3 | H\_31 | MT053364 | This study |
| 2588 | Ethiopia, Dhati-Welel NP | A-3 | H\_25 | MT053365 |
| 2517 | Ethiopia, Dhati-Welel NP | A-3 | H\_25 | MT053366 |
| 2516 | Ethiopia, Dhati-Welel NP | A-3 | H\_25 | MT053367 |
| 2510 | Ethiopia, Dhati-Welel NP | A-3 | H\_26 | MT053368 |
| 2429 | Ethiopia, Dhati-Welel NP | A-3 | H\_25 | MT053369 |
| 2423 | Ethiopia, Dhati-Welel NP | A-3 | H\_24 | MT053370 |
| 2417 | Ethiopia, Dhati-Welel NP | A-3 | H\_25 | MG225411 | Martynov and Lavrenchenko, 2018 |
| 2414 | Ethiopia, Dhati-Welel NP | A-3 | H\_25 | MT053371 | This study |
| 2412 | Ethiopia, Dhati-Welel NP | A-3 | H\_24 | MT053372 |
| 1268 | Ethiopia, Bahar-Dar | A-3 | H\_29 | MT053373 |
| 1249 | Ethiopia, Dega-Istephanos island | A-3 | H\_30 | MT053374 |
| 1170 | Ethiopia, Gumara river | A-3 | H\_28 | MT053375 |
| 1162 | Ethiopia, Gumara river | A-3 | H\_28 | MG225409 | Martynov and Lavrenchenko, 2018 |
| ETH1990 | Ethiopia, Gibe NP | A-3 | H\_32 | MT053376 | This study |
| ETH1989 | Ethiopia, Gibe NP | A-3 | H\_27 | MT053377 |
| ETH738 | Ethiopia, Jimma | A-3 | H\_27 | MT053378 |
| ETH650 | Ethiopia, Gambella NP | A-3 | H\_22 | MT053379 |
| ETH647 | Ethiopia, Gambella NP | A-3 | H\_23 | MT053380 |
| 60 | IvoryCoast, Blodi, Duékoué | A-1 |  | HE863974 | Colangelo et al., 2013 |
| 4066 | Mali, Dilly | A-1 |  | HE863993 |
| 4144\_167 | Chad, Bol | A-2 |  | HE864079 |
| KE120 | Kenya, Kitale | A-3 |  | HE864088 |
| R18429 | RCA, Bakota | A-2 |  | HE864064 |
| 14370 | Tanzania, Moshi | B-4 |  | HE864105 |
| RW5385 | Rwanda, Ruliba | B-4 |  | HE864093 |
| CTZ252 | Tanzania, Makuyu-Milama | B-5 |  | HE864121 |
| TZ71 | Tanzania, Morogoro | B-5 |  | FN393046 | Colangelo et al., 2010 |
| A248a | Malawi, Mpalanganga estate | B-6 |  | HE864147 | Colangelo et al., 2013 |
| NWZ498 | Zambia, Mumena | B-6 |  | HE864157 |
| *Mastomys erythroleucus* | 3158 | Ethiopia, Megado | D "East" | H\_54 | MT053381 | This study |
| 3152 | Ethiopia, Gamado | D "East" | H\_55 | MT053382 |
| 3087 | Ethiopia, Arero forest | D "East" | H\_55 | MT053383 |
| 3086 | Ethiopia, Arero village | D "East" | H\_56 | MT053384 |
| 3051 | Ethiopia, Borena NP 1 | D "East" | H\_49 | MT053385 |
| 3028 | Ethiopia, Borena NP 1 | D "East" | H\_38 | MT053386 |
| 3018 | Ethiopia, Borena NP 2 | D "East" | H\_42 | MT053387 |
| 3017 | Ethiopia, Borena NP 2 | D "East" | H\_35 | MG225408 | Martynov and Lavrenchenko, 2018 |
| 2996 | Ethiopia, Borena NP 1 | D "East" | H\_38 | MT053388 | This study |
| 2978 | Ethiopia, Borena NP 1 | D "East" | H\_48 | MT053389 |
| 2972 | Ethiopia, Borena NP 1 | D "East" | H\_41 | MT053390 |
| 2955 | Ethiopia, Borena NP 1 | D "East" | H\_35 | MT053391 |
| 2102 | Ethiopia, Adamy-Tulu | D "East" | H\_35 | MT053392 |
| 2099 | Ethiopia, Adamy-Tulu | D "East" | H\_35 | MG225407 | Martynov andLavrenchenko, 2018 |
| 2087 | Ethiopia, Adamy-Tulu | D "East" | H\_45 | MT053393 | This study |
| 2066 | Ethiopia, Lake Chamo | D "East" | H\_35 | MT053394 |
| 2044 | Ethiopia, Lake Chamo | D "East" | H\_35 | MT053395 |
| 2033 | Ethiopia, Lake Chamo | D "East" | H\_35 | MT053396 |
| 1879 | Ethiopia, Alatish NP 3  | D "West" | H\_43 | MG225405 | Martynov andLavrenchenko, 2018 |
| 1861 | Ethiopia, Alatish NP 3 | D "West" | H\_44 | MT053397 | This study |
| 1859 | Ethiopia, Alatish NP 3 | D "West" | H\_43 | MT053398 |
| 1598 | Ethiopia, Bishan-Vaka | D "West" | H\_47 | MT053399 |
| 1548 | Ethiopia, Bishan-Vaka | D "West" | H\_47 | MT053400 |
| 914 | Ethiopia, Koi river | D "West" | H\_57 | MT053401 |
| ETH2155 | Ethiopia, Gore | D "West" | H\_59 | MT053402 |
| ETH645 | Ethiopia, Didessa River | D "West" | H\_50 | MT053403 |
| ETH611 | Ethiopia, Alatish NP 2 | D "West" | H\_58 | MT053404 |
| ETH602 | Ethiopia, Alatish NP 1 | D "West" | H\_53 | MT053405 |
| ETH601 | Ethiopia, Alatish NP 1 | D "West" | H\_52 | MT053406 |
| ETH404 | Ethiopia, Bulcha Forest | D "East" | H\_51 | MT053407 |
| ETH391 | Ethiopia, Yabelo Wildlife Sanctuary | D "East" | H\_40 | MT053408 |
| ETH379 | Ethiopia, Yabelo Wildlife Sanctuary | D "East" | H\_39 | MT053409 |
| ETH378 | Ethiopia, Yabelo Wildlife Sanctuary | D "East" | H\_38 | MT053410 |
| ETH361 | Ethiopia, Dabba | D "East" | H\_35 | MT053411 |
| ETH359 | Ethiopia, Dabba | D "East" | H\_37 | MT053412 |
| ETH297 | Ethiopia, Mago NP | D "West" | H\_36 | MT053413 |
| ETH275 | Ethiopia, Nechisar NP 1 | D "East" | H\_35 | MT053414 |
| ETH264 | Ethiopia, Arba Minch | D "East" | H\_34 | MT053415 |
| ETH248 | Ethiopia, Arba Minch University | D "East" | H\_33 | MT053416 |
| Su01 | Sudan, El Suki | D "West" | H\_46 | GQ227986 | Brouat et al., 2009 |
| Ch07 | Chad, Zakouma | C |  | GQ227889 |
| Ch02 | Chad, Bol | C |  | GQ227884 |
| Et02 | Ethiopia, Mizzan Tefferi | D "West" | H\_47 | GQ227892 |
| Ni08 | Niger, Djirataoua | B |  | GQ227935 |
| Be08 | Benin, Igbéré | B |  | GQ227864 |
| Se14 | Senegal, Thialy  | A |  | GQ227958 |
| Ma14 | Mali, Dia | A |  | GQ227915 |
| *Mastomys kollmannspergeri* | C191 | Chad, Doué  |  |  | HM635902 | Dobigny et al., 2011 |
| C12 | Cameroon, Mongom |  |  | HM635889 |
| ETH0541 | Ethiopia, Mai-Temen |  |  | MT053417  | This study |
| *Stenocephalemys albocaudata* | T-1589 | Ethiopia, Sanetti |  |  | AF518370 | Lecompte et al., 2002 |

Table S2. Results of Jackknife Analysis for three *Mastomys* species. The numbers represent value of AUC when a model was created using only the particular variable separately/a model was created with the remaining variables.

|  |  |
| --- | --- |
| Variable | AUC with only/without  |
|   | *M*. *awashensis* | *M*. *erythroleucus* | *M*. *natalensis* |
| BIO1 (Annual Mean Temperature) | 0.8009/0.9843 | 0.7120/0.9815 | 0.7216/0.9656 |
| BIO2 (Mean Diurnal Range (Mean of monthly (max temp - min temp))) | 0.6844/0.9843 | 0.7086/0.9815 | 0.6029/0.9631 |
| BIO3 (Isothermality (BIO2/BIO7) (\* 100)) | 0.9082/0.9829 | 0.8543/0.9815 | 0.8140/0.9671 |
| BIO4 (Temperature Seasonality (standard deviation \*100)) | 0.8467/0.9840 | 0.8788/0.9795 | 0.8137/0.9622 |
| BIO5 (Max Temperature of Warmest Month) | 0.7807/0.9842 | 0.7607/0.9815 | 0.7588/0.9656 |
| BIO6 (Min Temperature of Coldest Month) | 0.7943/0.9826 | 0.7583/0.9803 | 0.5971/0.9666 |
| BIO7 (Temperature Annual Range (BIO5-BIO6)) | 0.8299/0.9843 | 0.8323/0.9816 | 0.6035/0.9657 |
| BIO8 (Mean Temperature of Wettest Quarter) | 0.8666/0.9843 | 0.7617/0.9815 | 0.8440/0.9648 |
| BIO9 (Mean Temperature of Driest Quarter) | 0.7181/0.9842 | 0.6190/0.9815 | 0.5410/0.9655 |
| BIO10 (Mean Temperature of Warmest Quarter) | 0.8283/0.9843 | 0.7473/0.9815 | 0.7703/0.9656 |
| BIO11 (Mean Temperature of Coldest Quarter) | 0.6973/0.9842 | 0.6883/0.9815 | 0.5574/0.9656 |
| BIO12 (Annual Precipitation) | 0.7531/0.9843 | 0.8160/0.9815 | 0.7796/0.9655 |
| BIO13 (Precipitation of Wettest Month) | 0.7137/0.9844 | 0.7827/0.9813 | 0.7871/0.9658 |
| BIO14 (Precipitation of Driest Month) | 0.8324/0.9853 | 0.8400/0.9808 | 0.7484/0.9652 |
| BIO15 (Precipitation Seasonality (Coefficient of Variation)) | 0.6486/0.9844 | 0.7500/0.9817 | 0.5186/0.9653 |
| BIO16 (Precipitation of Wettest Quarter) | 0.6911/0.9842 | 0.8134/0.9815 | 0.7988/0.9656 |
| BIO17 (Precipitation of Driest Quarter) | 0.8285/0.9846 | 0.8664/0.9809 | 0.7022/0.9662 |
| BIO18 (Precipitation of Warmest Quarter) | 0.7451/0.9853 | 0.8377/0.9811 | 0.6438/0.9598 |
| BIO19 (Precipitation of Coldest Quarter) | 0.8243/0.9833 | 0.8458/0.9783 | 0.8755/0.9595 |
| Potential Evapotranspiration | 0.8113/0.9840 | 0.8366/0.9811 | 0.6454/0.9659 |
| Aridity Index  | 0.7777/0.9842 | 0.8599/0.9808 | 0.8409/0.9651 |
| Land Cover | 0.8027/0.9848 | 0.7455/0.9812 | 0.7586/0.9669 |
| Percent Tree Cover | 0.7762/0.9840 | 0.6566/0.9814 | 0.5578/0.9663 |

Table S3. Categories of Land Cover layer.

|  |  |
| --- | --- |
| 1 - Broadleaf Evergreen Forest | 2 - Broadleaf Deciduous Forest |
| 3 - Needleleaf Evergreen Forest | 4 - Needleleaf Deciduous Forest |
| 5 - Mixed Forest | 6 - Tree Open |
| 7 – Shrub | 8 – Herbaceous |
| 9 - Herbaceous with Sparse Tree/Shrub | 10 - Sparse vegetation |
| 11 – Cropland | 12 - Paddy field |
| 13 - Cropland/Other Vegetation Mosaic | 14 – Mangrove |
| 15 – Wetland | 16 - Bare area, consolidated (gravel, rock) |
| 17 – Bare area, unconsolidated (sand) | 18 – Urban |
| 19 - Snow/Ice | 20 - Water bodies |