

Supplementary File 2. GenBank details: species, voucher number, sample locality, and accession number of the sequences used for phylogenetic inferences.

| Species | Voucher/tissue | Local | 12S-tval-16S/[12S, 16S] |
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| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24307 | Curvelo, MG (type locality) | MH553453 |
| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24303 | Curvelo, MG (type locality) | MH553454 |
| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24308 | Curvelo, MG (type locality) | MH553455 |
| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24304 | Curvelo, MG (type locality) | MH553456 |
| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24324 | Lowland (near Lagoa da Capivara) of the Serra do Cipó National Park, Santana do Riacho, MG | MH553448 |
| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24325 | Lowland (near Lagoa da Capivara) of the Serra do Cipó National Park, Santana do Riacho, MG | MH553451 |
| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24326 | Lowland (near Lagoa da Capivara) of the Serra do Cipó National Park, Santana do Riacho, MG | MH553452 |
| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24327 | Lowland (near Lagoa da Capivara) of the Serra do Cipó National Park, Santana do Riacho, MG | MH553450 |
| <i>Pseudopaludicola matuta</i> sp. nov. | ZUEC 24328 | Lowland (near Lagoa da Capivara) of the Serra do Cipó National Park, Santana do Riacho, MG | MH553449 |
| <i>Pseudopaludicola mineira</i> | ZUEC 24330 | Highlands of the Serra do Cipó National Park | MH553446 |
| <i>Pseudopaludicola mineira</i> | ZUEC 24331 | Highlands of the Serra do Cipó National Park | MH553447 |

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| <i>Pseudopaludicola mineira</i> | DZSJRP 6437 | Serra do Cipó, MG (type locality) | KJ147025 |
| <i>Pseudopaludicola mineira</i> | ZUEC 14318 | Serra do Cipó, MG (type locality) | KJ147026 |
| <i>Pseudopaludicola mineira</i> | ZUEC14317 | Serra do Cipó, MG (type locality) | KJ147027 |
| <i>Pseudopaludicola mineira</i> | CFBH-T 15566 | Serra do Cipó, MG (type locality) | KU495492 |
| <i>Pseudopaludicola mineira</i> | CFBH-T 15571 | Serra do Cipó, MG (type locality) | KU495491 |
| <i>Pseudopaludicola florencei</i> | ZUEC 23513 | Andaraí, BA (type locality) | MG025519, MG025525 |
| <i>Pseudopaludicola florencei</i> | ZUEC 23514 | Andaraí, BA (type locality) | MG025520, MG025526 |
| <i>Pseudopaludicola florencei</i> | ZUEC 23515 | Andaraí, BA (type locality) | MG025521, MG025527 |
| <i>Pseudopaludicola florencei</i> | ZUEC 14190 | Andaraí, BA (type locality) | KJ147017 |
| <i>Pseudopaludicola florencei</i> | ZUEC14189 | Andaraí, BA (type locality) | KJ147018 |
| <i>Pseudopaludicola pocoto</i> | ZUEC 14192 | Andaraí, BA | KJ147016 |
| <i>Pseudopaludicola pocoto</i> | ZUEC 23506 | Pico das Almas, Rio de Contas, BA | MG025522, MG025528 |
| <i>Pseudopaludicola pocoto</i> | ZUEC 23508 | Pico das Almas, Rio de Contas, BA | MG025523, MG025529 |
| <i>Pseudopaludicola pocoto</i> | ZUEC 23509 | Pico das Almas, Rio de Contas, BA | MG025524, MG025530 |
| <i>Pseudopaludicola pocoto</i> | 3660 MSFH | Salgueiro, PE | MG025531 [16S] |
| <i>Pseudopaludicola pocoto</i> | ASF | Salgueiro, PE | MG025532 [16S] |
| <i>Pseudopaludicola pocoto</i> | 3669 MSFH | Cajazeiras, PB | MG025533 [16S] |
| <i>Pseudopaludicola pocoto</i> | SMRP 440.1 | Novas Russas, CE | KJ147035 |

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| <i>Pseudopaludicola pocoto</i> | SMRP 440.2 | Novas Russas, CE | KJ147036 |
| <i>Pseudopaludicola restinga</i> | CFBH-T 6678 | Vitória, ES | MG825764 |
| <i>Pseudopaludicola restinga</i> | CFBH-T 6679 | Vitória, ES | MG825766 |
| <i>Pseudopaludicola restinga</i> | CFBH-T 19566 | Presidente Kennedy, ES | MG825767 |
| <i>Pseudopaludicola motorzinho</i> | ZUEC 13931 | Poconé, MT | KJ147039 |
| <i>Pseudopaludicola motorzinho</i> | ZUEC 13930 | Poconé, MT | KJ147040 |
| <i>Pseudopaludicola motorzinho</i> | ZUEC 13929 | Poconé, MT | KJ147041 |
| <i>Pseudopaludicola motorzinho</i> | ZUEC 13928 | Poconé, MT | KJ146992 |
| <i>Pseudopaludicola murundu</i> | CFBH-T 1467 | Rio Claro, SP | KJ147008 |
| <i>Pseudopaludicola murundu</i> | ZUEC 14288 | Rio Claro, SP | KJ147030 |
| <i>Pseudopaludicola murundu</i> | ZUEC 14284 | Rio Claro, SP | KJ147031 |
| <i>Pseudopaludicola murundu</i> | ZUEC 14286 | Rio Claro, SP | KJ147032 |
| <i>Pseudopaludicola murundu</i> | ZUEC 19556 | Serra da Moeda, MG | KJ147051 |
| <i>Pseudopaludicola murundu</i> | ZUEC 19554 | Serra da Moeda, MG | KJ147052 |
| <i>Pseudopaludicola murundu</i> | ZUEC 19553 | Serra da Moeda, MG | KJ147053 |
| <i>Pseudopaludicola saltica</i> | ZUEC 14294 | Uberlândia, MG | KJ146993 |
| <i>Pseudopaludicola saltica</i> | ZUEC 14291 | Uberlândia, MG | KJ146994 |
| <i>Pseudopaludicola saltica</i> | ZUEC 14292 | Uberlândia, MG | KJ146995 |

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| <i>Pseudopaludicola saltica</i> | ZUEC 14239 | Chapada dos Guimarães, MT (type locality) | KJ147002 |
| <i>Pseudopaludicola saltica</i> | ZUEC 14240 | Chapada dos Guimarães, MT (type locality) | KJ147003 |
| <i>Pseudopaludicola saltica</i> | ZUEC 14241 | Chapada dos Guimarães, MT (type locality) | KJ147004 |
| <i>Pseudopaludicola boliviana</i> | MLP-DB 5186 | Corrientes, Argentina | KJ147049 |
| <i>Pseudopaludicola boliviana</i> | MLP-DB 5614 | Chaco, Argentina | KJ147050 |
| <i>Pseudopaludicola falcipes</i> | ZVCB 4876 | - | KM091496, KM091612 |
| <i>Pseudopaludicola falcipes</i> | ZUEC 14162 | Porto Alegre, RS | KJ146972 |
| <i>Pseudopaludicola falcipes</i> | ZUEC 14164 | Porto Alegre, RS | KJ146973 |
| <i>Pseudopaludicola falcipes</i> | ZUEC 14165 | Porto Alegre, RS | KJ146974 |
| <i>Pseudopaludicola falcipes</i> | MACN 38647 | Yapeyu, Corrientes, Argentina | AY843741 |
| <i>Pseudopaludicola Jaredi</i> | SMRP 310.18 | Viçosa do Ceará, CE (type locality) | KJ147033 |
| <i>Pseudopaludicola Jaredi</i> | SMRP 310.19 | Viçosa do Ceará, CE (type locality) | KJ147034 |
| <i>Pseudopaludicola Jaredi</i> | ZUEC 21859 | Nísia Floresta, RN | KT455497, KT455501 |
| <i>Pseudopaludicola Jaredi</i> | ZUEC 21860 | Nísia Floresta, RN | KT455498, KT455502 |
| <i>Pseudopaludicola Jaredi</i> | ZUEC 21861 | Nísia Floresta, RN | KT455499, KT455503 |
| <i>Pseudopaludicola Jaredi</i> | ZUEC 21862 | Nísia Floresta, RN | KT455500, KT455504 |
| <i>Pseudopaludicola ameghini</i> | ZUEC 14140 | Chapada dos Guimarães, MT (type locality) | KJ146975 |
| <i>Pseudopaludicola ameghini</i> | UFMT 8543 | Chapada dos Guimarães, MT (type locality) | KJ146976 |

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| <i>Pseudopaludicola ameghini</i> | ZUEC 14138 | Chapada dos Guimarães, MT (type locality) | KJ146977 |
| <i>Pseudopaludicola ameghini</i> | ZUEC 13924 | Vila Bela da Santíssima Trindade, MT | KJ147045 |
| <i>Pseudopaludicola ameghini</i> | ZUEC 13925 | Vila Bela da Santíssima Trindade, MT | KJ147046 |
| <i>Pseudopaludicola ameghini</i> | ZUEC 13923 | Vila Bela da Santíssima Trindade, MT | KJ147047 |
| <i>Pseudopaludicola ameghini</i> | ZUEC 14146 | Vila Bela da Santíssima Trindade, MT | KJ147048 |
| <i>Pseudopaludicola ternetzi</i> | ZUEC 14169 | Uberlândia, MG | KJ146986 |
| <i>Pseudopaludicola ternetzi</i> | ZUEC 14171 | Uberlândia, MG | KJ146987 |
| <i>Pseudopaludicola ternetzi</i> | ZUEC 14172 | Uberlândia, MG | KJ147042 |
| <i>Pseudopaludicola ternetzi</i> | SMRP 266.6 | Uberlândia, MG | KJ147043 |
| <i>Pseudopaludicola ternetzi</i> | DZSJRP 6456 | Icém, SP | KJ147010 |
| <i>Pseudopaludicola ternetzi</i> | DZSJRP 6446 | Icém, SP | KJ147011 |
| <i>Pseudopaludicola ternetzi</i> | DZSJRP 6445 | Icém, SP | KJ147012 |
| <i>Pseudopaludicola ternetzi</i> | DZSJRP 8723 | Icém, SP | KJ147029 |
| <i>Pseudopaludicola ternetzi</i> | UFMT 15753 | Uruaçu, GO (type locality) | KJ147054 |
| <i>Pseudopaludicola ternetzi</i> | UFMT 15754 | Uruaçu, GO (type locality) | KJ147055 |
| <i>Pseudopaludicola ternetzi</i> | UFMT 18061 | Uruaçu, GO (type locality) | KJ147056 |
| <i>Pseudopaludicola canga</i> | ZUEC 14333 | Serra dos Carajás, PA (type locality) | KJ146988 |
| <i>Pseudopaludicola canga</i> | ZUEC 14334 | Serra dos Carajás, PA (type locality) | KJ146989 |

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| <i>Pseudopaludicola canga</i> | ZUEC 14335 | Serra dos Carajás, PA (type locality) | KJ146990 |
| <i>Pseudopaludicola facureae</i> | ZUEC 14173 | Uberlândia, MG | KJ146978 |
| <i>Pseudopaludicola facureae</i> | ZUEC14174 | Uberlândia, MG | KJ146979 |
| <i>Pseudopaludicola facureae</i> | ZUEC 14175 | Uberlândia, MG | KJ146980 |
| <i>Pseudopaludicola atragula</i> | DZSJRP 8727 | Icém, SP (type locality) | KJ146996 |
| <i>Pseudopaludicola atragula</i> | DZSJRP 8728 | Icém, SP (type locality) | KJ146997 |
| <i>Pseudopaludicola atragula</i> | DZSJRP 8747 | Icém, SP (type locality) | KJ146998 |
| <i>Pseudopaludicola</i> sp. | ZUEC 13858 | Barreirinhas, MA | KJ147013 |
| <i>Pseudopaludicola</i> sp. | ZUEC 13859 | Barreirinhas, MA | KJ147014 |
| <i>Pseudopaludicola</i> sp. | ZUEC 13860 | Barreirinhas, MA | KJ147015 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 14147 | Cuiabá, MT | KJ146983 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 14148 | Cuiabá, MT | KJ146984 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 14149 | Cuiabá, MT | KJ146985 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 14160 | Poconé, MT | KJ146991 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 14128 | Uberlândia, MG | KJ146999 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 14129 | Uberlândia, MG | KJ147000 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 14130 | Uberlândia, MG | KJ147001 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 13836 | Barreirinhas, MA | KJ147005 |

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| <i>Pseudopaludicola mystacalis</i> | ZUEC 13837 | Barreirinhas, MA | KJ147006 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 13838 | Barreirinhas, MA | KJ147007 |
| <i>Pseudopaludicola mystacalis</i> | CFBH-T 03509 | Babaçulândia, TO | KU495493 |
| <i>Pseudopaludicola mystacalis</i> | CFBH-T 03517 | Babaçulândia, TO | KU495494 |
| <i>Pseudopaludicola mystacalis</i> | CFBH-T 1374 | Paranaíba, MS | KJ147009 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 13872 | Barreirinhas, MA | KJ147019 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 20542 | Barreirinhas, MA | KJ147020 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 13873 | Barreirinhas, MA | KJ147021 |
| <i>Pseudopaludicola mystacalis</i> | DZSJRP 8704 | Santa Fé do Sul, SP | KJ147022 |
| <i>Pseudopaludicola mystacalis</i> | DZSJRP 8694 | Santa Fé do Sul, SP | KJ147023 |
| <i>Pseudopaludicola mystacalis</i> | DZSJRP 8696 | Santa Fé do Sul, SP | KJ147024 |
| <i>Pseudopaludicola mystacalis</i> | DZSJRP 8724 | Icém, SP | KJ147028 |
| <i>Pseudopaludicola mystacalis</i> | DZSJRP 8726 | Icém, SP | KJ147037 |
| <i>Pseudopaludicola mystacalis</i> | DZSJRP 8725 | Icém, SP | KJ147038 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 13869 | Urbano Santos - São Felipe, MA | KJ146981 |
| <i>Pseudopaludicola mystacalis</i> | CFBH 35858 | Urbano Santos - São Felipe, MA | KJ146982 |
| <i>Pseudopaludicola mystacalis</i> | ZUEC 13868 | Urbano Santos - São Felipe, MA | KJ147044 |

OUT groups

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| <i>Odontophrynus americanus</i> | AY843704 |
| <i>Alsodes gargola</i> | AY843565 |
| <i>Crossodactylus schmidti</i> | AY843579 |
| <i>Adenomera hylaedactyla</i> | DQ283063 |
| <i>Leptodactylus pentadactylus</i> | AY326017 |
| <i>Paratelmatobius gaigeae</i> | EU224397 |
| <i>Edalorhina perezii</i> | AY843585 |
| <i>Engystomops pustulosus</i> | DQ337249 |
| <i>Physalaemus nattereri</i> | AY326020 |
| <i>Pleurodema brachyops</i> | AY843733 |
