**A new species of *Odontophrynus* (Anura, Odontophrynidae) from the southern portion of Mantiqueira mountains**

Matheus de Toledo Moroti1,2, Mariana Pedrozo1\*, Marcos Rafael Severgnini2, Guilherme Augusto Alves3,4, Simone Dena5, Ivan Nunes6, Itamar Alves Martins7& Edelcio Muscat1

1 Projeto Dacnis. Estrada do Rio Escuro, 4754, Sertão das Cotias, CEP 11680-000, Ubatuba, São Paulo, Brazil.

2 Programa de Pós-Graduação em Ecologia e Conservação, Instituto de Biociências, Universidade Federal de Mato Grosso do Sul (UFMS), Cidade universitária, CEP 79002- 970, Campo Grande, Mato Grosso do Sul, Brazil.

3 Laboratório de História Natural de Anfíbios Brasileiros (LaHNAB), Departamento de Biologia Animal, Instituto de Biologia, Universidade Estadual de Campinas (UNICAMP), Cidade Universitária, CEP 13083-862, Campinas, São Paulo Brazil

4 Programa de Pós-Graduação em Ecologia, UNICAMP, Instituto de Biologia, Cidade Universitária, CEP 13083-865, Campinas, São Paulo, Brazil.

5 Fonoteca Neotropical Jaques Vielliard (FNJV), Museu de Diversidade Biológica - MDBio – Área Zoologia, Instituto de Biologia, UNICAMP, CEP 13083-862, Campinas, São Paulo, Brazil.

6 Laboratório de Herpetologia (LHERP), Instituto de Biociências, Campus do Litoral Paulista, Universidade Estadual Paulista (UNESP), CEP 11330-900, São Vicente, São Paulo, Brazil.

7 Laboratório de Zoologia, Universidade de Taubaté (UNITAU), CEP 12030-180,Taubaté, São Paulo, Brazil.

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**Supplementary material**

**Specimens examined**

*Odontophrynus americanus —* MINAS GERAIS STATE: Conceição do Ibitipoca, municipality of Lima Duarte (MNRJ 43499–503); RIO DE JANEIRO STATE: Fazenda Marimbondo, municipality of Resende (MNRJ 77491); SÃO PAULO STATE: Rodovia Castelo Branco KM20, municipality of Osasco (MNRJ 98937).

*Odontophrynus carvalhoi. —* PERNAMBUCO STATE: Poção (MNRJ 00313, holotype); BAHIA STATE: Lagoa da Rabicha, Caetité (MNRJ 32988); Maracás (MNRJ 03981, 15356–7, 35783, 86508); MINAS GERAIS: Cristália (MNRJ 50199–200).

*Odontophrynus cultripes* — MINAS GERAIS STATE: Belo Horizonte (MNRJ 00315, 51045–7, 51049–51); São Gonçalo do Rio Abaixo (MNRJ 21401, 34498); Fazenda do Rio Verde, João Pinheiro (MNRJ 42092); Codisburgo (MNRJ 51048); Araxá (MNRJ 51052); Serra do Caraça, Mariana (MNRJ 60337–8, 83219–22); Povoado de Gagé, Conselheiro Lafaiete (MNRJ 60818, 65100); Fazenda do Engenho, Campos Gerais (MNRJ 66205); Viçosa (MNRJ 80652); Grão Mogol (MNRJ 88979–80).

*Odontophrynus juquinha* —MINAS GERAIS STATE: Serra do Cipó, Jaboticatubas (MNRJ 38017, 45334; UFMG 417); Road between Vespasiano and Conceição do Mato Dentro (ZUEC-AMP 1364, 1427, 1428); Serra do Cipó, Santana do Riacho (UFMG 5516– holotype; UFMG 419–421, 5511–2, 5517, 5597–8, 11171–2; CFBH 40116–20, 40121, 39947, 00794, 35055); Crossroad between MG10 and the road to Morro do Pilar, Serra do Cipó, Santana do Riacho (CFBH 39816, 39822); Santana de Pirapama (UFMG 11118); Serra Nova, Rio Pardo de Minas (UFMG 6831, 6833, 6875, 6019–20, 6832); Serra de Botumirim, Botumirim (UFMG 12250); Serra do Cabral, Joaquim Felício (UFMG 7277–80, 7275, 13949) . Serra do Cabral, Buenópolis (UFMG 7318, 13927–31); Diamantina (UFMG 3957–9).

*Odontophrynus lavillai* — MATO GROSSO DO SUL STATE: Fazenda Fronteira, Porto Murtinho (CFBH 02496).

*Odontophrynus maisuma* — SANTA CATARINA STATE: Balneario Gaivotas (MNRJ 31356); RIO GRANDE DO SUL STATE: Tavares, Lagoa do Peixe (MZUSP 65312–3); Torres (MZUSP 122183–4; MNRJ 31420); Tramandaí (MZUSP 26825).

*Odontophrynus monachus* — MINAS GERAIS STATE: Parque Nacional da Serra da Canastra, Cabeceiras do Rio São Francisco, São Roque de Minas (ZUEC 4440, holotype).

*Odontophrynus reigi —* MATO GROSSO DO SUL STATE: Bonito (ZUFMS-AMP 07616–20, 07621, 09655); SÃO PAULO STATE: Araçoiaba da Serra (CFBH 9358); Parque Estadual Morro do Diabo, Teodoro Sampaio (CFBH 18375, 18388); Colônia Santa Maria, Botucatu (MNRJ 7414); Lageado, Botucatu (MNRJ 81121–5, 69418–27); Fazenda Regina, Itatinga (MNRJ 70991); Pirajú (MNRJ 21604–6); PARANA STATE: Figueira (MNRJ 48509); SANTA CATARINA STATE: Palhoça (MNRJ 74318–22), Três Barras (MNRJ 1531); RIO GRANDE DO SUL STATE: Iraí (CFBH 20864); Augusto (MNRJ 3835).

*Odontophrynus toledoi* sp. nov.: MINAS GERAIS STATE: Juiz de Fora (MNRJ 18511); Morro do Ferro, Poços de Caldas (MNRJ 87820–1); Inconfidentes (ZUEC-AMP 23469); SÃO PAULO STATE: Campos do Jordão (MNRJ 26167, 26185, 40069);

Table S1. Samples of *Odontophrynus* used in this study.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Latitude** | **Longitude** | **Locality** | **Voucher** | **Reference** | **GenBank access number 16S** |
| *Odontophrynus americanus* | -34.3412 | -58.8340 | Escobar, Loma Verde, Buenos Aires, Argentina | JF1891  | Faivovich *et al*. 2005 | AY843704 |
| *Odontophrynus americanus* | -32.1818 | -52.3370 | Rio Grande, Rio Grande do Sul, Brazil | CFBHE00334 | This study | OM215198 |
| *Odontophrynus americanus* | -32.1818 | -52.3370 | Rio Grande, Rio Grande do Sul, Brazil | CHFURG 56 | Lyra *et al*. 2017 | KU495402 |
| *Odontophrynus lavillai* | -28.3685 | -64.7927 | Villa la Punta, Santiago del Estero, Argentina | ZFMK 80952 | Martino *et al*. 2019 | MK131167 |
| *Odontophrynus lavillai* | -28.3685 | -64.7927 | Villa la Punta, Santiago del Estero, Argentina | ZFMK 80953 | Martino *et al*. 2019 | MK131168 |
| *Odontophrynus cordobae* | -32.4524 | -64.3880 | Berrotaran, Cordoba, Argentina | ZFMK 80932 | Martino *et al*. 2019 | MK131164 |
| *Odontophrynus cordobae* | -31.9562 | -64.5432 | Villa General Belgrano, Cordoba, Argentina | ZFMK 80934 | Martino *et al*. 2019 | MK131165 |
| *Odontophrynus cordobae* | -31.9562 | -64.5432 | Villa General Belgrano, Cordoba, Argentina | ZFMK 80936 | Martino *et al*. 2019 | MK131166 |
| *Odontophrynus* aff. *juquinha* | -13.2112 | -41.7428 | Rio de Contas, Bahia, Brazil | UFMG-T7406 | This study |  OM234652 |
| *Odontophrynus* aff. *juquinha* | -13.2112 | -41.7428 | Rio de Contas, Bahia, Brazil | UFMG-T7407 | This study |  OM234653 |
| *Odontophrynus juquinha* | -16.8612 | -43.0105 | Botumirim, Minas Gerais, Brazil | UFMG-T3115 | This study | OL896915 |
| *Odontophrynus juquinha* | -17.8736 | -44.1769 | Buenópilis, Minas Gerais, Brazil | UFMG-T4011 | This study | OL896919 |
| *Odontophrynus juquinha* | -17.8736 | -44.1769 | Buenópilis, Minas Gerais, Brazil | UFMG-T4012 | This study | OL896916 |
| *Odontophrynus juquinha* | -17.7535 | -44.1705 | Joaquim Felício, Minas Gerais, Brazil | UFMG-T4029 | This study | OL896917 |
| *Odontophrynus juquinha* | -17.7535 | -44.1705 | Joaquim Felício, Minas Gerais, Brazil | UFMG-T4030 | This study | OL896918 |
| *Odontophrynus juquinha* | -15.6171 | -42.5435 | Rio Pardo de Minas, Minas Gerais, Brazil | UFMG-T148 | This study | OL896920 |
| *Odontophrynus juquinha* | -15.6171 | -42.5435 | Rio Pardo de Minas, Minas Gerais, Brazil | UFMG-T149 | This study | OL896921 |
| *Odontophrynus juquinha* | -19.1692 | -43.7159 | Santana do Riacho, Minas Gerais | CFBHT20022 | This study | OL896922 |
| *Odontophrynus juquinha* | -19.1692 | -43.7159 | Santana do Riacho, Minas Gerais | MCNAM 19639 | Souza *et al*. 2015 | KY002951 |
| *Odontophrynus juquinha* | -19.1692 | -43.7159 | Santana do Riacho, Minas Gerais | CFBHT20241 | This study | OL896928 |
| *Odontophrynus juquinha* | -19.1692 | -43.7159 | Santana do Riacho, Minas Gerais | MCNT 626 | Souza *et al*. 2015 | KU306384 |
| *Odontophrynus juquinha* | -19.1692 | -43.7159 | Santana do Riacho, Minas Gerais | MCNAM 19637 | Souza *et al*. 2015 | KY002952 |
| *Odontophrynus juquinha* | -19.0302 | -43.4245 | Conceição do Mato Dentro, Minas Gerais, Brazil | UFMG-T1719 | This study | OL896925 |
| *Odontophrynus juquinha* | -18.2088 | -43.5363 | Diamantina, Minas Gerais, Brazil  | UFMG-T2939 | This study | OL896924 |
| *Odontophrynus juquinha* | -18.2088 | -43.5363 | Diamantina, Minas Gerais, Brazil  | UFMG-T2940 | This study | OL896927 |
| *Odontophrynus juquinha* | -19.1692 | -43.7159 | Santana do Riacho, Minas Gerais | UFMG-T3337 | This study | OL896926 |
| *Odontophrynus juquinha* | -19.1692 | -43.7159 | Santana do Riacho, Minas Gerais | UFMG-T9049 | This study | OL896923 |
| *Odontoprhynus toledoi*  | -21.8561 | -46.5550 | Poços de Caldas, Minas Gerais, Brazil | UFMG-T8985 | This study | OL896899 |
| *Odontoprhynus toledoi*  | -22.5989 | -45.1776 | Piquete, São Paulo, Brazil | CFBHT14218 | This study | OL896902 |
| *Odontoprhynus toledoi*  | -22.0339 | -43.8749 | Rio Preto, Minas Gerais, Brazil | UFMG-T5693 | This study | OL896900 |
| *Odontoprhynus toledoi*  | -23.1486 | -46.8844 | Jundiai, São Paulo, Brazil | CFBHT01458 | This study | OL896912 |
| *Odontoprhynus toledoi*  | -22.7234 | -45.5435 | Campos do Jordão, São Paulo, Brazil | CFBHT02310 | This study | OL896910 |
| *Odontoprhynus toledoi*  | -22.2097 | -45.2631 | Cristina, Minas Gerais, Brazil | CFBHT08066 | This study | OL896909 |
| *Odontoprhynus toledoi*  | -23.1003 | -46.5509 | Atibaia, São Paulo, Brazil | CFBHT19954 | This study | OL896901 |
| *Odontoprhynus toledoi*  | -22.8056 | -45.6254 | Santo Antonio do Pinhal, São Paulo, Brazil | CFBHT22709 | This study | OL896908 |
| *Odontoprhynus toledoi*  | -21.8561 | -46.5550 | Poços de Caldas, Minas Gerais, Brazil | AF 665  | Amaro *et al*. 2009 | FJ685686 |
| *Odontoprhynus toledoi*  | -22.9085 | -45.9454 | São Francisco Xavier, São Paulo, Brazil | FT4192 | This study | OM248491 |
| *Odontoprhynus toledoi*  | -22.9085 | -45.9454 | São Francisco Xavier, São Paulo, Brazil | FT4419 | This study | OL896903 |
| *Odontoprhynus toledoi*  | -22.8056 | -45.6254 | Santo Antonio do Pinhal, São Paulo, Brazil | FT4420 | This study | OL896904 |
| *Odontoprhynus toledoi*  | -22.8056 | -45.6254 | Santo Antonio do Pinhal, São Paulo, Brazil | FT4421 | This study | OL896905 |
| *Odontoprhynus toledoi*  | -22.8056 | -45.6254 | Santo Antonio do Pinhal, São Paulo, Brazil | FT4423 | This study | OL896906 |
| *Odontoprhynus toledoi*  | -22.8056 | -45.6254 | Santo Antonio do Pinhal, São Paulo, Brazil | FT4424 | This study | OL896907 |
| *Odontoprhynus toledoi*  | -22.9085 | -45.9454 | São Francisco Xavier, São Paulo, Brazil | Itamar2 | This study | OL896913 |
| *Odontoprhynus toledoi*  | -22.9085 | -45.9454 | São Francisco Xavier, São Paulo, Brazil | Itamar3 | This study | OL896914 |
| *Odontoprhynus toledoi*  | -21.9745 | -44.6038 | Airuoca, Minas Gerais, Brazil | CFBHT08133 | Lyra *et al*. 2017 | KU495398 |
| *Odontoprhynus toledoi*  | -22.0339 | -43.8749 | Rio Preto, Minas Gerais, Brazil | UFMG-T5665 | This study | OL896911 |
| *Odontophrynus reigi* | -27.0740 | -53.1653 | Palmitos, Santa Catarina, Brazil | CFBHT08305 | This study | OM234654 |
| *Odontophrynus reigi* | -21.1000 | -56.7020 | Bonito, Mato Grosso do Sul, Brazil | ZUFMS-AMP 7616 | Rosset et al. 2021 | MN327053 |
| *Odontophrynus reigi* | -21.1000 | -56.7020 | Bonito, Mato Grosso do Sul, Brazil | ZUFMS-AMP 7619 | Rosset *et al.* 2021 | MN327054 |
| *Odontophrynus reigi* | -22.5110 | -52.3170 | Teodoro Sampaio, São Paulo, Brazil | CFBHT09582 | Lyra *et al*. 2017 | KU495399 |
| *Odontophrynus reigi* | -32.1818 | -52.3370 | Rio Grande, Rio Grande do Sul, Brazil | CFBHE00335 | This study | OM234656 |
| *Odontophrynus reigi* | -32.1818 | -52.3370 | Rio Grande, Rio Grande do Sul, Brazil | CFBHE00336 | This study | OM234657 |
| *Odontophrynus reigi* | -22.6418 | -54.7804 | Caarapó, Mato Grosso do Sul, Brazil | UFMGT2207 | This study |  OM234658 |
| *Odontophrynus reigi* | -25.8675 | -50.3824 | São Mateus do Sul, Paraná, Brazil | CFBHT21733 | This study | OM234659 |
| *Odontophrynus reigi* | -23.4997 | -47.5755 | Aracoiaba da Serra, São Paulo, Brazil | CFBH-9358 | Lyra *et al*. 2017 | KU495401 |
| *Odontophrynus reigi* | -25.6855 | -50.2971 | São João do triunfo, Paraná, Brazil | CFBHT18310 | This study | OM234662 |
| *Odontophrynus reigi* | -21.1000 | -56.7020 | Bonito, Mato Grosso do Sul, Brazil | ZUFMS-AMP 7615 | Rosset *et al.* 2021 | MN327052 |
| *Odontophrynus reigi* | -26.1239 | -50.3116 | Três Barras, Santa Catarina, Brazil | UFMG-T8063 | This study | OM234661 |
| *Odontophrynus reigi* | -26.1239 | -50.3116 | Três Barras, Santa Catarina, Brazil | UFMG-T8103 | This study | OM234660 |
| *Odontophrynus occidentalis* | -27.6603 | -67.0224 | Arroyo el Carrizal, Belén, Catamarca, Argentina | ECOALMUNRC 284 | Martino *et al*. 2019 | MK131162 |
| *Odontophrynus occidentalis* | -31.6818 | -64.8372 | Pampa de Achala, Sierra de Cordoba, Cordoba, Argentina | ZSM 733/2000 | Frost *et al.* 2006 | DQ283247 |
| *Odontophrynus occidentalis* | -31.6818 | -64.8372 | Pampa de Achala, Sierra de Cordoba, Cordoba, Argentina | BB1324  | Frost *et al.* 2006 | DQ283248 |
| *Odontophrynus occidentalis* | -33.0398 | -68.9420 | Lujan de Cuyo, Finca Vistalba, Mendoza, Argentina | MVZ:Herp 145210 | Van Bocxlaer *et al*. 2009 | FJ882744 |
| *Odontophrynus occidentalis* | -38.9682 | -68.0564 | Rio Negro, Neuquen, Argentina | ZFMK 95407 | Martino *et al*. 2019 | MK131169 |
| *Odontophrynus occidentalis* | -33.0398 | -68.9420 | Lujan de Cuyo, Finca Vistalba, Mendoza, Argentina | MVZ:Herp 145207 | Zhang *et al*. 2013 | JX564880 |
| *Odontophrynus occidentalis* | -31.6818 | -64.8372 | Pampa de Achala, Sierra de Cordoba, Cordoba, Argentina | MLP 4766 | Faivovich et al. 2014 | KP295642 |
| *Odontophrynus occidentalis* | -32.0558 | -64.5547 | Estancia Los Tabaquillos, Argentina | ECOALMUNRC 178 | Martino *et al*. 2019 | MK131160 |
| *Odontophrynus occidentalis* | -31.4973 | -68.5452 | Aguada del Molle, Sierra Pie de Palo, San Juan, Argentina | ECOALMUNRC 228 | Martino *et al*. 2019 | MK131163 |
| *Odontophrynus cultripes* | -21.5860 | -45.3713 | Varginha, Minas Gerais, Brazil | FSFL 875 | Amaro *et al*. 2009 | FJ685688 |
| *Odontophrynus cultripes* | -16.2956 | -49.0876 | Campo Limpo de Goiás, Goiás, Brazil  | CFBH-8177 | Lyra *et al*. 2017 | KU495403 |
| *Odontophrynus carvalhoi* | -13.0106 | -41.3643 | Mucugê, Bahia, Brazil | JC 1224 | Amaro *et al*. 2009 | FJ685687 |
| *Odontophrynus carvalhoi* | -7.5157 | -37.0835 | Pocinhos, Pernambuco, Brazil | TG456 | This study | OM243020 |
| *Odontophrynus carvalhoi* | -7.5157 | -37.0835 | Pocinhos, Pernambuco, Brazil | TG457 | This study | OM243021 |
| *Proceratophrys appendiculata* | -22.3995 | -42.7333 | Cachoeiras de Macacu, Rio de Janeiro, Brazil | Not given | Amaral *et al.* 2019 | KM390778 |
| *Proceratophrys boiei* | -22.8056 | -45.6254 | Santo Antonio do Pinhal, São Paulo, Brazil | CFBHT01489 | Lyra et al. 2017 | KU495471 |

Table S2. Samples of *Odontophrynus* used in this study.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SPECIES** | *O. toledoi* | *O. juquinha* | *O. maisuma* | *O. lavillai* | *O. americanus* | *O. cordobae* | *O. cultripes* | *O. carvalhoi* | *O. monachus* | *O. occidentalis* |
| **GROUP** | ***O. americanus*** | ***O. cultripes*** | ***O. occidentalis*** |
| **TL** | 47.71 | 30.6 | 46.5 | 68 | 50.42\* | 40.1 | 41.3\* | 55.75 | 36.3 | 67.19\* |
| **BL** | 17.95 | 12.9 | 20.7 | 28 | 22.8\* | 18 | 14.45\* | 21.5 | 16.3 | 26.25\* |
| **TAL** | 29.76 | 17.6 | 25.9 | 40 | 27.62\* | 22.1 | 26.85\* | 35.04 | 20 | 40.94\* |
| **BH** | 9.79 | 7.3 | 10.8 | NA | 12.14\* | 10.2 | 9.38\* | 9.83 | 8.4 | 12.06\* |
| **BW** | 11.1 | 9.6 | 12.7 | NA | NA | 10.38\* | NA | 12.26 | 10.5 | NA |
| **MTH** | 10.32 | 7.7 | 10.4 | NA | 10.95\* | 8.4 | 9.58\* | NA | 8.8 | 11.56\* |
| **TMH** | 4.69 | 2.6 | 4.4 | NA | 5.22\* | 4.7 | 4.93\* | 6.49 | 3.4 | 6.5\* |
| **DFH** | 4.34 | 2.9 | NA | NA | 4.11\* | 3 | 3.41\* | 4.97 | 3.5 | 3.44\* |
| **VFH** | 2.6 | 2 | NA | NA | 2.48\* | 2.3 | 2.71\* | 3.42 | 2.9 | 3.62\* |
| **TMW** | 4.3 | 2.4 | NA | NA | NA | 3.25\* | NA | NA | 2.7 | NA |
| **IOD** | 5.41 | 4.3 | 3.4 | NA | NA | 5.4 | NA | 5.07 | 5.1 | NA |
| **IND** | 2.27 | 1.6 | 1.6 | NA | NA | 1.8 | NA | 2.14 | 2.1 | NA |
| **ESD** | 5.66 | 4.1 | NA | NA | NA | 5.2 | NA | 5.53 | 5 | NA |
| **NSD** | 2.5 | 1.5 | NA | NA | NA | 2.4 | NA | 3.38 | 2.1 | NA |
| **END** | 3.16 | 2.6 | 2.1 | NA | NA | 3 | NA | 1.97 | 2.9 | NA |
| **ED** | 2.26 | 2 | 2 | NA | 2.84\* | 2.1 | 2.32\* | 2.95\* | 1.8 | 2.81\* |
| **ND** | 0.64 | 0.5 | 0.6 | NA | NA | NA | NA | 0.96\* | 0.4 | NA |
| **SSD** | 10.7 | 7 | 10.1 | NA | NA | NA | NA | NA | 4.8 | NA |
| **SL** | 2.3 | 1.1 | NA | NA | NA | NA | NA | 2.31 | 3.4 | NA |
| **SW** | 0.62 | NA | NA | NA | NA | NA | NA | 1.81 | NA | NA |
| **ODW** | 3.46 | 2.8 | 4.1 | NA | 4.28\* | 4.1 | 3.11\* | 3.23\* | 3.7 | 3.65\* |
| **REFERENCES** | This study | Rocha et al. 2017 | Borteiro et al. 2010 | Cei 1987; Nascimento et al. 2013 | Savage & Cei 1965 | Grenat et al. 2009 | Savage & Cei 1965 | Caramaschi 1979; Santos et al. 2017 | Menegucci et al. 2016 | Cei 1987 |