# SUPPLEMENTARY DATA 4

## SUPPLEMENTARY DATA 4.1

Phylogenetic relationships of *Rhinella* **and outgroups** recovered in the maximum likelihood analysis with IQ-TREE (log-likelihood of consensus tree: -1202690.336). Numbers around nodes are the ultrafast bootstrap support values. An asterisk (*) indicates 100% ultrafast bootstrap support. A skeletal topology of the complete tree is shown for reference, with the magnified section marked in white.

## SUPPLEMENTARY DATA 4.2

Phylogenetic relationships of *Rhinella* recovered in the maximum likelihood analysis with IQ-TREE (log-likelihood of consensus tree: -1202690.336). The clades and species groups shown are those recognized in this study. **Part 1 of 4. The *R. marina* Clade (1): the *R. arunco*, *R. spinulosa*, and *R. granulosa* Groups.** Numbers around nodes are the ultrafast bootstrap support values. An asterisk (*) indicates 100% ultrafast bootstrap support. A skeletal topology of the complete tree is shown for reference, with the magnified section marked in white.

## SUPPLEMENTARY DATA 4.3

Phylogenetic relationships of *Rhinella* recovered in the maximum likelihood analysis with IQ-TREE (log-likelihood of consensus tree: -1202690.336). The clades and species groups shown are those recognized in this study. **Part 2 of 4. The *R. marina* Clade (2): the GIM and the *R. crucifer* and *R. marina* Groups.** Numbers around nodes are the ultrafast bootstrap support values. An asterisk (*) indicates 100% ultrafast bootstrap support. A skeletal topology of the complete tree is shown for reference, with the magnified section marked in white.

SUPPLEMENTARY DATA 4.4

Phylogenetic relationships of *Rhinella* recovered in the maximum likelihood analysis with IQ-TREE (log-likelihood of consensus tree: -1202690.336). The clades and species groups shown are those recognized in this study. Part 3 of 4. **The *R. margaritifera* Clade (1): *R. sternosignata* and the *R. veraguensis* and *R. festae* Groups.** Numbers around nodes are the ultrafast bootstrap support values. An asterisk (*) indicates 100% ultrafast bootstrap support. A skeletal topology of the complete tree is shown for reference, with the magnified section marked in white.

SUPPLEMENTARY DATA 4.5

Phylogenetic relationships of *Rhinella* recovered in the maximum likelihood analysis with IQ-TREE (log-likelihood of consensus tree: -1202690.336). The clades and species groups shown are those recognized in this study. **Part 4 of 4. The *R. margaritifera* Clade (2): the *R. margaritifera* Group.** Numbers around nodes are the ultrafast bootstrap support values. An asterisk (*) indicates 100% ultrafast bootstrap support. A skeletal topology of the complete tree is shown for reference, with the magnified section marked in white.

*Melanophryniscus* gr. *stelzneri*

*Amazophrynella* aff. *minuta*

*Nannophryne variegata*

98

98

97 — * — *Rhaebo ecuadorensis*

*Rhaebo guttatus*

*Rhaebo nasicus*

* — * — *Rhaebo ceratophrys*

*Rhaebo ceratophrys*

90

* — *Peltophryne empusa*

*Peltophryne lemur*

*Schismaderma carens*

76 — 68 — 94 — *Mertensophryne loveridgei*

*Vandijkophrynus robinsoni*

93

* — *Sclerophrys mauritanica*

68 — *Sclerophrys brauni*

*Sclerophrys steindachneri*

96 — 88 — *Sclerophrys garmani*

*Sclerophrys regularis*

39

*Ingerophrynus galeatus*

77 — *Nectophrynoides tornieri*

89 — *Bufotes luristanicus*

*Duttaphrynus melanostictus*

42 — 99 — *Ansonia longidigita*

38 — *Pelophryne misera*

66 — *Leptophryne borbonica*

*Wolterstorffina parvipalmata*

99

67 — 83 — * — *Bufo bufo*

*Bufo gargarizans*

* — *Phrynoidis juxtaspera*

*Rentapia hosii*

88

99 — *Anaxyrus boreas*

98 — * — *Anaxyrus quercicus*

* — *Anaxyrus americanus*

*Anaxyrus woodhousii*

* — *Incilius alvarius*

99 — *Incilius coniferus*

* — *Incilius nebulifer*

*Incilius valliceps*

* — → **RHINELLA MARINA** CLADE (Suppl. data 4.2 and 4.3)

→ **RHINELLA MARGARITIFERA** CLADE (Suppl. data 4.4 and 4.5)

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**R. ARUNCO GROUP**

87 ┌ *R. rubropunctata* MACN 52275
* ├ *R. arunco* KU 217369
* ├ *R. atacamensis* KU 217352
  └ *R. atacamensis* AMNH 168401

**R. SPINULOSA GROUP**

44 ┌ *R. limensis* nv
* ├ *R. cf. amabilis* QCAZ 68471
59 └ *R. limensis* RGP 4719
65 ┌ *R. limensis* KU 215587
95 ┌ *R. vellardi* CORBIDI 7626
* ├ *R. vellardi* MUBI 14291
  ├ *R. vellardi* KU 211765
47 └ *R. vellardi* MUBI 14281
* ┌ *R. gallardoi* LGE 4546
  └ *R. gallardoi* LGE 4735
79 ┌ *R. achalensis* MACN 52406
* ┌ *R. papillosa* BB 983
  ├ *R. papillosa* NB 96-23
75 ┌ *R. papillosa* BB 1032
89 └ *R. papillosa* MACN 49782
64 * ┌ *R. altiperuviana* MACN 49701
    └ *R. altiperuviana* MNCN 41989
74 * ┌ *R. trifolium* CORBIDI 5530
     └ *R. trifolium* nv
68 ┌ *R. spinulosa* LGE 2516
99 └ *R. spinulosa* MUBI 10737
63 ┌ *R. spinulosa* KU 214792
85 └ *R. spinulosa* IDLR 3837
61 ┌ *R. spinulosa* MUBI 10770
44 └ *R. spinulosa* nv

92

62

**R. GRANULOSA GROUP**

85 * ┌ NuG *R. bernardoi* FML 23921
     └ NuG *R. bernardoi* UNSJ 5046
* ┌ *R. dorbignyi* CFBH 14062
* ┌ *R. dorbignyi* LGE 8717
98 └ *R. dorbignyi* LGE 8718
99 ┌ *R. dorbignyi* MNHN-Uy 9492
   └ *R. dorbignyi* MACN 43695
98 MtG *R. bernardoi* FML 23921
97 MtG *R. bernardoi* UNSJ 5046
* ┌ *R. pygmaea* CFBH 2894
  └ *R. pygmaea* CFBH-T 15163
81 * ┌ *R. azarai* LGE 8710
     ├ *R. azarai* LGE 8711
* ┌ *R. bergi* LGE 8723
  └ *R. bergi* MACN 46555
64 * ┌ *R. major* LGE 8720
     └ *R. major* MNCN-ADN 6232
94 78 * ┌ *R. granulosa* CFBH 18706
        └ *R. granulosa* CFBH 7341
* ┌ *R. mirandaribeiroi* CFBH 10254
  └ *R. mirandaribeiroi* CFBH 13849
97 * ┌ *R. beebei* UWIZM 2012.27.72.3
     ├ *R. beebei* CBA 5732
60 * ├ *R. beebei* nv
      ├ *R. beebei* ICN 55784
57 └ *R. beebei* ICN 55776
96 * ┌ *R. merianae* CFBH 16641
     └ *R. merianae* MTR 20517
45 * ┌ *R. centralis* CH 9383
     ├ *R. centralis* MVUP 2305
80 ┌ *R. humboldti* AJC 3533
85 └ *R. humboldti* CZUT 1717

→ Suppl. data 4.3

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**Suppl. data 4.3**

**"GHOST INTROGRESSED MITOCHONDRION"**

**R. CRUCIFER GROUP**

**R. MARINA GROUP**

91 MtG *R. horribilis* KRL 744
99 MtG *R. horribilis* MAR 2057
MtG *R. horribilis* KU 289750
59 MtG *R. horribilis* UTA 54882
99 MtG *Rhinella* sp. 1 KU 202274]
* MtG *Rhinella* sp. 1 QCAZ 50698
MtG *Rhinella* sp. 1 KU 217482
64 MtG *Rhinella* sp. 1 QCAZ 47444

98

47

* *R. henseli* MNRJ 33006
* *R. henseli* CFBH 20117
46 *R. henseli* UFRGS 3569
* *R. casconi* CFBH 22863
*R. casconi* CFBH 22865
99 *R. crucifer* CFBH 24630
* *R. crucifer* CFBH 2867
60 * *R. inopina* CHUNB 51110
*R. inopina* MZUSP 142094
* *R. inopina* MZUSP 142356
99 69 *R. ornata* USNM 303015
*R. ornata* ZUECDCC 3392
68 *R. ornata* CFBH 38375
*R. ornata* CFBH 18815
48 * *R. ornata* CFBH 18141
38 *R. ornata* MACN 46672
76 *R. ornata* MZUSP 128425
68 *R. ornata* LGE 19027
98 *R. ornata* LGE 19020
68 *R. ornata* LGE 6503
64 *R. ornata* LGE 8729

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* *R. poeppigii* MUBI 6864
*R. poeppigii* MUBI 6863
59 *R. poeppigii* USNM 268824
* *R. veredas* CFBH 20516
*R. veredas* CHUNB 44609
99 *R. marina* VUB 1965
*R. marina* MAR 1982
88 *R. marina* SBH 190696
61 *R. diptycha* KU 289057
28 *R. diptycha* MACN 51118
*R. diptycha* MNCN-ADN 6044
41 *R. diptycha* LGE 9867
46 NuG *R. horribilis* MAR 2057
48 *R. diptycha* CFBH 19335
63 *R. diptycha* CFBH 19523
42 82 NuG *R. horribilis* KU 289750
68 NuG *Rhinella* sp. 1 QCAZ 50698
NuG *Rhinella* sp. 1 KU 217482
65 NuG *Rhinella* sp. 1 QCAZ 47444

88

73

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96

* *R. arenarum* MNHN-Uy 9935
*R. arenarum* AR 305
72 *R. arenarum* MACN 38639
54 *R. arenarum* MNCN-ADN 5972
59 *R. arenarum* MACN 49141
89 * *R. rubescens* CFBH 5836
*R. rubescens* CFBH 7696
*R. cerradensis* CFBH 20517
*R. cerradensis* CHUNB 38671
94 *R. cerradensis* CHUNB 39953
* *R. icterica* CFBH 13965
*R. icterica* CFBH 38392
48 *R. aff. cerradensis* MNHN-Uy 9514
64 *R. aff. cerradensis* LGE 19096
88 *R. aff. cerradensis* LGE 19103
56 65 *R. icterica* MACN 43789
*R. icterica* LGE 19195
54 80 *R. achavali* MNHN-Uy 9301
*R. achavali* ZVC 3801
38 *R. icterica* CFBH 11027
45 *R. icterica* CFBH 27410

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*R. sternosignata* nv

**R. VERAGUENSIS GROUP**

*R. leptoscelis* MUBI 5976
*R. leptoscelis* MUBI 5989
*R. inca* MNCN 44406
*R. inca* MNCN 44405
*R. inca* LGE 2554
*R. inca* CORBIDI 6920
*Rhinella* sp. 2 CORBIDI 7266
*Rhinella* sp. 2 MUSM 31150
*Rhinella* sp. 2 MUBI 14523
*Rhinella* sp. 2 NMP6V 74749
*R. fissippes* MNCN-ADN 6310
*R. rumbolli* MACN 53782
*R. rumbolli* MACN 43719
*R. justinianoi* MNCN-ADN 6065
*R. quechua* MNK 5302
*R. quechua* MNCN-ADN 3927
*R. veraguensis* MNCN-ADN 5808
*R. veraguensis* MUBI 5946
*R. veraguensis* IDLR 3820
*R. veraguensis* USNM 346048

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**R. FESTAE GROUP**

*R. manu* MNCN-ADN 20672
*R. manu* MUBI 11372
*Rhinella* sp. 3 MUBI 10487
*Rhinella* sp. 3 CORBIDI 5152
*R. nesiotes* CORBIDI 8122
*R. nesiotes* CORBIDI 13953
*R. tacana* MUBI 7007
*R. tacana* UTA 53310
*R. tacana* MNK 7187
*R. tacana* MUBI 6950
*R. tacana* MUBI 7409
*R. lilyrodriguezae* CORBIDI 8839
*R. lilyrodriguezae* MUSM 32205
*R. lilyrodriguezae* CORBIDI 6778
*R. lilyrodriguezae* CORBIDI 6780
*R. cf. multiverrucosa* MUBI 11455
*R. chavin* MTD 43789
*R. yanachaga* CORBIDI 7269
*R. yanachaga* MUBI 7119
*R. yanachaga* MUBI 7121
*R. arborescandens* CORBIDI 2020
*R. arborescandens* MUBI 14076
*R. arborescandens* MUBI 14082
*R. festae* QCAZ 41490
*R. festae* CORBIDI 7505
*R. festae* QCAZ 46457
*R. festae* KU 217501
*R. festae* QCAZ 18203
*Rhinella* sp. 4 TG 2115
*R. paraguas* TG 1415
*R. paraguas* TG 1480
*R. cf. nicefori* MHUA 4793
*R. ruizi* AML 39
*R. ruizi* AML 40
*R. lindae* MAR 3432
*R. lindae* MAR 3330
*R. lindae* MAR 3431
*R. acrolopha* MAR 1425
*R. acrolopha* MAR 1426
*R. tenrec* MAR 3584
*R. tenrec* MAR 3585
*R. macrorhina* MAR 2867
*R. macrorhina* MAR 2903
*R. macrorhina* MHUA 10262
*R. macrorhina* MHUA 8319

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→ Suppl. data 4.5

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***R. MARGARITIFERA*** GROUP

*Rhinella* sp. 5 QCAZ 53072
*Rhinella* sp. 5 QCAZ 53142
*R. magnussoni* APL 20530
*Rhinella* sp. 6 ANDES 1723
*Rhinella* sp. 7 PD 16
*Rhinella* sp. 8 QCAZ 28573
*Rhinella* sp. 9 CORBIDI 102
*Rhinella* sp. 9 CORBIDI 5835
*Rhinella* sp. 9 MNCN-ADN 26559
*R. ocellata* CFBH 26592
*R. ocellata* ZUFG 8519
*R. ocellata* LAJ 210
*R. ocellata* MZUSP 103261
*R. iserni* MUSM 31096
*R. iserni* MUSM 31097
*R. iserni* NMP6V 75552
*R. iserni* MUSM 31950
"*R. alata*" CH 9192
"*R. alata*" MHUA 8415
"*R. alata*" MAR 2574
*R. sclerocephala* MHNLS 7495
"*R. alata*" QCAZ 11597
"*R. alata*" QCAZ 13896
*Rhinella* sp. 11 CHUNB 32342
*Rhinella* sp. 12 ROM 40103
*Rhinella* sp. 12 USNM 268828
*Rhinella* sp. 12 NMP6V 74260
*Rhinella* sp. 13 MAR 1314
*Rhinella* sp. 13 MUBI 6374
*Rhinella* sp. 13 MAR 1955
*Rhinella* sp. 13 CORBIDI 5848
*Rhinella* sp. 13 CORBIDI 5840
*Rhinella* sp. 13 MHNLS 21837
*Rhinella* sp. 10 QCAZ
*R. acutirostris* MTR 36593
*R. acutirostris* MTR 36684
*R. acutirostris* CORBIDI 4635
*R. acutirostris* QCAZ 10601
*R. acutirostris* QCAZ 28379
"*R. castaneotica*" NMP 6V74261
"*R. castaneotica*" LSUMZ 17429
"*R. castaneotica*" ZUFG 8171
"*R. castaneotica*" BM 131
*R. proboscidea* AMNHFS 20085
*R. proboscidea* MTR 10003
*R. proboscidea* CTGA-UFAM 5602
*R. lescurei* MNHN-Fr 2006.2611
*R. lescurei* AF 1613
*R. lescurei* MC 5
*R. hoogmoedi* CFBH 13286
*R. hoogmoedi* MTR 16199
*R. hoogmoedi* CFBH 15962
*R. hoogmoedi* ZUECDCC 3393
*Rhinella* sp. 14 MNCN-ADN 20639
*Rhinella* sp. 14 KU 215146
*Rhinella* sp. 14 KU 215145
*Rhinella* sp. 14 CORBIDI 5468
*Rhinella* sp. 14 MUBI 14776
*Rhinella* sp. 14 MUBI 14775
*Rhinella* sp. 14 NMP6V 74915
*Rhinella* sp. 15 MNCN-ADN 4159
*R. scitula* UFMT 1876
*R. scitula* IIBP 849
*R. scitula* CFBH 42359
*R. stanlaii* ZUFG 6456
*R. stanlaii* SMF 88237
*R. stanlaii* MNCN-ADN 4160
*R. stanlaii* MNCN-ADN 6274
*R. margaritifera* MW 1006
*R. margaritifera* MC 156
*R. margaritifera* MNHN-Fr 2006.2602
*R. dapsilis* CORBIDI 1969
*R. dapsilis* MUSM 32715
*R. dapsilis* IWU 334
*R. dapsilis* QCAZ 43967
*R. dapsilis* QCAZ 17719
*R. dapsilis* QCAZ 38621
*R. dapsilis* QCAZ 38892
*R. dapsilis* QCAZ 39474
*R. dapsilis* MC 204
*R. dapsilis* PG 144
*R. dapsilis* CFBH 11400
*R. dapsilis* URCA 12651
*R. dapsilis* MTR 6313
*R. dapsilis* MZUSP 139598
*R. dapsilis* ESTR 173

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