

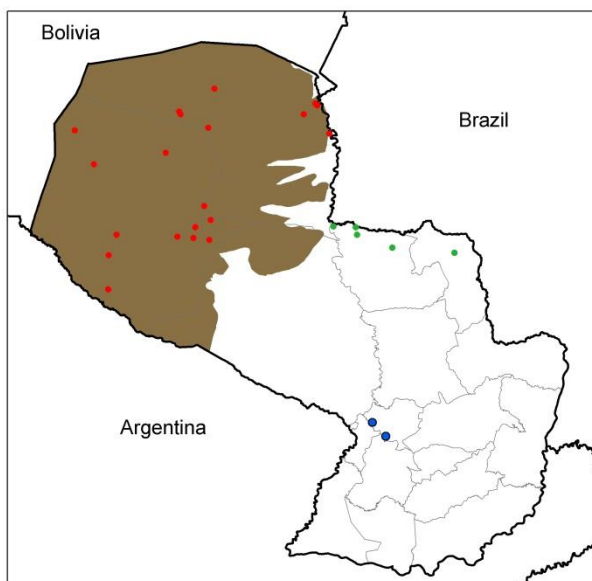
Supplementary Material

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Appendix S1

Environmental traits of *Phyllopezus* habitats in Paraguay.

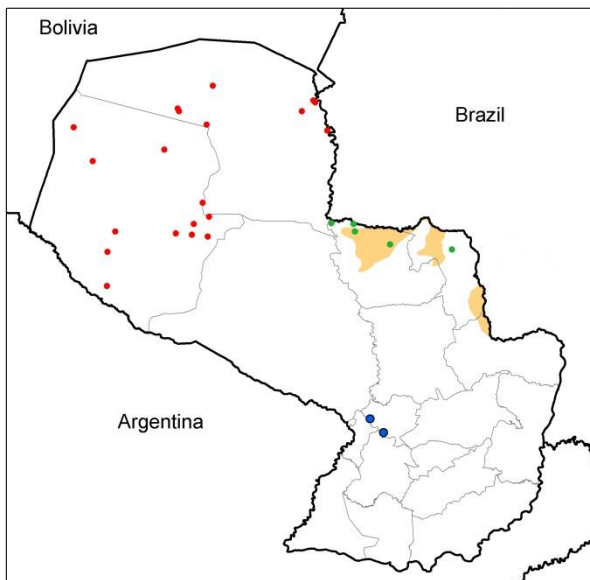
Dry Chaco



The Dry Chaco is a xerophytic environment adapted to low precipitation (400–700 mm/yr). The vegetation is implanted on clayish soils, with a dominance of thorny shrubs and cacti, and no herbaceous stratum. In this environment, *Phyllopezus* is mostly a ground dweller, but also frequently seen on trees.

Distribution of Dry Chaco in Paraguay (brown area), showing the different populations of *Phyllopezus*: Dry Chaco (red dots), Cerrado population (green dots), and Cordillera de los Altos population (blue dots).

Cerrado

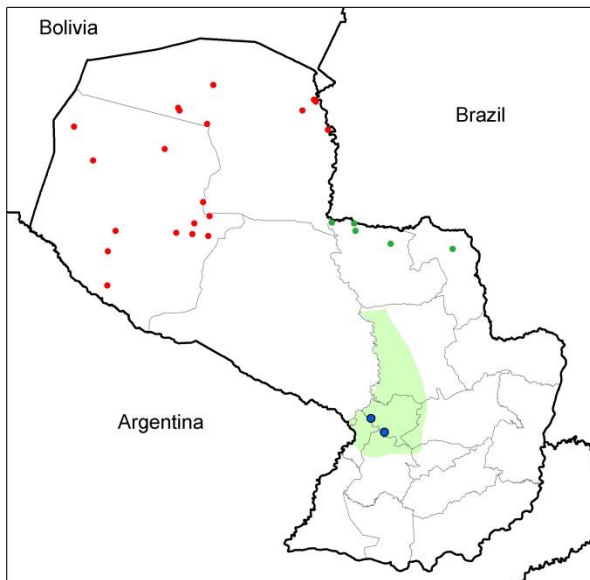


The Cerrado is a Neotropical savanna dominated by grasses adapted to periodic fires. Associated to this environment, there are islands of tortuous small trees with cork-like bark. There are also tall green forests along the rivers or streams present in the area.

In this environment, *Phyllopezus* is exclusively a ground dweller, inhabiting the rocky hills scattered on the area.

Distribution of Cerrado in Paraguay (orange area), showing the different populations of *Phyllopezus*: Dry Chaco (red dots), Cerrado population (green dots), and Cordillera de los Altos population (blue dots).

Cordillera de Los Altos (Litoral Central ecoregion)



Cordillera de Los Altos is a chain of rocky hills of up to 450 masl, located in the south of the Litoral Central ecoregion. The environment has components of the Humid Chaco, with grasses and shrubs covering most of the area, tall forests and abundance of the Paraguayan coconut palm *Acrocomia aculeata*.

In this environment, *Phyllopezus* is a ground dweller, inhabiting the rocky hills where the lizard is mimetic with the lichens on the stones.

Distribution of Litoral Central in Paraguay (green area), showing the different populations of *Phyllopezus*: Dry Chaco (red dots), Cerrado population (green dots), and Cordillera de los Altos population (blue dots).

Appendix S2

Genbank accession numbers of sequences used in this work.

Species	Voucher	16S	Cytb	ND2
<i>Phyllodactylus unctus</i>		HQ896027		
<i>Phyllopezus lutzae</i>	CHUNB 50461	JN935548	MD	MD
<i>Phyllopezus lutzae</i>	CHUNB 50463	JN935550	MD	MD
<i>P. maranjonensis</i>	ZFMK 84995	JN935555	JQ826820	MD
<i>P. maranjonensis</i>	ZFMK 84996	JN935556	MD	JX041416
<i>P. maranjonensis</i>	ZFMK 84997	JN935557	MD	MD
<i>P. periosus</i>	CHUNB 61920	MD	JQ826827	MD
<i>P. periosus</i>	CHUNB 61921	MD	JQ826826	MD
<i>P. periosus</i>	FRD 851	MD	JQ826824	MD
<i>P. periosus</i>	MTR 887022	JN935552	MD	MD
<i>P. pollicaris</i> Clade I	JC 1153	MD	JQ826836	MD
<i>P. pollicaris</i> Clade I	JC 1182	MD	JQ826834	MD
<i>P. pollicaris</i> Clade I	JC 1185	JN935553	JQ826838	MD
<i>P. pollicaris</i> Clade I	JC 1219	JN935554	MD	MD
<i>P. pollicaris</i> Clade II	PV 1053	MD	JQ826840	JQ825289
<i>P. pollicaris</i> Clade II	PV 1059	MD	JQ826841	JQ825290
<i>P. pollicaris</i> Clade II	CHUNB 55904	MD	JQ826842	JQ825288
<i>P. pollicaris</i> Clade III	JC 1503	MD	JQ826958	JQ825294
<i>P. pollicaris</i> Clade III	MTR 13452	MD	JQ826955	JQ825291
<i>P. pollicaris</i> Clade III	MTR 887703	MD	MD	JQ825293
<i>P. pollicaris</i> Clade IV	LG 1309 ^{B1}	JN935567	JQ826845	JQ825492
<i>P. pollicaris</i> Clade IV	LG 1792 ^{B2}	JN935572	MD	JQ825495
<i>P. pollicaris</i> Clade IV	LG 1815	JN935573	JQ826982	MD
<i>P. pollicaris</i> Clade IV	LG 1845 ^{B3}	JN935574	MD	MD
<i>P. pollicaris</i> Clade IV	MTR 6733	MD	JQ826849	JQ825494
<i>P. pollicaris</i> Clade IV	MTR 6822	MD	MD	JQ825497
<i>P. pollicaris</i> Clade VI	MTR 3074	JN935584	JQ826963	JQ825369
<i>P. pollicaris</i> Clade VI	MTR 3263	JN935585	JQ826960	MD
<i>P. pollicaris</i> Clade VI	MTR 3287	JN935586	JQ826964	MD
<i>P. pollicaris</i> Clade VII	CHUNB 36991	JN935559	JQ827012	JQ825354
<i>P. pollicaris</i> Clade VII	CHUNB 36992	JN935560	MD	JQ825351
<i>P. pollicaris</i> Clade VII	CHUNB 37001	JN935561	JQ827011	JQ825352
<i>P. pollicaris</i> Clade VII	CHUNB 43849	JN935562	MD	MD
<i>P. pollicaris</i> Clade VII	CHUNB 43850	JN935563	JQ827039	JQ825317
<i>P. pollicaris</i> Clade VII	CHUNB 43852	JN935564	JQ827033	MD
<i>P. pollicaris</i> Clade VII	CHUNB 58320	MD	JQ826993	JQ825333
<i>P. pollicaris</i> Clade VII	LG 1310	JN935568	JQ827049	MD
<i>P. pollicaris</i> Clade VIII	LG 807	JN935575	JQ827102	JQ825393
<i>P. pollicaris</i> Clade VIII	LG 808	JN935576	JQ827107	JQ825394
<i>P. pollicaris</i> Clade VIII	LG 1011	JN935566	JQ827100	JQ825390
<i>P. pollicaris</i> Clade VIII	LG 1342	JN935570	JQ827123	JQ825423
<i>P. pollicaris</i> Clade VIII	LG 1343	JN935571	JQ827124	JQ825424
<i>P. pollicaris</i> Clade VIII	MTR 2346	JN935580	JQ827056	MD
<i>P. pollicaris</i> Clade VIII	MTR 2807	JN935581	JQ827057	MD
<i>P. pollicaris</i> Clade VIII	MTR 2958	JN935582	JQ827053	MD
<i>P. pollicaris</i> Clade VIII	MTR 2959	JN935583	JQ827054	JQ825489
<i>P. pollicaris</i> Clade VIII	MTR 3681	JN935587	JQ827073	JQ825374
<i>P. pollicaris</i> Clade VIII	MTR 3748	JN935588	JQ827133	MD
<i>P. pollicaris</i> Clade VIII	MTR 4960	JN935589	JQ827130	MD

<i>P. pollicaris</i> Clade VIII	MTR 887020	JN935558	JQ827087	JQ825376
<i>P. pollicaris</i> Clade VIII	MZUSP 92491	JN935590	MD	JX041417
<i>P. przewalskii</i>	TG 00105	JN935565	JQ826885	JQ825594
<i>P. przewalskii</i>	LG 1093 ^{B9}	JN935569	JQ826890	JQ825593
<i>P. przewalskii</i>	MTD 43490 ^{B10}	JN935578	MD	MD
<i>P. przewalskii</i>	MTD 43492 ^{B11}	JN935579	MD	MD
<i>P. przewalskii</i>	MNCN 5903 ^{B12}	JN935577	MD	JQ825362
<i>P. przewalskii</i>	LJAMM-CNP 12072	MD	JQ826895	JQ825577
<i>P. przewalskii</i>	LJAMM-CNP 12083	MD	JQ826901	JQ825583
<i>P. przewalskii</i>	SMF 100495 ^{B8}	MF278834	MD	MD
<i>P. przewalskii</i>	MNHNP 11412	MD	JQ826880	JQ825595
<i>P. przewalskii</i>	MNHNP 11426	MD	JQ826879	JQ825596
<i>P. przewalskii</i>	MNHNP 11957 ^{B6}	MH397465	MD	MD
<i>P. przewalskii</i>	MNHNP 11958 ^{B7}	MH397466	MD	MD
<i>Phyllopezus</i> sp. nov.	MNHNP-TH 2-39 ^{B5}	MH397468	MH412633	MH412635
<i>Phyllopezus</i> sp. nov.	MNHNP-TH 2-40 ^{B4}	MH397467	MH412634	MH412636

Appendix S3

Pairwise genetic distances (in percentages) – 16S

<i>Phyllopezus lutzae</i>	<i>P. lutzae</i> 0																			
<i>P. maranjonensis</i>	11.5	<i>P. maranjonensis</i> <0.01																		
	11.8	0.3	<i>P. periosus</i>																	
<i>P. periosus</i>	14.6	13.7	-																	
		14.0																		
<i>P. przewalskii</i>	14.8	13.7	15.4	<i>P. przewalskii</i> <0.01																
	15.4	14.6	17.0	4.4	<i>P. pollicaris – I</i>															
<i>P. pollicaris – I</i>	13.2	13.7	15.9	11.5	0															
		14.6		12.1																
<i>P. pollicaris – IV</i>	15.4	14.0	16.2	9.9	13.7	<i>P. pollicaris – IV</i> <0.01														
	16.8	14.3		11.0	14.8	0.3	<i>P. pollicaris – VI</i>													
<i>P. pollicaris – VI</i>	15.1	14.0	16.2	9.6	13.2	12.1	<0.01													
	15.4	16.5	16.5	10.4	13.2	13.2	0.5	<i>P. pollicaris – VII</i>												
<i>P. pollicaris – VII</i>	15.4	15.9	15.9	11.5	13.2	13.2	9.1	<0.01												
	16.5	17.3	17.9	14.0	15.1	15.7	12.4	6.6	<i>P. pollicaris – VIII</i>											
<i>P. pollicaris – VIII</i>	14.6	13.7	16.2	10.4	12.4	11.3	8.2	7.1	<0.01											
	15.1	14.8	17.3	13.2	14.3	12.6	9.9	9.9	3.3	<i>Phyllopezus – Los Altos</i>										
<i>Phyllopezus – Los Altos</i>	16.2	15.9	16.8	12.6	13.2	11.8	12.4	12.6	11.8	<0.01										
		16.2		14.3			12.6	14.3	12.1											

Genetic uncorrected p-distances among clades (species formally described plus unnamed taxa according to Werneck et al. [19]), showing minimum and maximum values.

Appendix S4

Results of the ABGD assessment

16S

Initial Partition with prior maximal distance P=2.15e-02

Distance Simple Dist MinSlope=0.700000

Group[1] n: 2 ;id: *Phyllopezus_lutzae*_CHUNB-50461 *Phyllopezus_lutzae*_CHUNB-50463

Group[2] n: 3 ;id: *Phyllopezus_maranjonensis*_ZFMK-84995 *Phyllopezus_maranjonensis*_ZFMK-84996 *Phyllopezus_maranjonensis*_ZFMK-84997

Group[3] n: 1 ;id: *Phyllopezus_periosus*_MTR-887022

Group[4] n: 7 ;id: *Phyllopezus_pollicaris_VII*_CHUNB-36991 *Phyllopezus_pollicaris_VII*_CHUNB-36992 *Phyllopezus_pollicaris_VII*_CHUNB-37001 *Phyllopezus_pollicaris_VII*_CHUNB-43849

*Phyllopezus_pollicaris_VII*_CHUNB-43850 *Phyllopezus_pollicaris_VII*_CHUNB-43852

*Phyllopezus_pollicaris_VII*_LG-1310

Group[5] n: 2 ;id: *Phyllopezus_pollicaris_I*_JC-1185 *Phyllopezus_pollicaris_I*_JC-1219

Group[6] n: 14 ;id: *Phyllopezus_pollicaris_VIII*_LG-807 *Phyllopezus_pollicaris_VIII*_LG-808

*Phyllopezus_pollicaris_VIII*_LG-1011 *Phyllopezus_pollicaris_VIII*_LG-1342

*Phyllopezus_pollicaris_VIII*_LG-1343 *Phyllopezus_pollicaris_VIII*_MTR-2346

*Phyllopezus_pollicaris_VIII*_MTR-2807 *Phyllopezus_pollicaris_VIII*_MTR-2958

*Phyllopezus_pollicaris_VIII*_MTR-2959 *Phyllopezus_pollicaris_VIII*_MTR-3681

*Phyllopezus_pollicaris_VIII*_MTR-3748 *Phyllopezus_pollicaris_VIII*_MTR-4960

*Phyllopezus_pollicaris_VIII*_MTR-887020 *Phyllopezus_pollicaris_VIII*_MZUSP-92491

Group[7] n: 8 ;id: *Phyllopezus_przewalskii*_LG-1093 *Phyllopezus_przewalskii*_MNCN-5903

*Phyllopezus_przewalskii*_MTD-43490 *Phyllopezus_przewalskii*_MTD-43492

*Phyllopezus_przewalskii*_TG-00105 *Phyllopezus_przewalskii*_MNHNP-11957

*Phyllopezus_przewalskii*_MNHNP-11958 *Phyllopezus_przewalskii*_SMF-100495

Group[8] n: 1 ;id: *Phyllopezus_pollicaris_IV*_LG-1309

Group[9] n: 3 ;id: *Phyllopezus_pollicaris_IV*_LG-1792 *Phyllopezus_pollicaris_IV*_LG-1815

*Phyllopezus_pollicaris_IV*_LG-1845

Group[10] n: 3 ;id: *Phyllopezus_pollicaris_VI*_MTR-3074 *Phyllopezus_pollicaris_VI*_MTR-3263

*Phyllopezus_pollicaris_VI*_MTR-3287

Group[11] n: 2 ;id: *Phyllopezus_sp*_MNHNP-2-40 *Phyllopezus_sp*_MNHNP-2-39

Tree

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:0.000284, Phyllopezus_przewalskii_LG-1093_group 7 :0.000792)
:0.002448, Phyllopezus_przewalskii_MNCN-5903_group 7 :0.002889)
:0.017187, (Phyllopezus_przewalskii_MNHNP-11958_group 7
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:0.018312) :0.004851,((Phyllopezus_pollicaris_I_JC-1219
_group 5 :0.004856,Phyllopezus_pollicaris_I_JC-1185_group 5 :-
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3 :0.083999,(((Phyllopezus_maranjonensis_ZFMK-84997_group 2
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:0.059645) :0.007278) :0.019520)
:0.011039) :0.007160,((Phyllopezus_pollicaris_VI_MTR-3287
_group 10 :0.001053,Phyllopezus_pollicaris_VI_MTR-3074_group 10
:0.001053) :0.002826,Phyllopezus_pollicaris_VI_MTR-3263
_group 10 :0.002437) :0.050835)
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:0.025206) :0.018747)
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:0.001672) :0.009835) :0.001751)
:0.003941,Phyllopezus_pollicaris_VIII_MTR-3681_group 6 :0.012086)
:0.001059);
```

Cytb

Partition with prior maximal distance P=3.59e-02

Distance Simple Dist MinSlope=0.700000

Group[1] n: 3 ;id: Phyllopezus_periosus_CHUNB-61920 Phyllopezus_periosus_CHUNB-61921
Phyllopezus_periosus_FRD-851

Group[2] n: 1 ;id: Phyllopezus_maranjonensis-ZFMK84995

Group[3] n: 3 ;id: Phyllopezus_pollicaris_I_JC-1153 Phyllopezus_pollicaris_I_JC-1182
Phyllopezus_pollicaris_I_JC-1185

Group[4] n: 2 ;id: Phyllopezus_pollicaris_II_PV-1053 Phyllopezus_pollicaris_II_PV-1059

Group[5] n: 1 ;id: Phyllopezus_pollicaris_II_CHUNB-55904

Group[6] n: 1 ;id: Phyllopezus_pollicaris_III_JC-1503

Group[7] n: 1 ;id: Phyllopezus_pollicaris_III_MTR-13452

Group[8] n: 1 ;id: Phyllopezus_pollicaris_IV_LG-1309

Group[9] n: 1 ;id: Phyllopezus_pollicaris_IV_LG-1815

Group[10] n: 1 ;id: Phyllopezus_pollicaris_IV_MTR-6733

Group[11] n: 3 ;id: Phyllopezus_pollicaris_VI_MTR-3074 Phyllopezus_pollicaris_VI_MTR-3263
Phyllopezus_pollicaris_VI_MTR-3287

Group[12] n: 2 ;id: Phyllopezus_pollicaris_VII_CHUNB-36991 Phyllopezus_pollicaris_VII_CHUNB-
37001

Group[13] n: 2 ;id: Phyllopezus_pollicaris_VII_CHUNB-43850 Phyllopezus_pollicaris_VII_CHUNB-

43852

Group[14] n: 1 ;id: Phyllopezus_pollicaris_VII_CHUNB-58320

Group[15] n: 1 ;id: Phyllopezus_pollicaris_VII_LG-1310

Group[16] n: 13 ;id: Phyllopezus_pollicaris_VIII_LG-807 Phyllopezus_pollicaris_VIII_LG-808

Phyllopezus_pollicaris_VIII_LG-1011 Phyllopezus_pollicaris_VIII_LG-1342

Phyllopezus_pollicaris_VIII_LG-1343 Phyllopezus_pollicaris_VIII_MTR-2346

Phyllopezus_pollicaris_VIII_MTR-2807 Phyllopezus_pollicaris_VIII_MTR-2958

Phyllopezus_pollicaris_VIII_MTR-2959 Phyllopezus_pollicaris_VIII_MTR-3681

Phyllopezus_pollicaris_VIII_MTR-3748 Phyllopezus_pollicaris_VIII_MTR-4960

Phyllopezus_pollicaris_VIII_MTR-887020

Group[17] n: 6 ;id: Phyllopezus_przewalskii_TG-00105 Phyllopezus_przewalskii_LG-1093

Phyllopezus_przewalskii_LJAMM-CNP-12072 Phyllopezus_przewalskii_LJAMM-CNP-12083

Phyllopezus_przewalskii_MNHNP-11426 Phyllopezus_przewalskii_MNHNP-11412

Group[18] n: 2 ;id: Phyllopezus_sp_MNHNP-2_39 Phyllopezus_sp_MNHNP-2_40

Tree

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:0.015580,(Phyllopezus_pollicaris_VIII_LG-1343_group 16
:0.002421,Phyllopezus_pollicaris_VIII_LG-1342_group 16 :0.001826)
:0.015853) :0.005850,Phyllopezus_pollicaris_VIII_MTR-3681
_group 16 :0.022826)
:0.001869,Phyllopezus_pollicaris_VIII_MTR-3748_group 16 :0.021920)
:0.000579) :0.007370,((Phyllopezus_pollicaris_VIII_MTR-2959
_group 16 :0.000531,Phyllopezus_pollicaris_VIII_MTR-2958_group 16
:0.000531) :0.005988,(Phyllopezus_pollicaris_VIII_MTR-2807
_group 16 :0.001428,Phyllopezus_pollicaris_VIII_MTR-2346_group 16
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:0.065087,((Phyllopezus_pollicaris_VII_CHUNB-43852_group 13
:0.004761,Phyllopezus_pollicaris_VII_CHUNB-43850_group 13 :0.003732)
:0.038563,(Phyllopezus_pollicaris_VII_CHUNB-37001_group 12
:0.002206,Phyllopezus_pollicaris_VII_CHUNB-36991_group 12 :0.000978)
:0.057551) :0.005182)
:0.006168,Phyllopezus_pollicaris_VII_CHUNB-58320_group 14 :0.062351)
:0.018437,((Phyllopezus_pollicaris_VI_MTR-3287_group 11
:0.000531,Phyllopezus_pollicaris_VI_MTR-3074_group 11 :0.000531)
:0.002027,Phyllopezus_pollicaris_VI_MTR-3263_group 11 :0.002750)
:0.085075) :0.000235)
:0.012226,((Phyllopezus_pollicaris_II_CHUNB-55904_group 5
:0.099794,((Phyllopezus_pollicaris_II_PV-1059_group 4
:0.000531,Phyllopezus_pollicaris_II_PV-1053_group 4 :0.000531)
:0.097655,((Phyllopezus_pollicaris_I_JC-1185_group 3
:0.000742,Phyllopezus_pollicaris_I_JC-1153_group 3 :0.002467)
:0.001495,Phyllopezus_pollicaris_I_JC-1182_group 3 :0.002137)
:0.098043) :0.004011)
:0.002778,(Phyllopezus_maranjonensis-ZFMK84995_group 2
:0.120459,(Phyllopezus_periosus_FRD-851_group 1
:0.000531,(Phyllopezus_periosus_CHUNB-61921_group 1
:0.000531,Phyllopezus_periosus_CHUNB-61920_group 1 :0.000531)
:-0.000000) :0.119987) :0.013589)
:0.005672) :0.001034,(((Phyllopezus_sp_MNHNP-2_40_group
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18 :0.000573,Phyllopezus_sp_MNHNP-2_39_group 18 :0.000573)
:0.029664,((Phyllopezus_przewalskii_MNHNP-11412_group 17
:0.001760,Phyllopezus_przewalskii_MNHNP-11426_group 17 :0.002487)
:0.001402,(((Phyllopezus_przewalskii_LJAMM-CNP-12083_group 17
:0.001714,Phyllopezus_przewalskii_LJAMM-CNP-12072_group 17
:0.001471) :0.000259,Phyllopezus_przewalskii_LG-1093_group
17 :0.001343) :0.000633,Phyllopezus_przewalskii_TG-00105
_group 17 :0.001990) :0.003245) :0.021419)
:0.064860,((Phyllopezus_pollicaris_IV_MTR-6733_group 10
:0.065292,Phyllopezus_pollicaris_IV_LG-1309_group 8 :0.059558)
:0.025754,Phyllopezus_pollicaris_IV_LG-1815_group 9 :0.082294)
:0.006389) :0.003559);
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ND2

Partition with prior maximal distance P=3.59e-02

Distance Simple Dist MinSlope=0.700000

Group[1] n: 1 ;id: Phyllopezus_lutzae_CHUNB-50461

Group[2] n: 1 ;id: Phyllopezus_maranjonensis_ZFMK-84996

Group[3] n: 2 ;id: Phyllopezus_pollicaris_II_PV-1053 Phyllopezus_pollicaris_II_PV-1059

Group[4] n: 1 ;id: Phyllopezus_pollicaris_II_CHUNB-55904

Group[5] n: 2 ;id: Phyllopezus_pollicaris_III_JC-1503 Phyllopezus_pollicaris_III_MTR-887703

Group[6] n: 1 ;id: Phyllopezus_pollicaris_III_MTR-13452

Group[7] n: 1 ;id: Phyllopezus_pollicaris_IV_LG-1309

Group[8] n: 3 ;id: Phyllopezus_pollicaris_IV_LG-1792 Phyllopezus_pollicaris_IV_MTR-6733

Phyllopezus_pollicaris_IV_MTR-6822

Group[9] n: 1 ;id: Phyllopezus_pollicaris_VI_MTR-3074

Group[10] n: 3 ;id: Phyllopezus_pollicaris_VII_CHUNB-36991 Phyllopezus_pollicaris_VII_CHUNB-36992 Phyllopezus_pollicaris_VII_CHUNB-37001

Group[11] n: 1 ;id: Phyllopezus_pollicaris_VII_CHUNB-58320

Group[12] n: 1 ;id: Phyllopezus_pollicaris_VII_CHUNB-43850

Group[13] n: 9 ;id: Phyllopezus_pollicaris_VIII_LG-807 Phyllopezus_pollicaris_VIII_LG-808

Phyllopezus_pollicaris_VIII_LG-1011 Phyllopezus_pollicaris_VIII_MTR-887020

Phyllopezus_pollicaris_VIII_LG-1342 Phyllopezus_pollicaris_VIII_LG-1343

Phyllopezus_pollicaris_VIII_MTR-3681 Phyllopezus_pollicaris_VIII_MZUSP-92491

Phyllopezus_pollicaris_VIII_MTR-2959

Group[14] n: 6 ;id: Phyllopezus_przewalskii_LG-1093 Phyllopezus_przewalskii_TG-00105

Phyllopezus_przewalskii_LJAMM-CNP-12072 Phyllopezus_przewalskii_LJAMM-CNP-12083

Phyllopezus_przewalskii_MNHNP-11412 Phyllopezus_przewalskii_MNHNP-11426

Group[15] n: 2 ;id: Phyllopezus_sp_MNHNP-2_39 Phyllopezus_sp_MNHNP-2_40

Tree

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((Phyllopezus_pollicaris_III_MTR-13452_group 6
:0.110150,(((Phyllopezus_pollicaris_II_PV-1059_group 3
:0.000564,Phyllopezus_pollicaris_II_PV-1053_group 3 :0.000564)
:0.108517,Phyllopezus_pollicaris_II_CHUNB-55904_group 4 :0.122296)
:0.005838,(Phyllopezus_maranjonensis_ZFMK-84996_group 2
:0.166941,Phyllopezus_lutzae_CHUNB-50461_group 1 :0.119366)
:0.012657) :0.005728)
:0.002404,(((Phyllopezus_pollicaris_VIII_MTR-2959_group 13
:0.021406,((Phyllopezus_pollicaris_VIII_MZUSP-92491_group 13
:0.013924,(Phyllopezus_pollicaris_VIII_MTR-3681_group 13
:0.016272,(Phyllopezus_pollicaris_VIII_LG-1343_group 13
:0.001670,Phyllopezus_pollicaris_VIII_LG-1342_group 13 :0.001716)
:0.010252) :0.003126)
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:0.003253, (Phyllopezus_pollicaris_VIII_MTR-887020_group 13
:0.012280, (Phyllopezus_pollicaris_VIII_LG-1011_group 13
:0.000564, (Phyllopezus_pollicaris_VIII_LG-808_group 13
:0.000564, Phyllopezus_pollicaris_VIII_LG-807_group 13 :0.000564)
:-0.000000) :0.011986) :0.007038)
:0.006171) :0.063475, Phyllopezus_pollicaris_VI_MTR-3074
_group 9 :0.079965)
:0.006292, ((Phyllopezus_pollicaris_VII_CHUNB-43850_group 12
:0.069086, ((Phyllopezus_pollicaris_VII_CHUNB-37001_group 10
:0.000564, Phyllopezus_pollicaris_VII_CHUNB-36992_group 10 :0.000564)
:0.000773, Phyllopezus_pollicaris_VII_CHUNB-36991_group 10 :0.002049)
:0.061389) :0.005968, Phyllopezus_pollicaris_VII_CHUNB-58320
_group 11 :0.065865) :0.023282)
:0.018137, (Phyllopezus_pollicaris_III_MTR-887703_group 5
:0.021337, Phyllopezus_pollicaris_III_JC-1503_group 5 :0.013691)
:0.080173) :0.005596, (((Phyllopezus_sp_MNHNP-2_40_group
15 :0.000566, Phyllopezus_sp_MNHNP-2_39_group 15 :0.000566)
:0.020474, ((Phyllopezus_przewalskii_MNHNP-11426_group 14
:0.001945, Phyllopezus_przewalskii_MNHNP-11412_group 14 :0.001441)
:0.001771, (Phyllopezus_przewalskii_LJAMM-CNP-12083_group 14
:0.000564, (Phyllopezus_przewalskii_LJAMM-CNP-12072_group 14
:0.000564, (Phyllopezus_przewalskii_TG-00105_group 14
:0.003449, Phyllopezus_przewalskii_LG-1093_group 14 :-0.002028)
:0.002593) :-0.000000) :0.002781)
:0.017352) :0.079661, (((Phyllopezus_pollicaris_IV_MTR-6822
_group 8 :0.004932, Phyllopezus_pollicaris_IV_LG-1792_group 8
:0.007483) :0.004305, Phyllopezus_pollicaris_IV_MTR-6733
_group 8 :0.005087)
:0.050058, Phyllopezus_pollicaris_IV_LG-1309_group 7 :0.059956)
:0.044443) :0.014650);
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Figure S1

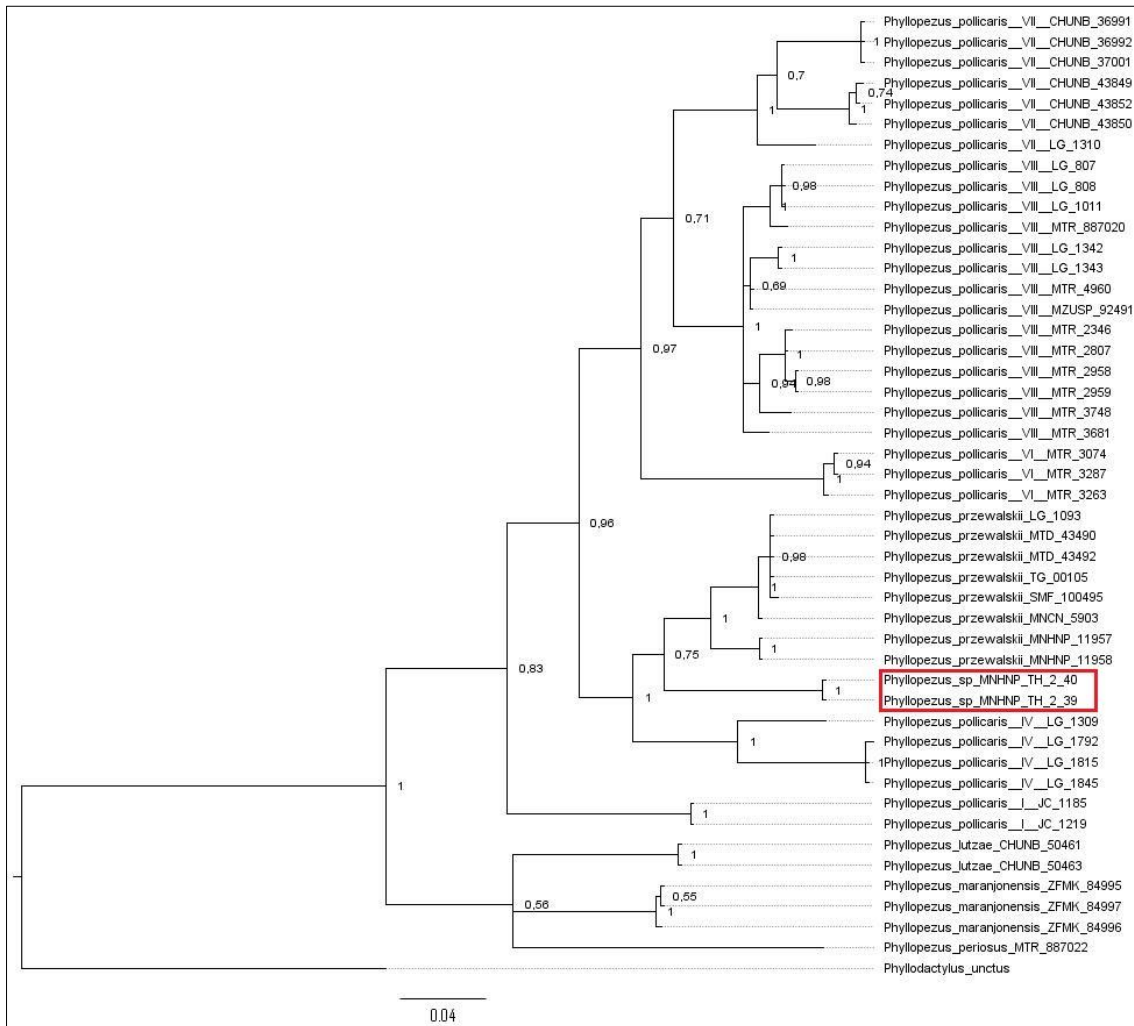
Scales between 4th and 5th digital pads.



Detail of the right foot of *Phyllopezus* (SMF 100494) showing the line of lateral scales between the 4th and 5th digital pads. Scale bar = 5 mm.

Figure S2

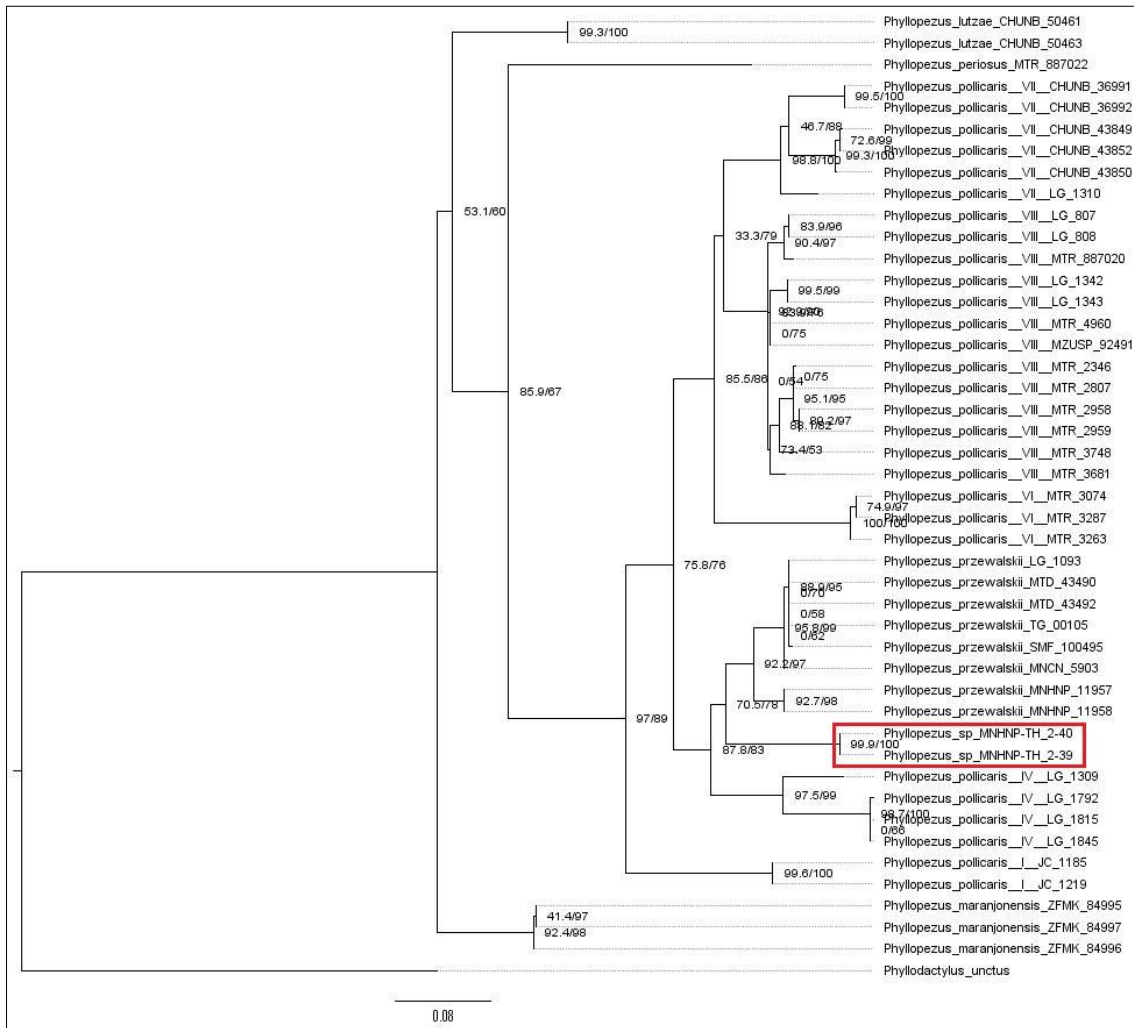
Phylogenetic tree inferred from 16S using BI approach.



Phylogeny of the genus *Phyllopezus* using BI based on the mtDNA gene 16S. Numbers at the right of the nodes denote posterior probability. Bar at the bottom represents substitutions per site. Specimens from “Cordillera de los Altos” highlighted in the red box.

Figure S3

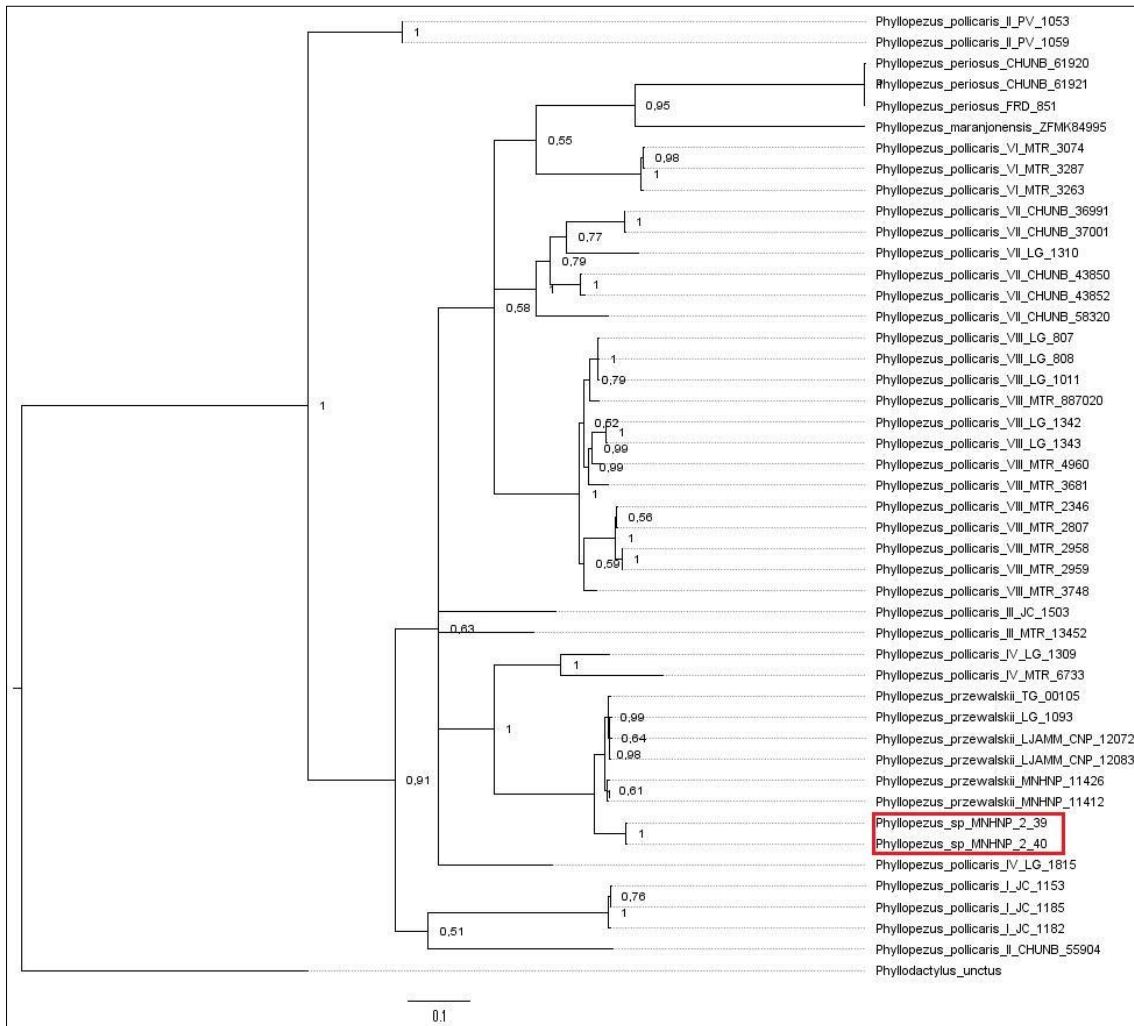
Phylogenetic tree inferred from 16S using ML approach.



Phylogeny of the genus *Phyllopezus* using ML based on the mtDNA gene 16S. Numbers at the right of the nodes denote SH-aLRT/UFBoot (in percentages). Bar at the bottom represents substitutions per site. Specimens from “Cordillera de los Altos” highlighted in the red box.

Figure S4

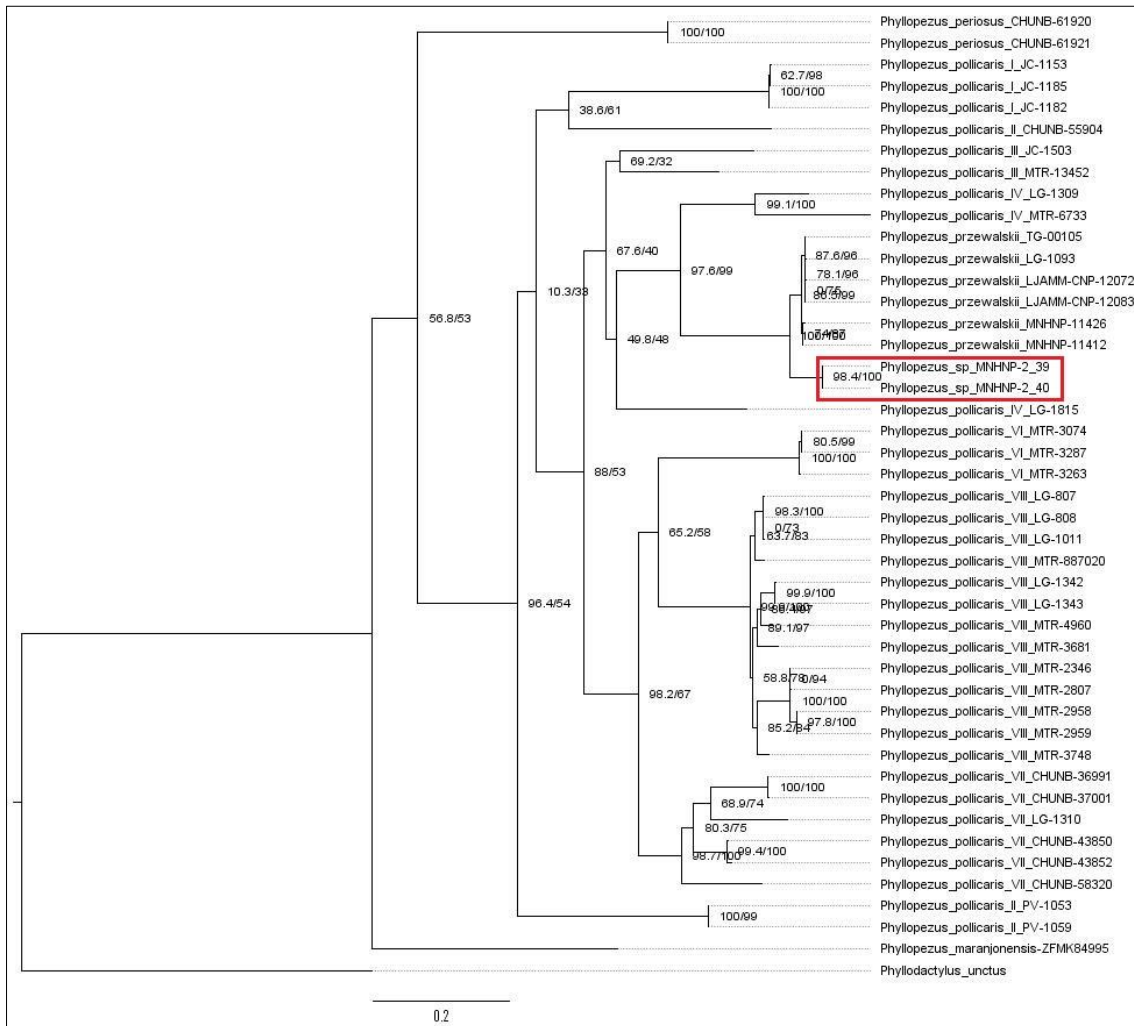
Phylogenetic tree inferred from Cytb using BI approach.



Phylogeny of the genus *Phyllopezus* using BI based on the mtDNA gene Cytb. Numbers at the right of the nodes denote posterior probability. Bar at the bottom represents substitutions per site. Specimens from “Cordillera de los Altos” highlighted in the red box.

Figure S5

Phylogenetic tree inferred from Cytb using ML approach.

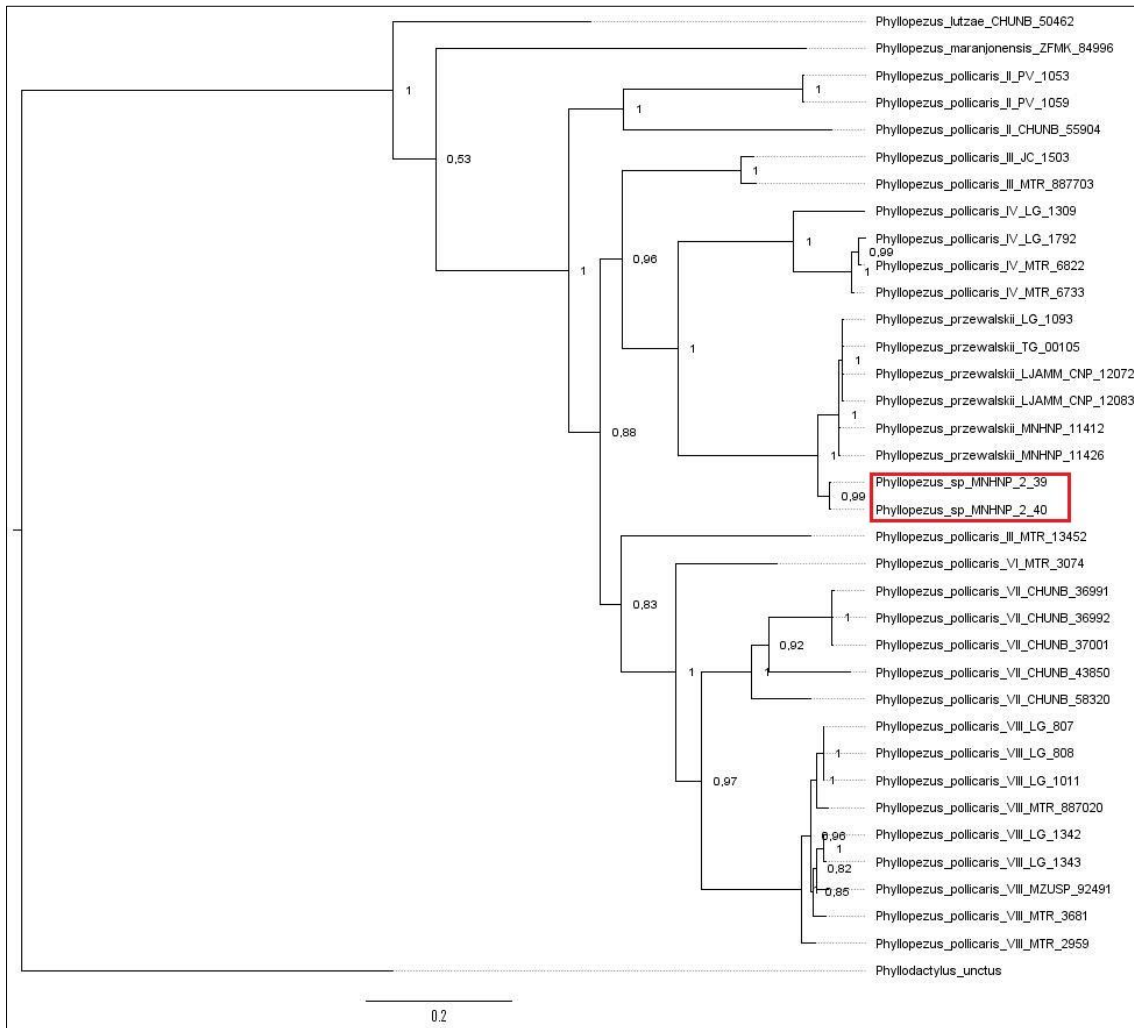


Phylogeny of the genus *Phyllopezus* using ML based on the mtDNA gene Cytb.

Numbers at the right of the nodes denote SH-aLRT/UFBoot (in percentages). Bar at the bottom represents substitutions per site. Specimens from “Cordillera de los Altos” highlighted in the red box.

Figure S6

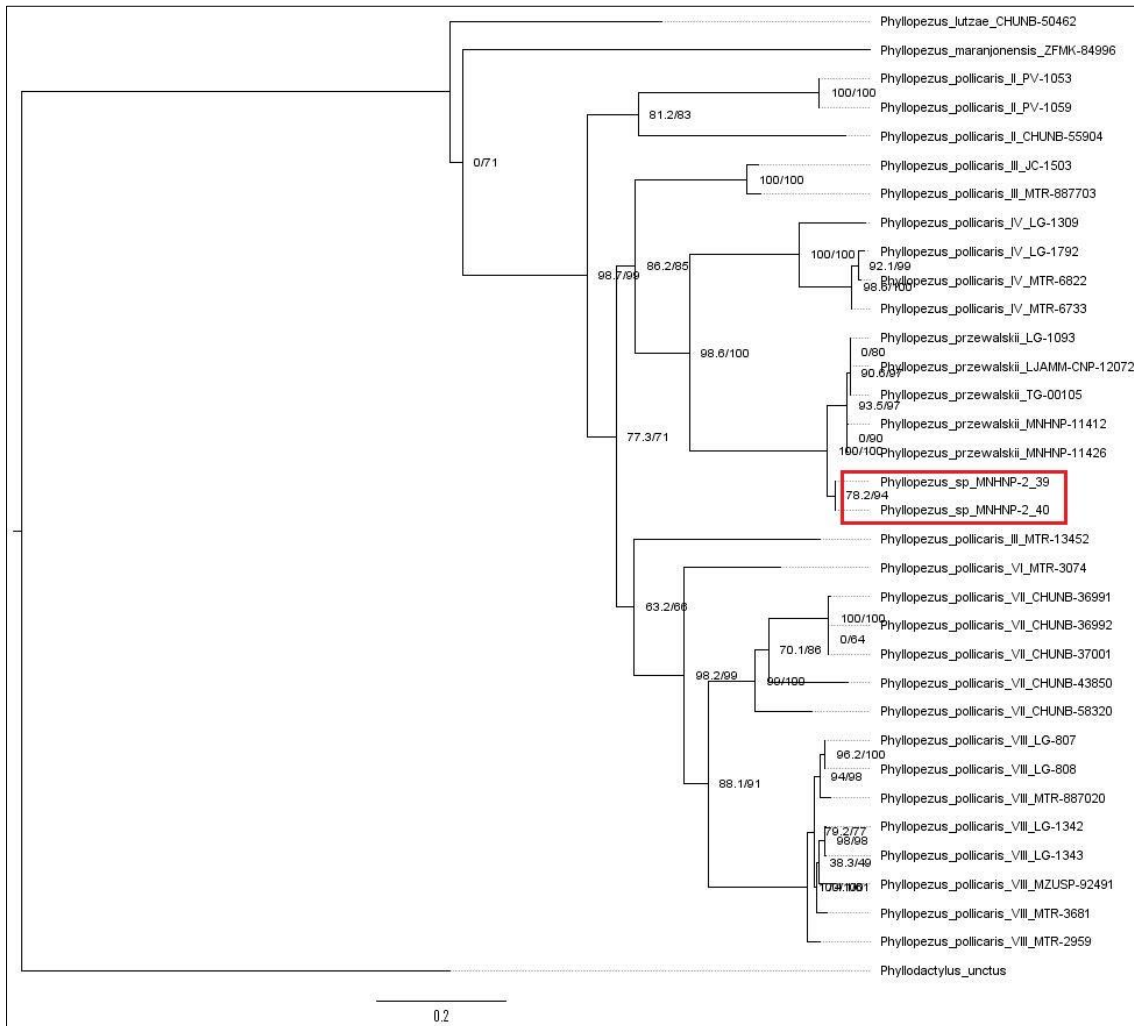
Phylogenetic tree inferred from ND2 using BI approach.



Phylogeny of the genus *Phyllopezus* using BI based on the mtDNA gene ND2. Numbers at the right of the nodes denote posterior probability. Bar at the bottom represents substitutions per site. Specimens from “Cordillera de los Altos” highlighted in the red box.

Figure S7

Phylogenetic tree inferred from ND2 using ML approach.

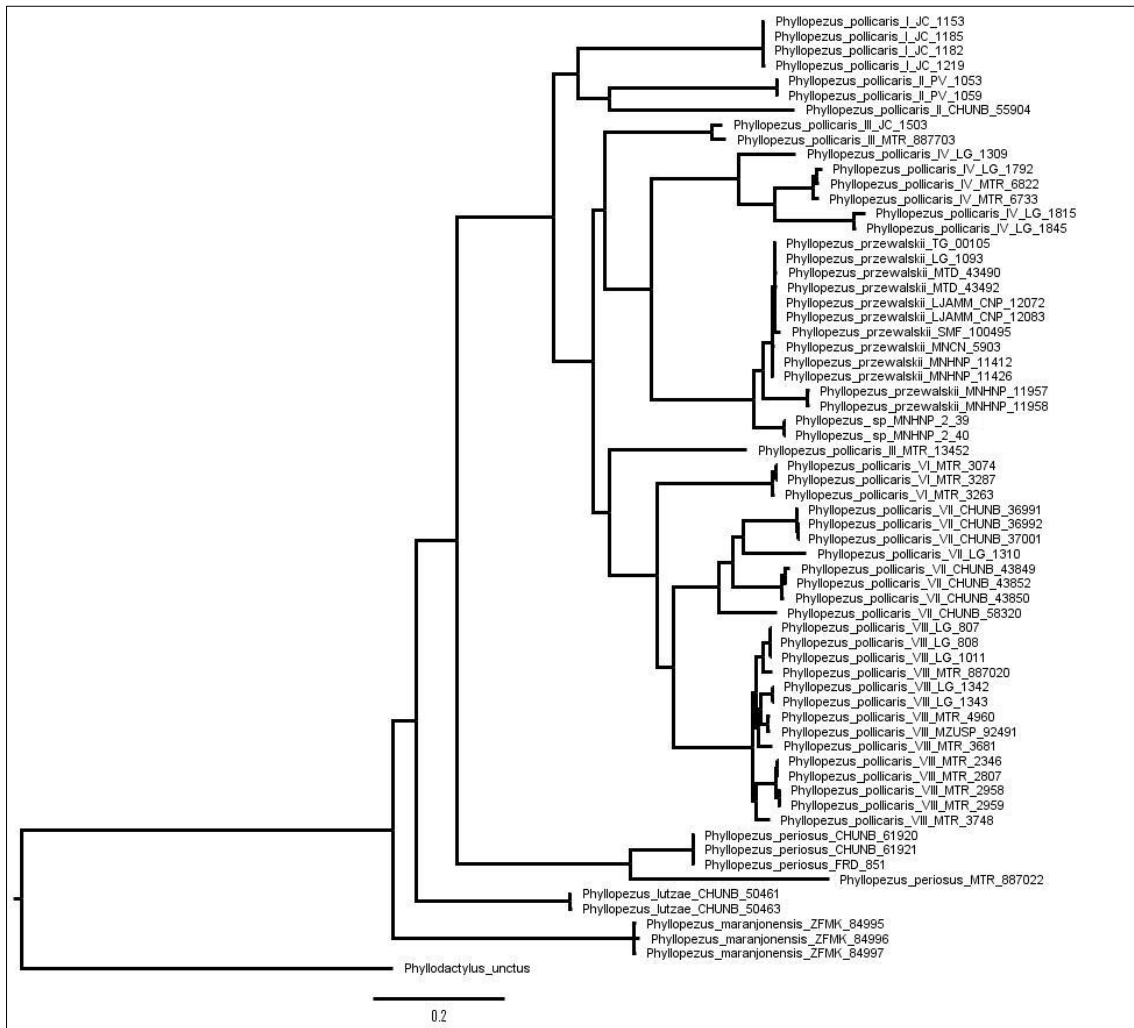


Phylogeny of the genus *Phyllopezus* using ML based on the mtDNA gene ND2.

Numbers at the right of the nodes denote SH-aLRT/UFBoot (in percentages). Bar at the bottom represents substitutions per site. Specimens from “Cordillera de los Altos” highlighted in the red box.

Figure S8

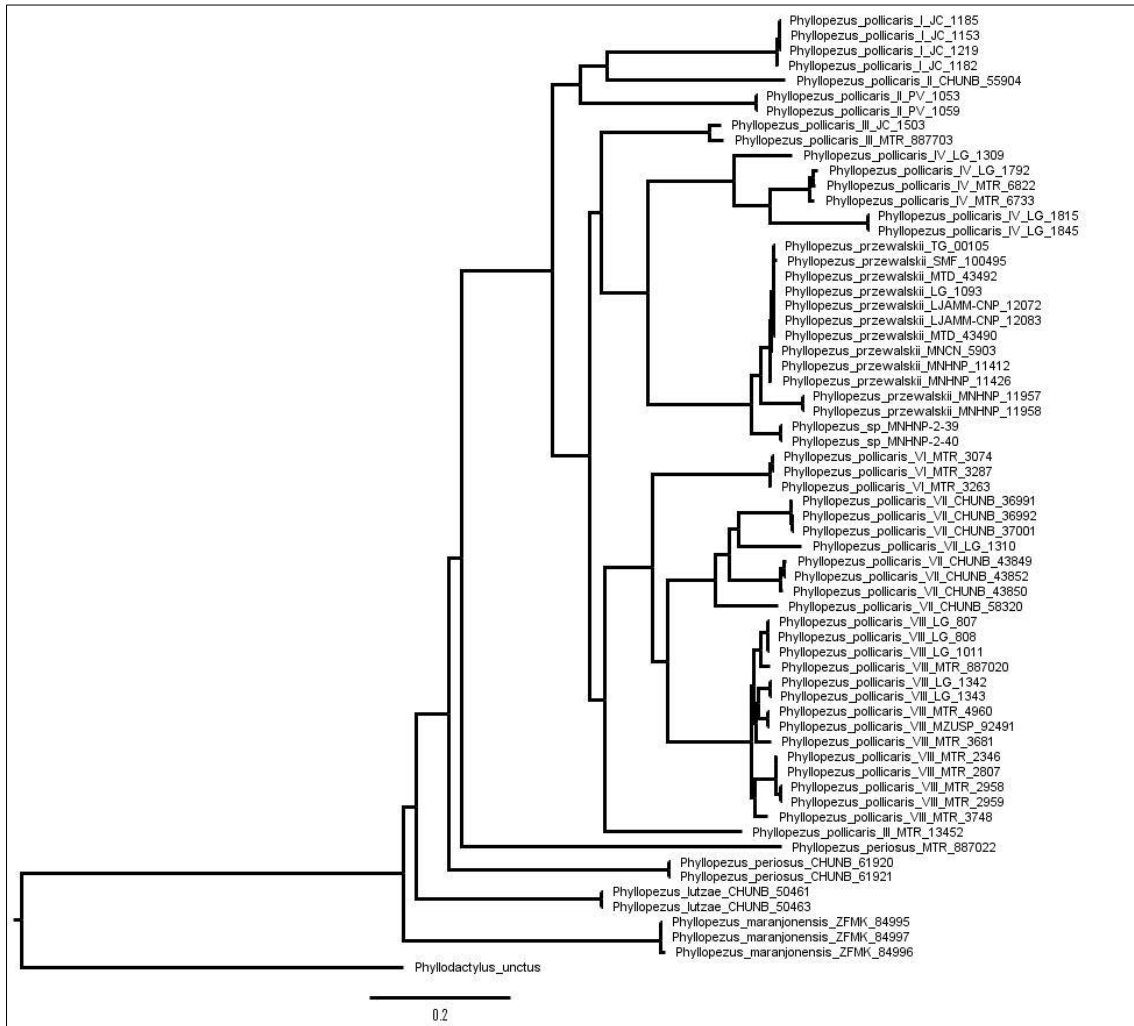
Phylogenetic tree inferred from concatenated genes, using BI approach.



Phylogeny of the genus *Phyllopezus* using BI based on concatenated mtDNA genes 16S, Cytb, and ND2. Bar at the bottom represents substitutions per site.

Figure S9

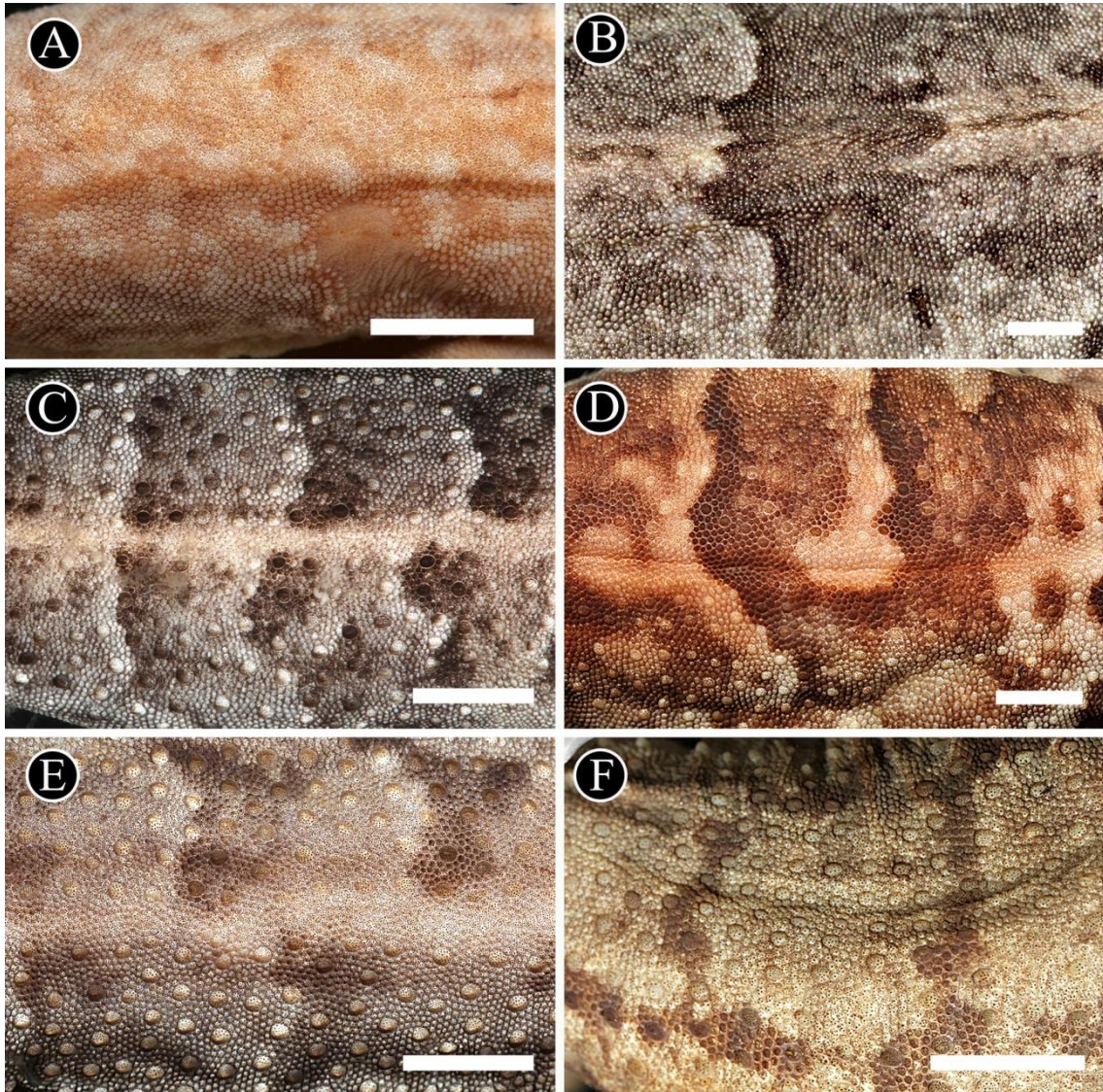
Phylogenetic tree inferred from concatenated genes, using ML approach.



Phylogeny of the genus *Phyllopezus* using ML based on concatenated mtDNA genes 16S, Cytb, and ND2. Bar at the bottom represents substitutions per site.

Figure S10

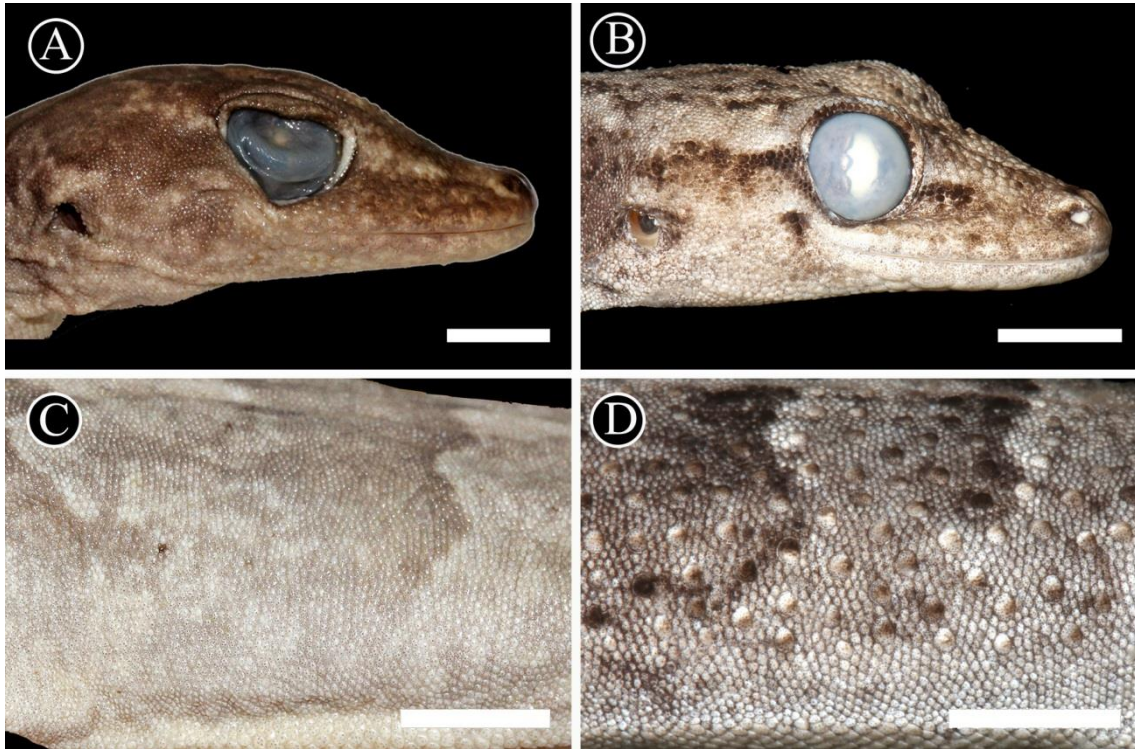
Dorsal scalation.



Dorsal scalation pattern of the named species of *Phyllopezus*: A- *P. lutzae* (MCZ 46190), B- *P. maranjonensis* (ZFMK 84995), C- *P. heuteri* (SMF 100494), D- *P. periosus* (MCZ 172930), E- *P. przewalskii* (SMF 100496), F- *P. pollicaris* (ZSM 165/0/1). Heads oriented to the right. Scale bars = 5 mm.

Figure S11

Head and lateral body scalation.

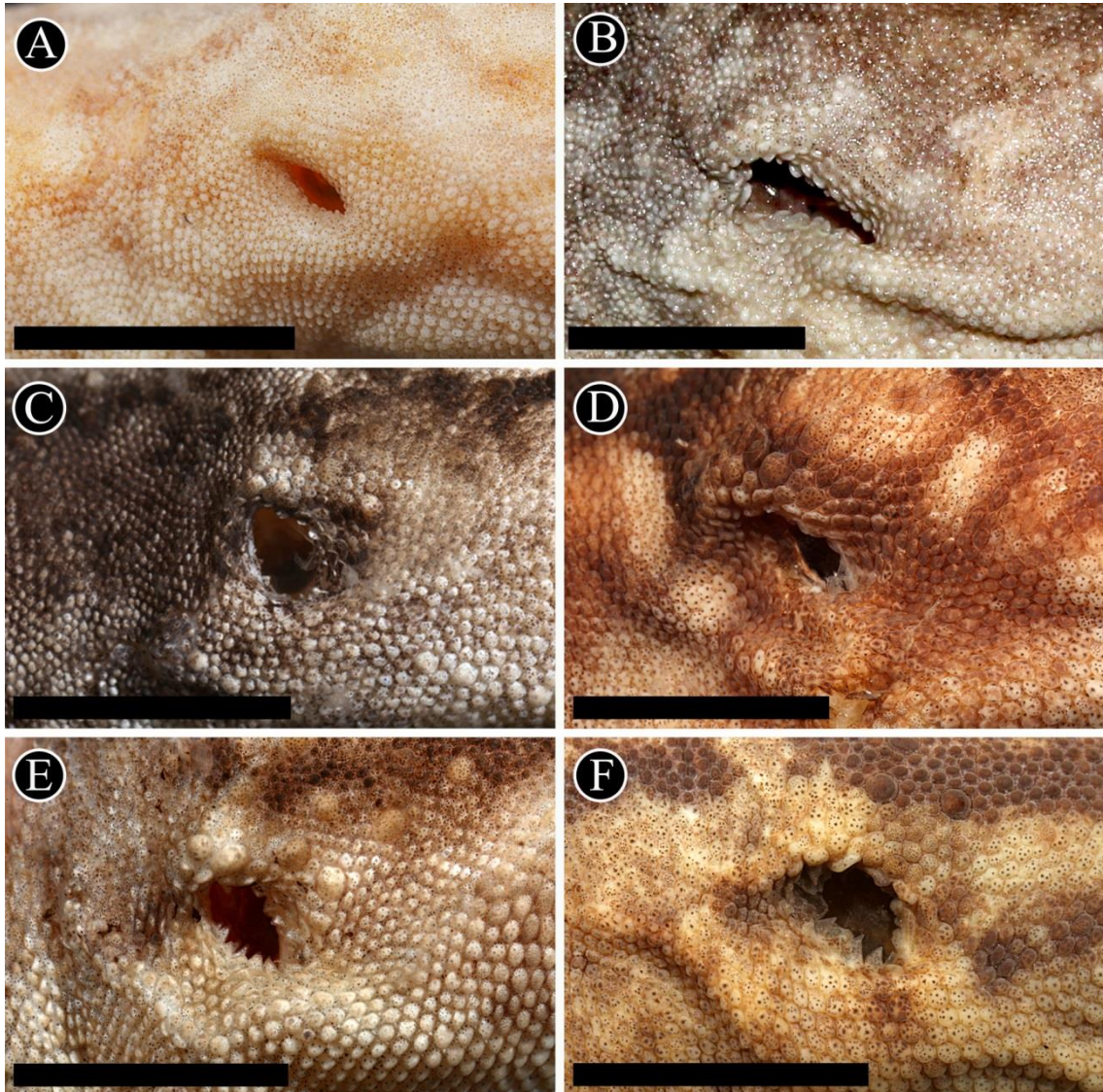


Differences in head scalation (above) and lateral body scalation (below) between *Phyllopezus maranjonensis* (A, C; ZMFK 84996) and *P. heuteri* (B, D; SMF 100494).

In C and D heads oriented to the left. Scale bars = 5 mm.

Figure S12

Ear opening.



Scalation pattern around the ear opening of: A- *P. lutzae* (MCZ 46190), B- *P. maranjonensis* (ZFMK 84997), C- *P. heuteri* (SMF 100494), D- *P. periosus* (MCZ 172930), E- *P. przewalskii* (SMF 100496), and F- *P. pollicaris* (ZSM 165/0/1). Heads oriented to the right. Scale bars = 5 mm.

Figure S13

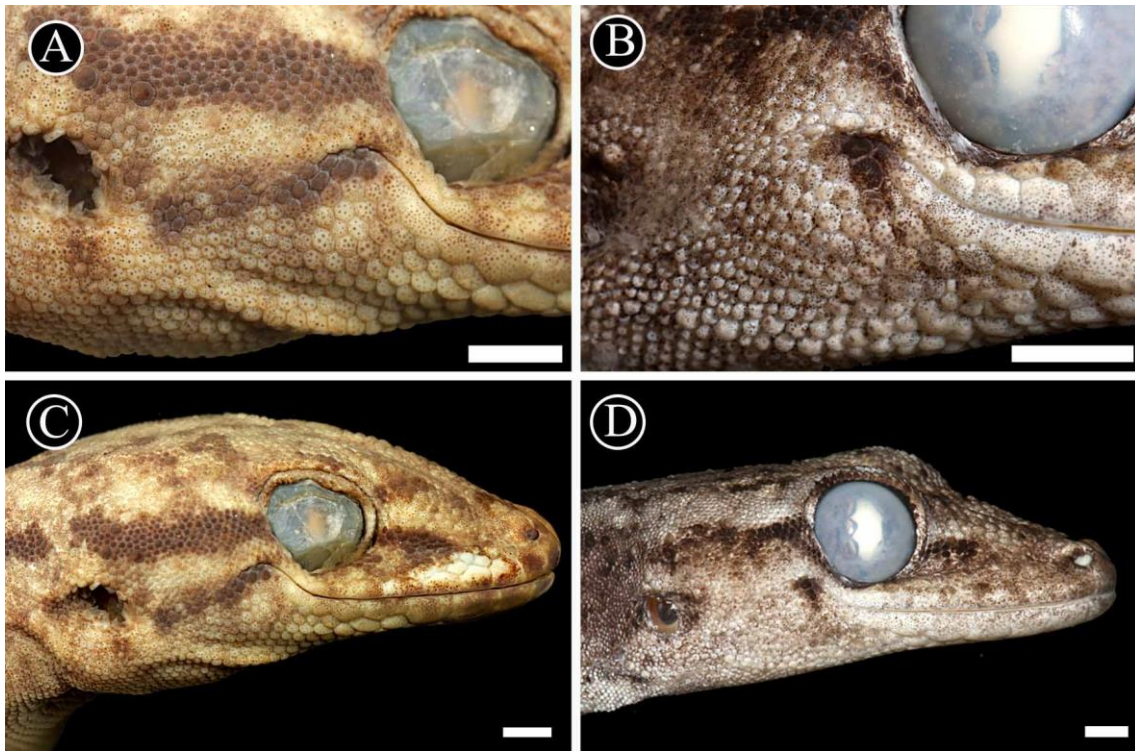
Mental scalation.



Detailed view of the chin region of: A- *P. lutzae* (MCZ 46190), B- *P. maranjonensis* (ZFMK 84997), C- *P. heuteri* (SMF 100494), D- *P. periosus* (MCZ 172929), E- *P. przewalskii* (SMF 100496), and F- *P. pollicaris* (ZSM 165/0/1). Scale bars = 5 mm.

Figure S14

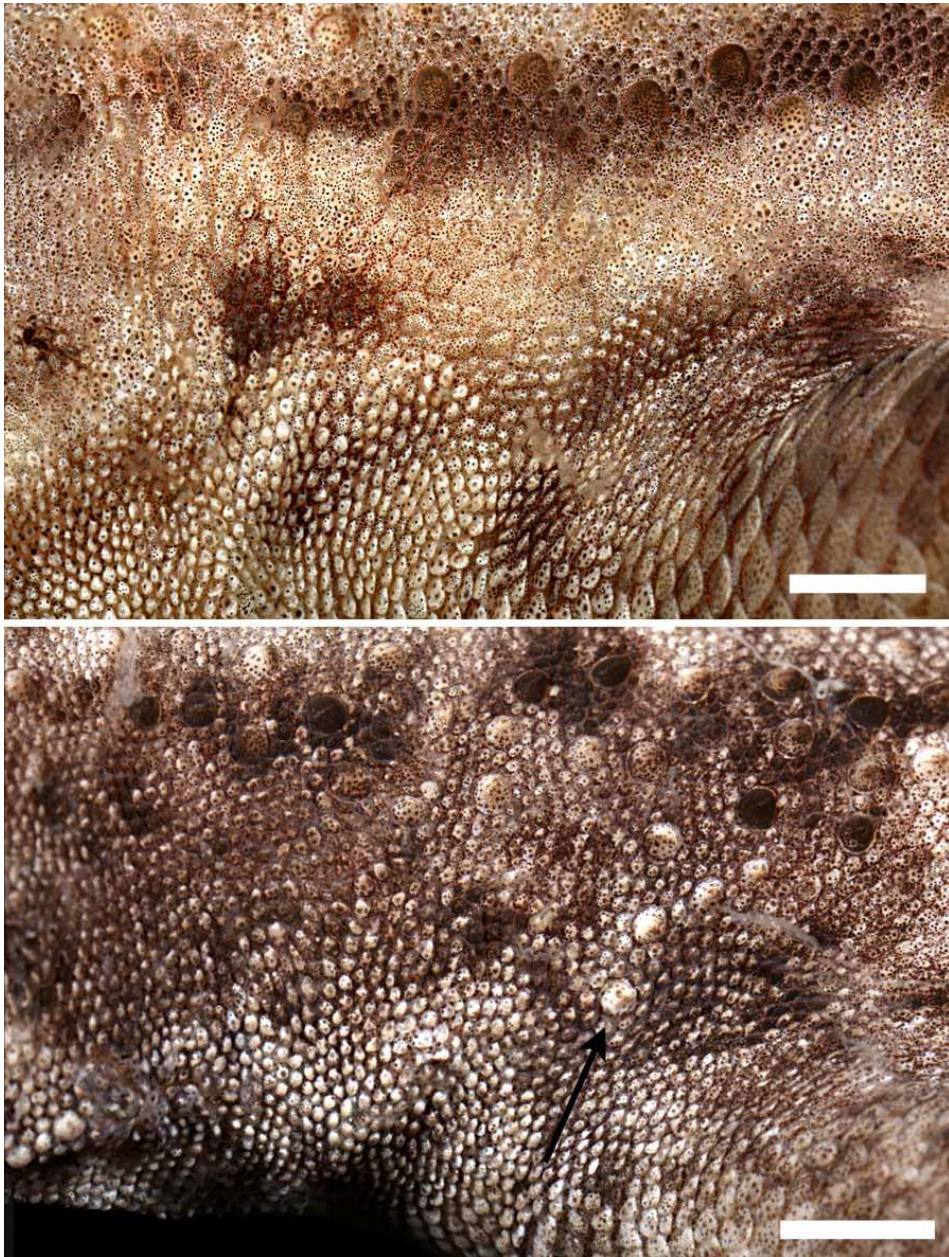
Lateral scalation of the head.



Differences in head scalation between *P. pollicaris* (A, C; ZSM 165/0/1) and *P. heuteri* (B, D; SMF 100494), showing homogeneous scalation in the mouth commissure of *P. pollicaris* (A) compared to the presence of some bigger scales in *P. heuteri*, and fewer tubercles between eye and ear opening in *P. pollicaris* (C) compared with *P. heuteri* (D). Scale bars = 2 mm.

Figure S15

Prescapular scalation.



Differences in prescapular scalation of *P. przewalskii* (above, SMF 100496) and *P. heuteri* (below, SMF 100494). Note the tubercles intermingled with smaller scales in *P. przewalskii* compared with the homogeneous scalation in *P. heuteri*. Head to the left. Scale bars = 2 mm.