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Herpetofauna from a high altitude remnant in the Atlantic Forest

HERPETOFAUNA IN A HIGH ALTITUDE ATLANTIC FOREST REMNANT FROM SOUTHEASTERN BRAZIL

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SUPPLEMENTARY MATERIAL

Details of method

For the time-limited visual encounter survey, the sampling corresponded to one hour of transect during the morning (9:00 to 10:00 am), afternoon (4:00 to 5:00 pm) and night (8:00 to 9:00 pm). The effort of the time-limited visual encounters survey was 10 hours/researcher/period (60 h/period), 180 h in each 10-day expedition, summarizing a total of 540 h. The three-day winter expedition added 12 hours of effort, summing up 192 h in the dry season and 360 h in the rainy season, for a total of 552 h. We also included in the VES effort specific searches in amphibian breeding sites along sampling units (*e.g.*, marshes, streams, ponds).

The pitfall traps with drift fences (PF) stations consisted of two sets of four 100 liters buckets 5 m distant from each other connected by a 1 m high plastic canvas as drift fences with Y-shaped guidance barriers (*i.e.*, eight buckets at each pitfall station; totalizing 32 buckets): PF1 (22º20'32" S and 42º37'19 "W), PF2 (22º20'33" S and 42º36'53 "W), PF3 (22º20'29" S and 42º36'51" W) and PF4 (22º20'16 "S and 42º36'49" W). The buckets were left open for 10 consecutive days throughout each field expedition, and we examined them twice a day. Due to the very low temperatures and freezing of the leaves of some plants, we did not open pitfall traps during the July expedition. Our study resulted in a combined sampling effort of 320 bucket days (32 buckets open for 10 days) in each expedition, 320 bucket/days in the dry season and 640 bucket/days in the rainy season, totaling an effort of 960 bucket/days at the end of the study. Additional specimens were also collected from occasional encounters (OE)

Appendix S1. Voucher specimens housed at the Coleção Científica de Serpentes Instituto Vital Brazil (IVB), Coleção Científica de Sauria Instituto Vital Brazil (IVBL) and Coleção Científica de Amphibia Instituto Vital Brazil (IVBA).

AMPHIBIANS: Anura: Brachycephalidae: *Ischnocnema* sp. (gr. *guentheri*) (IVBA 34-36, 44-49, 52-53, 61, 63, 68, 70-73, 90, 92, 95, 96, 98, 99, 105, 107, 116-118, 120-122, 127, 133-136, 138-140, 143-147, 150, 152-154, 161-170, 179, 180, 182, 187-190, 192-194, 197, 199, 201, 206-210, 212-218, 235, 242, 250, 253, 283, 287-289, 302, 304-306, 313, 326, 334-336); *Ischnocnema octavioi* (IVBA 325); *Ischnocnema parva* (IVBA 33, 111, 156); Bufonidae: *Rhinella icterica* (IVBA 40, 119, 162, 175, 183-186, 191, 202-205, 219, 220, 268-274, 314, 317-319); *Rhinella ornata* (MNRJ 64, 74-84, 132, 171-174, 275-281, 320, 324); Cycloramphidae: *Cycloramphus eleutherodactylus* (IVBA 97); Hemiphractidae: *Fritziana fissilis* (IVBA 126); Hylidae: *Bokermannohyla circumdata* (IVBA 66); *Boana faber* (IVBA 67, 110, 296, 303); *Boana polytaenia* (IVBA 41, 42, 55-58, 103, 104, 316, 332); *Dendropsophus minutus* (IVBA 331); *Ololygon albicans* (IVBA 37, 88); *Ololygon* cf. (catharinae complex) (IVBA 149) *Ololygon flavoguttatus* (IVBA 38, 39); *Ololygon hiemalis* (IVBA 85, 100, 109, 125);Hylodidae: *Hylodes pipilans* (IVBA 158, 159, 176, 177, 196, 200, 221-223, 265, 267, 297, 310-312); *Megaelosia goeldii* (IVBA 195, 290); Leptodactylidae: *Leptodactylus latrans* (IVBA 338); Microhylidae: *Myersiella microps* (IVBA 93, 124, 315, 327); Odontophrynidae: *Proceratophrys boiei* (IVBA 123, 141, 211, 266); *Proceratophrys* cf. *melanopogon* (IVBA 32, 51, 54, 59, 60, 62, 65, 69, 86, 87, 89, 91, 94, 106, 108, 112-115, 128-131, 137, 151, 155, 157, 160, 181, 198, 224-226, 236-241, 243-252, 254-264, 282, 284-286, 307-309, 323, 329, 337);

REPTILES: Squamata: Gymnophtalmidae: *Heterodactylus imbriccatus* (IVBL 149, 150); Leiosauridae; *Enyalius perditus* (IVBL 151-159, 162, 163); *Urostrophus vautieri* (IVBL 164); Colubridae: *Chironius bicarinatus* (IVB 3576); Dipsadidae: *Atractus zebrinus* (IVB 3574, 3716); *Dibernardia affinis* (IVB 3783); *Dibernardia persimilis* (IVB 3787); *Dipsas alternans* (IVB 3529, 3701, 3715); *Dipsas neuwiedi* (IVB 152, 154, 578, 3767, 3784); *Dryophylax nattereri* (IVB 389-391, 589, 602, 607, 627, 640, 652, 1023, 3613); *Echinanthera cephalostriata* (IVB 3623); *Elapomorphus quinquelineatus* (IVB 1145, 1998, 3575); *Oxyrhopus clathratus* (IVB 3326, 3786, 4015); *Tomodon dorsatus* (IVB 3846); Viperidae: *Bothrops fonsecai* (IVB 3780, 3785); *Bothrops jararaca* (IVB 3556, 3558, 3782, 3789).

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Appendix S2. Biometric data with average, minimum and maximum measurements of amphibian species sampled in São Lourenço, Nova Friburgo, RJ, Brazil. N = number of specimens.

Species	N	Body width (mm)	Arm length (mm)	Forearm length (mm)	Snout-vent lenght (mm)
		Average (Minimum – Maximum)			
AMPHIBIA					
Família Brachycephalidae					
Ischocnema sp. (gr. *guentheri*)	38	7,09 (4,15–14,34)	4,71 (2–9,19)	5,30 (2,55–9,60)	21,48 (10,46–44,96)
Ischnocnema octavioi	1	5,19	x	4,42	18,04
Ischonecma parva	1	4.55	2.62	2.56	12.74
Família Bufonidae					
Rhinella ornata	26	25 (13–30)	16,24 (8,81–17,82)	18,76 (10,13–25,6)	76 (42–100)
Rhinella icterica	30	29 (17,04–58)	14,6 (11,82–31,10)	32,49 (16,29–35,6)	81 (63-147)
Família Cycloramphidae					
Cycloramphus eleutherodactylus	1	7.13	4.54	4.77	7.13
Família Hemiphractidae					
Fritziana fissilis	1	8.5	4	5.4	25.8
Família Hylidae					
Boana faber	4	19,85 (13,04–26,54)	13,56 (8,03–18,36)	12,38 (8,47–16,61)	75,59 (50,16–105)
Boana polytaenia	8	6,82 (5,43–13,32)	6,65 (4,47–7,72)	5,31 (5,56–7,15)	37,12 (28,33–38,31)
Bokermannohyla circumdata	1	13.32	9.91	10.72	54.63

Dendropsophus minutus	1	6.3	4.1	4.7	22.47
Ololygon albicans	2	9,97 (7,02–12,92)	7,81 (5,84–8,53)	7,24 (5,29–9,20)	34,93 (25,94–43,93)
Ololygon cf. (*catharinae* complex)	3	7,65 (5,97–9,65)	7,32 (4,81–10,17)	6,88 (5,53–9,24)	31,77 (24,77–43,60)
Ololygon hiemalis	3	5,74 (5,47–6,19)	4,91 (4,06–5,39)	5,34 (5,16–5,52)	25,48 (24,32–26,79)
Ololygon flavoguttata	3	8,95 (7,21–10,53)	6,70 (5,92–7,22)	6,67 (5,65–7,53)	32,40 (25,84–36,59)
Família Hylodidae					
Hylodes pipilans	2	7,58 (6,22–8,95)	5,46 (4,93–5,99)	5,60 (4,84–6,36)	24,39 (23,28–25,51)
Megaelosia goeldii	2	17,85 (12,41–23,30)	9,83 (9,57–10,09)	9,20 (8,26–10,23)	51,58 (42,90–60,27)
Família Leptodactylidae					
Leptodactylus latrans	1	13.21	8.73	7.38	43.47
Família Microhylidae					
Myersiella microps	4	11,21 (7,02–22,83)	3,87 (1,81–6,70)	4,20 (2,62–7,44)	23,58 (15,44–41,78)
Família Odontophrynidae					
Proceratophrys boiei	4	26,24 (20,67–37,36)	14,58 (13,39–17,57)	14,73 (10,65–17,96)	55,70 (43,59–66,41)
Proceratophrys cf. *melanopogon*	12	24,76 (14,23–29,21)	10,21 (7,48–11,88)	9,80 (7–11,65)	44,86 (29,86–53,20)

Appendix S3. Biometric data with average, minimum and maximum measurements of reptile species sampled in São Lourenço, Nova Friburgo, RJ, Brazil. N = number of specimens; * = tail autotomy.

Species	**N**	**Head width (mm)**	**Head length (mm)**	**Tail length (mm)**	**Snout-vent length (mm)**
		Average (Minimum – Maximum)			

SQUAMATA (lizards)					
Família Gymnophthalmoidea					
Heterodactylus imbricatus	2	7,79 (7,06–8,52)	13,07 (13,56–14,60)	77,50 (55*–100)	106 (85–127)
Família Leiosauridae					
Enyalius perditus	11	10,90 (5,90–14,88)	20,28 (10,06–23,59)	64,44 (30,95 –103)	105,59 (14,10–190)
Urostrophus vautieri	1	15.86	26.04	99.7	133
SQUAMATA (snakes)					
Colubridae					
Chironius bicarinatus	2	8,92 (5,48–12,37)	21,53 (14,67–28,40)	300 (150–450)	540 (260–820)
Dipsadidae					
Atractus zebrinus	2	-	9,88 (8,96–10,80)	31,08 (22,16–40)	-
Dibernardia affinis	1	6.20	11.22	70	285
Dibernardia persimilis	1	6.57	14.60	90	260
Dipsas alternans	3	10,11 (6,36–14,94)	16,17 (11,31–21,51)	177,33 (90–275)	496,66 (290–695)
Dipsas neuwiedi	3	-	24,75 (16,25–40)	383,33 (100–190)	538,33 (470–630)
Dryophylax cf. *nattereri*	1	11.79	17.48	128	405
Echinanthera cephalostriata	1	5.41	11.24	68	156
Elapomorphus quinquelineatus	1	8.23	13.21	-	-
Oxyrhopus clathratus	2	11,20 (5,58–16,83)	20,86 (12,13–29,60)	142,50 (75–210)	557 (279–835)
Tomodon dorsatus	1	10	20.32	130	450

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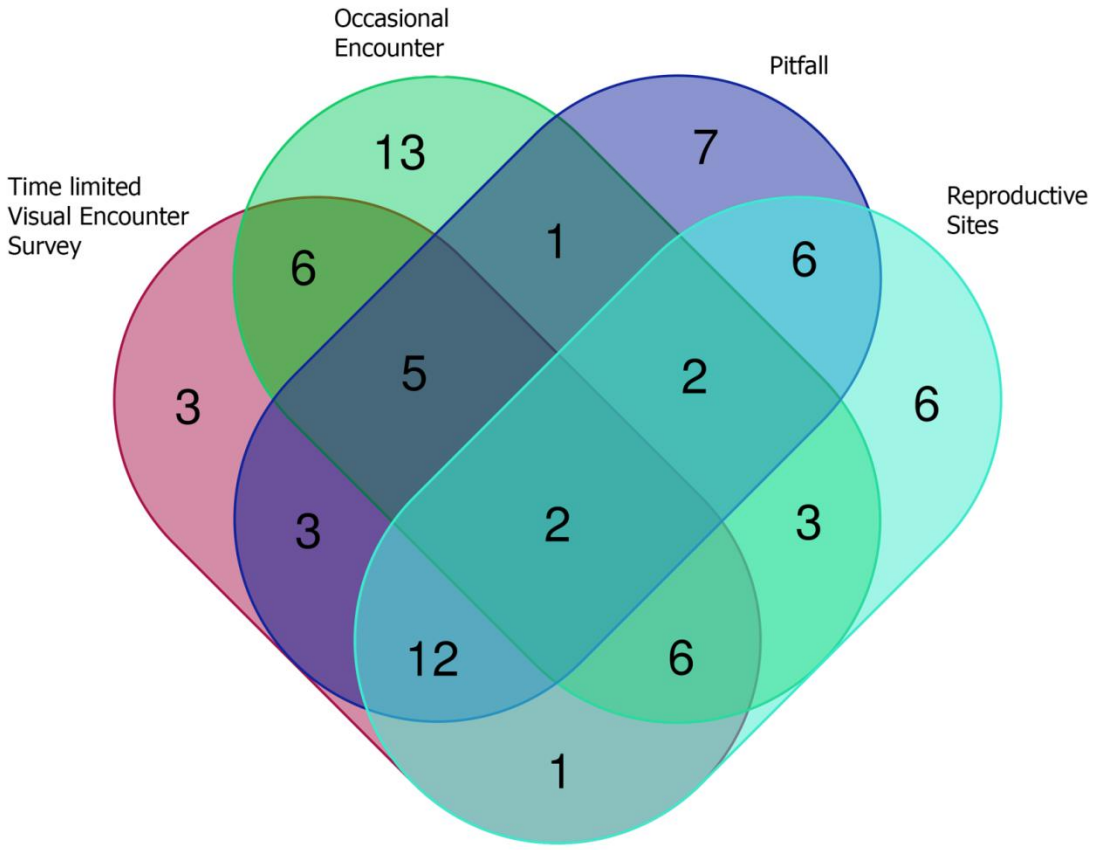

Appendix S4. The four sampling methods efficiently recorded amphibians and reptiles in the study area of São Lourenço, Nova Friburgo, state of Rio de Janeiro, Brazil. In the diagram, we enumerated the species recorded using each sampling method. Symmetrical Venn Diagram drawn on https://bioinformatics.psb.ugent.be/webtools/Venn/