

Supplementary Material

Wildlife–Human Survey: a rapid appraisal tool to assess mammal diversity and human–wildlife interactions in rural settings

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Supplementary Material 1 - Complete protocol of the Wildlife-Human Survey

Part 1 of the Wildlife-Human Survey (front page) - to investigate the occurrence and distribution of mammal species in the Paraíba Valley.

P.	Genus/specie	Brazilian common name	Ever identified?	How?	P.	Genus/specie	Brazilian common names	Ever saw/ identified?	How?
1	<i>Didelphis aurita</i>	Gambá	Y()N()	Visual() Trace() Neighbour()	19	<i>Conepatus chinga</i>	Zurrilho	Y()N()	Visual() Trace() Neighbour()
2	<i>Hydrochoerus hydrochaeris</i>	Capivara	Y()N()	Visual() Trace() Neighbour()	20	<i>Nasua nasua</i>	Quati	Y()N()	Visual() Trace() Neighbour()
3	<i>Dasyprocta sp.</i>	Cutia	Y()N()	Visual() Trace() Neighbour()	21	<i>Procyon cancrivorus</i>	Mão pelada	Y()N()	Visual() Trace() Neighbour()
4	<i>Cuniculus paca</i>	Paca	Y()N()	Visual() Trace() Neighbour()	22	<i>Callithrix sp.</i>	Mico/sagui	Y()N()	Visual() Trace() Neighbour()
A	Peccaries		Y()N()	Visual() Trace() Neighbour()	D	Monkey		Y()N()	Visual() Trace() Neighbour()
5	<i>Pecari tajacu</i>	Cateto	Y()N()	Visual() Trace() Neighbour()	23	<i>Sapajus nigritus</i>	Macaco prego	Y()N()	Visual() Trace() Neighbour()
6	<i>Tayassu pecari</i>	Queixada	Y()N()	Visual() Trace() Neighbour()	24	<i>Callicebus nigrifrons</i>	Sauá	Y()N()	Visual() Trace() Neighbour()
7	<i>Mazama sp.</i>	Veado	Y()N()	Visual() Trace() Neighbour()	25	<i>Alouatta guariba</i>	Bugio	Y()N()	Visual() Trace() Neighbour()
8	<i>Tapirus terrestris</i>	Anta	Y()N()	Visual() Trace() Neighbour()	26	Brachyteles	Mono carvoeiro	Y()N()	Visual() Trace() Neighbour()
B	Big wild cats		Y()N()	Visual() Trace() Neighbour()	27	<i>Coendou sp.</i>	Porco-espinho/ourico	Y()N()	Visual() Trace() Neighbour()
9	<i>Panthera onca</i>	Onça -pintada	Y()N()	Visual() Trace() Neighbour()	28	<i>Bradypus variegatus</i>	Preguiça	Y()N()	Visual() Trace() Neighbour()
10	<i>Puma concolor</i>	Suçarana	Y()N()	Visual() Trace() Neighbour()	29	<i>Myrmecophaga tridactyla</i>	Tamanduá-bandeira	Y()N()	Visual() Trace() Neighbour()
C	Small wild cats		Y()N()	Visual() Trace() Neighbour()	30	<i>Tamandua tetradactyla</i>	Tamanduá-mirim	Y()N()	Visual() Trace() Neighbour()
11	<i>Leopardus pardalis</i>	Gato-do-mato, jaguatirica	Y()N()	Visual() Trace() Neighbour()	31	<i>Sylvilagus brasiliensis</i>	Lebre	Y()N()	Visual() Trace() Neighbour()
12	<i>Leopardus sp. (L. wiedii or L. guttulus)</i>	Gato Maracajá	Y()N()	Visual() Trace() Neighbour()	E	Armadillo		Y()N()	Visual() Trace() Neighbour()
13	<i>Herpailurus yagouaroundi</i>	Gato Mourisco	Y()N()	Visual() Trace() Neighbour()	32	<i>Dasypus sp.</i>	Tatu-galinha	Y()N()	Visual() Trace() Neighbour()
14	<i>Chrysocyon brachyurus</i>	Lobo-guará	Y()N()	Visual() Trace() Neighbour()	33	<i>Euphractus sexcinctus</i>	Tatupeba	Y()N()	Visual() Trace() Neighbour()
15	<i>Cerdocyon thous</i>	Cachorro do mato	Y()N()	Visual() Trace() Neighbour()	34	<i>Cabassous sp.</i>	Tatu-de-rabo-mole	Y()N()	Visual() Trace() Neighbour()
16	<i>Lontra longicaudis</i>	Lontra	Y()N()	Visual() Trace() Neighbour()	35	Cachorro doméstico		Y()N()	Visual() Trace() Neighbour()
17	<i>Eira barbara</i>	Irara	Y()N()	Visual() Trace() Neighbour()	36	<i>Sus scrofa feral</i>		Y()N()	Visual() Trace() Neighbour()
18	<i>Galictis cuja</i>	Furão	Y()N()	Visual() Trace() Neighbour()	37	<i>Sus scrofa</i>		Y()N()	Visual() Trace() Neighbour()

Part 1 of the Wildlife-Human Survey (back page) - to investigate the occurrence and distribution of mammal species in the Paraiba Valley.

Numbers correspond to mammal species and letters to mammal groups and other taxa.

From the photographs (the interviewer must circle the number corresponding to the photographs):

Species visualized/identified in the last six months in the area:

1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 A B C D E

Species visualized/identified between the last six months to one year in the area:

1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 A B C D E

Species visualized/identified in the last two years in the area:

1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 A B C D E

Species visualized/identified between the last three to five years in the area:

1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 A B C D E

Species visualized/identified between the last six to fifteen years in the area:

1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 A B C D E

Species visualized/identified between the last sixteen and twenty years in the area:

1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 A B C D E

Species visualized/identified more than 20 years ago in the area:

1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 A B C D E

Which species did not occur 20 years ago and began to occur recently?

1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 A B C D E

Part 2 of the Wildlife-Human Survey - to investigate the socioeconomic characteristic of the rural populations and the main aspects of the rural properties.

Landscape and house code _____ Date ____/____/2018 Gender () W () M Age: _____

Profession _____ | Education level _____ | Owns the prop. () Yes () No

Lives on the property () Yes () No () Rents

() Lives permanently () Weekends () 2x a month () 1x a month

() Works every day () 3x a week () 1x a week () 1x each 15 days () Other _____

How long do you know/live in the area? ____ years | Family originally from the region? () Yes () No From where? _____

N° of residents _____ | N° of workers _____ | Size of property _____ ha

Distance from the nearest supermarket/store _____ km

Use of Property () production () recreation

Main property activity () Dairy cattle () Beef cattle () Chickens () Silviculture/Forestry () Recreation

() Tourism () Agriculture/ crop: _____ () Other _____

How many ha of crops/ number of trees/ livestock heads _____

Other activities on the prop: () Dairy cattle () Beef cattle () Chickens () Vegetable garden () Forestry

() Recreation () Tourism () Agriculture/ crop: _____

() Other _____ How many ha of crops/ number of trees/ livestock heads _____

Do you have domestic animals? () Yes () No Number of Dogs ____ Cats ____ Pigs ____ Chickens ____

Angola chickens ____ Horses ____ Sheep ____ Others _____

Do domestic animals live freely on the property? () Yes () No () Some – which? _____

Internet access? () Yes () No | If yes () cell phone () radio () cable | Cell phone with apps? () Yes () No

Family income () < minimum wage () 1-2 salaries () 2 - 3 salaries () 3-10 salaries () > 10 salaries

Access to power grid (electricity) () Yes () No | Vehicles: Car () Yes () No – Motorcycle () Yes () No

Tractor () Yes () No

Part 3 of the Wildlife-Human Survey - to investigate the main human-wildlife interactions

Damages to farm production

1a. Do the forest mammals cause any damage to you or to your Family? ()Yes ()No () Maybe () I don't know/want to answer | **1b. If yes, to what?** () Animal husbandry () Crops () Threat () Other _____

1.c Damage description _____

2. How much of your production does this damage represent? () < 5% () 5 to 20% () 20 to 50% () >50%

3. In your opinion, how acceptable is this loss, on a scale of 1 to 5, 1 totally unacceptable and 5 totally acceptable? _____ **Why?** _____ Ask only if a damage is reported

4a. Did you take any action to prevent losses? () Yes () No () Maybe () I don't know/want to answer

4b. If yes, what action did you take? () kill animals () call protected area () built fence () other _____

5. What could be done to solve this problem? () kill animals () build fence () provide monetary support () regulate hunting **Why?** _____

6. Who do you think should solve these problems? () The government () The property owner () The environmental agency () Society () The protected area managers () Other _____ **Why?** _____

7a. Do you think it would be important to implement a project to monitor and register the forest animals and their damages and your economic losses? () Yes () No () Maybe () I don't know/want to answer | **7b. Why?** _____

8a. Would you be interested in participating in a Project like this? () Yes () No () Maybe () I don't know/want to answer | **8b. Why?** _____

8c. If yes, how do you think you could participate? () Time () Money () Study area () Other _____

8d. If no, would you participate if there were compensations for the losses? () Yes () No () Maybe () I don't know/want to answer

8e. If no, would you participate if there were any kind of payment? () Yes () No () Maybe () I don't know/want to answer _____

Perceptions and stewardship

1a. Do you think forest mammals bring any kind of benefits to you or your family? () Yes () No () Maybe () I don't know/want to answer | **1b. If yes, what?** () Use () They have a function in nature () It is nice to look at them () They are God's creatures () I do not know () other _____

Ask only if a damage is reported

2a. Do you think it is important to take care of forest mammals so they continue to exist? () Yes () No () Maybe () I don't know/want to answer | **2b. If yes, why?** () I like them () They are food () They are beautiful () They are God's animals () They are important to nature () They cause damage () I am afraid of them () Other _____

3a. Do you think someone has the responsibility to take care of forest mammals so they do not become extinct? () Yes () No () Maybe () I don't know/want to answer | **3b. If yes, who?** _____

3c. Do you think it is your responsibility too? () Yes () No () Maybe () I don't know/want to answer | **3d. Why?** _____

Use

1a. Do you or your family use the forest mammals in anyway? () Yes () No () Maybe () I don't know/want to answer | **1b. If yes, how?** () As food () As medicine () For religious purposes () For handcraft () Other _____

2a. Do you think that forest mammals are still consumed by families in this region? () Yes () No () Maybe () I don't know/want to answer | **1b. Why?** because the law forbids hunting () No, younger people are not interested in hunting () No, police enforcement has been efficient () No, because people are leaving rural areas () Yes, because people hunt as a sport () Yes, hunters are addicted () Yes, people hunt because they need to survive () Yes, people hunt because it is easier than buying in store () other _____

3. Which are the main species hunted in the region? _____

4. Do you think some kind of hunting should be allowed for the rural inhabitants? () Yes () No () Maybe () I don't know/want to answer | **4b. Why?** () Yes, people need to hunt for food security () Yes, it is part of people's culture () Yes, there are too many animals () Yes, animals are causing damage () No, there is no need anymore () No, I do not have any interest in that () No, I like animals () Other _____

_____ **4c. If yes, in which conditions?** () Only exotic species () Only species which have large populations () Only species ruled by a government () All species if hunters are licensed () All species () Only some species and if hunter are licensed () Other _____

Can you name someone from this area who knows a lot about wildlife? _____

Supplementary Material 2

Table 1. Taxonomic scientific classification of the 33 species identified through photographs using the Wildlife-Human Survey as occurring in the studied region and their corresponding common and folk names.

Taxonomy (order/family/genus/specie)	Id* (n=300)	English common name	Brazilian common name	Folk names	C**
DIDELPHIMORPHIA					
DIDELPHIDAE					
<i>Didelphis aurita</i> (Wied-Neuwied, 1826)	255	Opossum	Gambá	Gambá Raposa Saruê	212 52 6
PILOSA					
BRADYPODIDAE					
<i>Bradypus variegatus</i> (Schinz, 1825)	67	Brown- throated sloth	Preguiça- comum	Preguiça Bicho-preguiça	120 10
MYRMECOPHAGIDAE***					
<i>Myrmecophaga tridactyla</i> (Linnaeus, 1758)	20	Giant anteater	Tamanduá- bandeira	Tamanduá Tamanduá-bandeira Tamanduá-grande	41 30 3
<i>Tamandua tetradactyla</i> (Linnaeus, 1758)	17	Collared anteater		Tamanduá Tamanduá-mirin Tamanduá-pequeno	25 10 5
CINGULATA					
DASYPODIDAE***					
<i>Cabassous</i> sp. (McMurtrie, 1831)	67	Naked- tailed armadillo	Tatu-de- rabo-mole	Tatu-porco Tatu-canastra Tatu-de-rabo-mole Tatu-cavalo	31 13 11 9
<i>Dasyopus</i> sp. (Linnaeus, 1758)	183	Long-nosed armadillo	Tatu- galinha	Tatu-guanxima/ guaximbinha Tatu-et Tatu-mirim; Tatu- vassourinha; Tatu-	78 17 11 8 6

Taxonomy (order/family/genus/specie)	Id* (n=300)	English common name	Brazilian common name	Folk names	C**
				vassoura	
<i>Euphractus sexcinctus</i> (Linnaeus, 1758)	83	Six-banded armadillo	Tatupeba	Tatu-mineiro Tatu-peba/peva Tatu-canastra Tatu-amarelo	20 18 15 8
PERISSODACTYLA					
TAPIRIIDAE					
<i>Tapirus terrestris</i> (Linnaeus, 1758)	10	Tapir	Anta	Anta	80
ARTIODACTYLA					
CERVIDAE					
<i>Mazama sp.</i> (Rafinesque, 1817)	108	Brocket deer	Veado	Veado; Veadozinho Cervo	177 2
TAYASSUIDAE***	56	New world pigs	Porco-do- mato	Porco-do-mato Javali	81 10
<i>Pecari tajacu</i> (Linnaeus, 1758)	28	Collared peccary	Cateto	Cateto Javali	27 3
<i>Tayassu pecari</i> (Link, 1795)	17	White- lipped peccary	Queixada	Queixada Javali	21 8
PRIMATES***+	102	Monkeys		Macaco	13
ATELIDAE					
<i>Alouatta guariba</i> (Humboldt, 1812)	31	Brown howler	Bugio	Bugio	36
CALLITRICHIDAE					
<i>Callithrix sp.</i> (É. Geoffroy, 1812)	209	Mico	Sagui	Sagui; Saguzinho Mico; Miquinho Macaquinho; Macaquinho-do- mato/da-cara-branca	154 50 11
PITHECIIDAE					
<i>Callicebus nigrifrons</i> (Spix, 1823)	49	Black- fronted titi	Sauá	Macaco-prego Sauá Saá	3 35 18
CARNIVORA					
CANIDAE					
<i>Cerdocyon thous</i>	96	Crab-eating	Cachorro-	Cachorro-do-mato	117

Taxonomy (order/family/genus/specie)	Id* (n=300)	English common name	Brazilian common name	Folk names	C**
(Linnaeus, 1766)		fox	do-mato	Raposa; Raposinha	13
				Lobo	8
				Cachorro-bandeira	6
<i>Chrysocyon brachyurus</i> (Illiger, 1811)	84	Maned wolf	Lobo-guará	Lobo-guara	146
				Lobo	5
FELIDAE					
				Jaguatirica	90
<i>Leopardus</i> (Gray, 1842)	138	Small wild cats	Jaguatirica	Gato-do-mato; Gato	33
				Onça-pequena; Da pequena	12
				Oncinha	5
<i>Leopardus pardalis</i>	34	Ocelot	Jaguatirica	Jaguatirica	47
				Gato-do-mato	8
<i>Leopardus</i> sp. (<i>L. wiedii</i> or <i>L. guttulus</i>)	19	Margay/ oncilla	Gato-maracaja/ gato-do-mato	Gato-do-mato	14
				Maracajá; Gato-maracajá	11
				Jaguatirica	4
<i>Panthera onca</i> (Linnaeus, 1758)	7	Jaguar	Onça-pintada	Onça-pintada	61
				Onça	9
				Onça-preta	3
<i>Puma concolor</i> (Linnaeus, 1771)	30	Cougar	Onça-parda	Suçuarana; Suçurana	54
				Onça-parda; Parda	17
				Onça	5
				Onça-amarela; Onça-marrom; Onça-vermelha	7
<i>Herpailurus yagouaroundi</i> (É. Geoffroy Saint-Hilaire, 1803)	16	Jaguarundi	Jaguarundi	Gato-do-mato	9
				Gato-mourisco	4
MEPHITIDAE					
<i>Conepatus</i> sp. ^a (Molina, 1782)	8	Molina's hog-nosed skunk	Zorrilho	Gambá; Gambazinho	15
				Zurrilho	4
MUSTELIDAE					
<i>Eira barbara</i> (Linnaeus, 1758)	21	Tayra	Irara	Irara	33
				Ariranha	4

Taxonomy (order/family/genus/specie)	Id* (n=300)	English common name	Brazilian common name	Folk names	C**	
<i>Galictis cuja</i> (Molina, 1782)	83	Lesser grison	Furão- pequeno	Cachorro-do-mato;	33	
				Cachorrinho-do-mato		
				Furão; Furãozinho		19
				Fedidinho		11
				Cachorro-Cachorrinho peva/peve/pevinha; -		10
Cachorro-do-brejo; Cachorrinho-do-brejo	6					
<i>Lontra longicaudis</i> (Olfers, 1818)	143	Neotropical otter	Lontra	Lontra	173	
				Ariranha	3	
PROCYONIDAE						
<i>Nasua nasua</i> (Linnaeus, 1766)	91	South American coati	Quati-de- cauda- anelada	Quati	121	
<i>Procyon cancrivorus</i> (G. Cuvier, 1798)	6	Crab-eating raccoon	Mão- pelada	Guaxinim	9	
				Mão-pelada	3	
				Raposa; Raposinha	3	
LAGOMORPHA						
LEPORIDAE						
<i>Sylvilagus brasiliensis</i> (Linnaeus, 1758)	221	Tapeti	Tapiti	Lebre; Lebrinha;	223	
				Lebre-do-mato		
				Coelho; Coeio;		42
Coelho-do-mato						
RODENTIA						
CAVIIDAE						
<i>Hydrochoerus hydrochaeris</i> (Linnaeus, 1766)	167	Capybara	Capivara	Capivara	222	
CUNICULIDAE						
<i>Cuniculus paca</i> (Linnaeus, 1766)	121	Paca	Paca	Paca; Paquinha	204	
DASYPROCTIDAE						
<i>Dasyprocta sp.</i> (Illiger, 1811)	18	Agouti	Cutia	Cutia	52	
ERETHIZONTIDAE						
<i>Coendou sp.</i> (Lacépède, 1799)	175	Porcupine	Ouriço- cacheiro	Ouriço	201	
				Porco-espinho	27	

Taxonomy (order/family/genus/specie)	Id* (n=300)	English common name	Brazilian common name	Folk names	C**
SCIURIDAE					
<i>Sciurus aestuans</i>	49	Brazilian	Serelepe	Esquilo; Esquilinho	27
(Linnaeus, 1766)		squirrel		Serelepe	21

* – Number of interviewees who identified the species, by direct visualization or by signs.

** - Number of times each folk name was mentioned

***Numbers of identification refer to the sum between specific identifications (species-level) and general identifications (order/family/genus-level).

[†] Except *Callithrix* sp.

^a The presence of *Conepatus* sp. (hog-nosed skunk) was considered as probable in the study area but the scientific literature does not provide accurate information about the occurrence of this species in the area (Kasper et al. 2009, Cavalcanti et al. 2013, Kasper et al. 2013). However, Kasper et al. (2009) discuss a possible expansion of the distribution of this taxon to forest areas in mountain ranges of Serra do Mar, as observed for *Chrysocyon brachyurus*.