

The importance of addressing different Red Lists in conservation studies: an analysis comparing the conservation status of Brazilian mammals

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Abstract

The importance of addressing different Red Lists in conservation studies: an analysis comparing the conservation status of Brazilian mammals. Red Lists are important conservation tools because they attempt to estimate the extinction risks of species. We compared the conservation status of Brazilian mammals presented in the Brazilian Red Book with those presented in the IUCN Red List, highlighting the importance of each list and why they should be used jointly. Out of 636 species, 181 were considered endemic to Brazil and 121 were considered threatened by at least one of the lists. Considering the complete database, 86% of the species had the same status on both lists, whereas only 48% of the threatened species had the same status. Some possible factors responsible for variations are the period in which the evaluations were carried out, the evaluation process and the fact that a species threatened nationally may not be threatened globally. We recommend that communication should be improved, that lists should be kept updated, and that both the type of information and the data itself to be used in the assessments should be standardized.

Key words: Brazilian Red Book of Threatened Fauna, IUCN Red List, Mammalia, Biodiversity, Endemic species, Threatened species

Resumen

La importancia de abordar diferentes Listas Rojas en los estudios de conservación: un análisis que compara el estado de conservación de los mamíferos brasileños. Las Listas Rojas son importantes herramientas de conservación porque intentan estimar el riesgo de extinción de las especies. Comparamos los estados de conservación de los mamíferos brasileños presentados en el Libro Rojo de Brasil con los presentados en la Lista Roja de la Unión Internacional para la Conservación de la Naturaleza (UICN) y destacamos la importancia de cada lista y el motivo por el que se deberían usar conjuntamente. De 636 especies, 181 se consideraron endémicas del Brasil y 121 se consideraron amenazadas en al menos una de las listas. Considerando la base de datos completa, el 86% de las especies tenía el mismo estado en ambas listas; no obstante, esto solo ocurría en el 48% de las especies amenazadas. Las variaciones se explican, entre otros factores, por el período en el que se realizaron las evaluaciones, el proceso de evaluación y el hecho de que una especie amenazada a nivel nacional puede no estarlo a nivel mundial. Recomendamos que se mejore la comunicación, que las listas se mantengan actualizadas y que se estandaricen tanto el tipo de información como los propios datos que se utilizarán en las evaluaciones.

Palabras clave: Libro Rojo de Fauna Amenazada de Brasil, Lista Roja de la UICN, Mammalia, Biodiversidad, Especies endémicas, Especies amenazadas

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Introduction

Biodiversity conservation is one of the biggest challenges facing the current generation (Vale et al., 2009). Megadiverse countries, such as Brazil, therefore have an enormous responsibility when it comes to protecting endangered species (Brandon et al., 2005). The richness of Brazil's mammal species, for example, is considered by some authors to be the highest in the world, with over 700 species and a high degree of endemism at the national level (Mittermeier et al., 1997; Costa et al., 2005; Lewinsohn and Prado, 2005; Quintela et al., 2020).

When species are assigned to categories (known as conservation status) that represent their degree of threat, their risk of extinction can be estimated, making it easier to infer which species need urgent conservation actions (Peres et al., 2011), evaluate the state of biodiversity, identify sites for conservation action, and inform policy and management (Rodrigues et al., 2006). Red Lists of threatened fauna are, from this point of view, important conservation tools. Having already assessed the global risk of extinction of more than 116,000 species (including more than 5,000 mammals), the International Union for Conservation of Nature (IUCN) has played a major role in making these lists known worldwide. Some of the criteria used in those assessments are restricted geographic distribution, small and declining population size, and, based on quantitative analysis, a high probability of extinction in nature. Its scheme of species classification according to threat status uses the following categories: Not Evaluated (NE), Data Deficient (DD) (when there is no adequate information to assess the risk), Least Concern (LC) (when the species is evaluated but does not fall into the other categories; usually encompassing abundant and widely distributed taxa), Near Threatened (NT) (when the species is close to qualifying as threatened or when it is expected to be classified as such soon), Vulnerable (VU) (when the species faces a high risk of extinction in the wild), Endangered (EN) (when the species faces a very high risk of extinction in the wild), Critically Endangered (CR) (when the species face an even higher risk of extinction in the wild), Extinct in the Wild (EW) and Extinct (EX).

In Brazil, the Instituto Chico Mendes de Conservação da Biodiversidade (ICMBio), a Brazilian government institution from the Ministry of Environment, periodically publishes the so-called Red Books of Threatened Fauna. These Red Books have a similar role to the IUCN Red Lists, listing the species considered to be threatened nationally, classifying them according to their conservation status, and providing ecological information about them. The most recent Red Book was published in 2018, representing a huge effort to evaluate all described vertebrate taxa occurring in the country and listing 680 mammal species officially known to occur in Brazil. Of these, 108 (15.9 %) were considered nationally threatened (ICMBio/MMA, 2018).

In the present study, we compared the conservation status of Brazilian mammal species listed in

the Brazilian Red Book of Threatened Fauna with those presented in the IUCN Red List, highlighting the importance of each list and why they should be used jointly in order to generate even more accurate assessments. We expected to find some differences in the status of species whose geographic distribution was broad and exceeded the country's territorial limits (i.e. non-endemic species). However, as the national distribution of species that occur exclusively in Brazil (i.e. endemic species) corresponds to their global distribution, we postulated that the status of those species would not vary between lists. In case some endemic species (especially those considered to be threatened) had a different conservation status in each list, we would emphasize the need for special attention the next time their conservation status is assessed.

Material and methods

We compiled a database (see table 1s in supplementary material) containing all Brazilian mammal species (regardless of subspecies) according to the Brazilian Red Book of Threatened Fauna (ICMBio/MMA, 2018), their national (obtained from the Brazilian Red Book itself) and global conservation status (obtained from the IUCN Red List of Threatened Species platform, 2019–3 version), and the year in which the species' status was assessed in each of the lists. In the Brazilian Red Book, however, the pampas deer (*Ozotoceros bezoarticus*) and some primates were evaluated only at the subspecific level. In these cases, to standardize our analysis, we chose to consider the status of the least threatened subspecies as the status of the species. Using the data found in the 'Geographic Range' section of the IUCN Red List and the Brazilian Red Book, we also added the information of whether a species was endemic to Brazil or not. The lists were then compared according to the conservation status of each species to observe which species differed in status between lists.

We also observed whether each species had the same status on both lists or if it had a lower conservation status (i.e. less threatened) on one of the lists. For example, if a species was assessed as not threatened (i.e. Least Concern or Near Threatened) by the Brazilian Red Book but as threatened (i.e. Vulnerable, Endangered or Critically Endangered) by the IUCN Red List, we considered it had a lower status in the national list. Similarly, if a species was classified as Critically Endangered in the Brazilian Red Book and as Vulnerable in the IUCN Red List, we considered that it had a lower status in the global list, despite being considered threatened by both lists. We made those comparisons considering four different scenarios: a) all species present in our database; b) only the endemic species; c) only the species considered to be threatened (i.e. species classified as either Vulnerable, Endangered or Critically Endangered) by at least one of the lists; d) species considered, simultaneously, as endemic and threatened. These analyses did not include species that were categorized as Data Deficient in either of the lists.

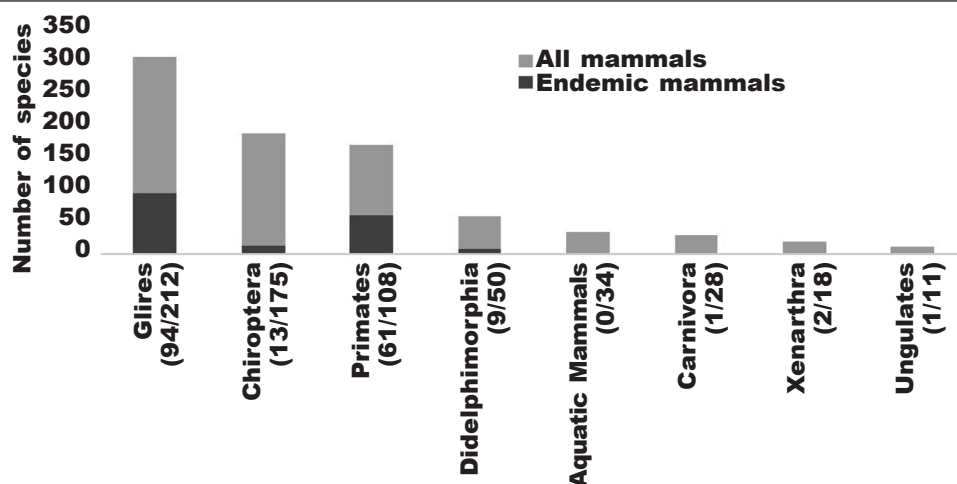


Fig. 1. Number of species of Brazilian mammals in each group, with the number of endemic species/total number of species in parentheses.

Fig. 1. Número de especies de mamíferos brasileños en cada grupo, con el número de especies endémicas respecto al número total de especies entre paréntesis.

In order to better analyze the differences between the lists, we divided the analyzed species into eight groups based on taxonomy (Order rank) and/or ecological characteristics: Aquatic Mammals (comprising cetaceans and sirenians), Carnivora, Chiroptera, Didelphimorphia, Glires (comprising Rodentia and Lagomorpha), Primates, Ungulates (comprising Artiodactyla and Perissodactyla) and Xenarthra (comprising Pilosa and Cingulata). For each group, we compared the proportions of species classified in each conservation status with lists using Fisher's exact test (only the species classified as Near Threatened, Vulnerable, Endangered and Critically Endangered were considered). The analyses were performed in R version 4.0.2.

Results

According to the Brazilian Red Book of Threatened Fauna, 680 mammal species were known to occur in Brazil. Since we chose not to include taxa that were not evaluated by the IUCN Red List, as well as those that IUCN considers as subspecies (as opposed to full species), and the candango mouse (*Juscelinomys candango*), classified as extinct by IUCN, our database comprised 636 species. Additionally, 181 species present in our database (28.5% of the total) were considered endemic to Brazil. Primates, Chiroptera and Glires made up most of the species, both when considering the complete list and when considering only endemic species (fig. 1). As the tapeti (*Sylvilagus brasiliensis*) was the only member of the Order Lagomorpha in our database, the high representativeness of Glires in our analyses was due to the richness of rodent species. The Aquatic Mammals group, on the other hand, was the only group in which no species

were considered endemic to Brazil, and three other groups presented a low number of endemic species: Carnivora (the hoary fox, *Lycalopex vetulus*, was the only endemic species), Ungulates (the small red brocket deer, *Mazama bororo*, was the only endemic species), and Xenarthra (the three-banded armadillo, *Tolypeutes tricinctus*, and the maned three-toed sloth, *Bradypus torquatus*, were the only endemic species).

One hundred and twenty-one species (19.0% of the total) were considered threatened by at least one of the lists (table 1). Of these, 104 were considered threatened according to the Brazilian Red Book, with 54 (51.9%) being classified as Vulnerable, 40 (38.5%) as Endangered and 10 (9.6%) as Critically Endangered. In the IUCN Red List, 40 species (47.1%) were classified as Vulnerable, 32 (37.6%) as Endangered and 13 (15.3%) as Critically Endangered, totaling 85 threatened species. Considering only the endemic species, 70 (38.7%) are threatened to some level. According to the Brazilian Red Book, 23 (39.0%) of these endemics are classified as Vulnerable, 29 (49.1%) as Endangered and seven (11.9%) as Critically Endangered, totaling 59 species. According to the IUCN Red List, 19 species (35.2%) are classified as Vulnerable, 23 (42.6%) as Endangered and 12 (22.2%) as Critically Endangered, totaling 54 species.

Primates and Glires made up most of the threatened species (table 1). Only one species classified as Critically Endangered according to the IUCN Red List did not belong to one of these two groups: the single-striped opossum (*Monodelphis unistriata*) (Didelphimorphia). The Brazilian Red Book, however, classified one didelphimorph (the black-shouldered opossum, *Caluromysiops irrupta*) and two cetaceans (the blue whale, *Balaenoptera musculus*, and the Franciscana dolphin, *Pontoporia blainvillei*) as Criti-

Tabla 1. Number of species per group classified under each conservation status according to the Brazilian Red Book (national scale) and the IUCN Red List (global scale).

Tabla 1. Número de especies por grupo clasificadas en cada estado de conservación según el Libro Rojo de Brasil (escala nacional) y la Lista Roja de la UICN (escala global).

	All species (Brazilian Red Book)					
	DD	LC	NT	VU	EN	CR
Aquatic Mammals	8	14	2	3	5	2
Carnivora	1	13	1	12	1	0
Chiroptera	41	126	1	6	1	0
Didelphimorphia	6	38	2	2	1	1
Glires	23	158	5	8	16	2
Primates	9	55	10	14	15	5
Ungulates	3	2	0	6	0	0
Xenarthra	4	10	0	3	1	0
Total (%)	95 (14.9)	416 (65.4)	21 (3.3)	54 (8.5)	40 (6.3)	10 (1.6)

	All species (IUCN Red List)					
	DD	LC	NT	VU	EN	CR
Aquatic Mammals	4	19	3	5	3	0
Carnivora	0	18	7	2	1	0
Chiroptera	29	140	4	0	2	0
Didelphimorphia	4	42	2	1	0	1
Glires	38	150	4	5	12	3
Primates	4	56	7	18	14	9
Ungulates	1	4	1	5	0	0
Xenarthra	0	12	2	4	0	0
Total (%)	80 (12.6)	441 (69.3)	30 (4.7)	40 (6.3)	32 (5.0)	13 (2.1)

	Endemic species (Brazilian Red Book)					
	DD	LC	NT	VU	EN	CR
Aquatic Mammals	0	0	0	0	0	0
Carnivora	0	0	0	1	0	0
Chiroptera	5	5	1	2	0	0
Didelphimorphia	1	5	1	2	0	0
Glires	16	50	3	8	15	2
Primates	5	25	5	8	13	5
Ungulates	0	0	0	1	0	0
Xenarthra	0	0	0	1	1	0
Total (%)	27 (14.9)	85 (47.0)	10 (5.5)	23 (12.7)	29 (16.0)	7 (3.9)

Tabla 1. (Cont.)

	Endemic species (IUCN Red List)					
	DD	LC	NT	VU	EN	CR
Aquatic Mammals	0	0	0	0	0	0
Carnivora	0	1	0	0	0	0
Chiroptera	7	4	1	0	1	0
Didelphimorphia	3	4	1	1	0	0
Glires	32	39	4	5	11	3
Primates	4	22	5	10	11	9
Ungulates	0	0	0	1	0	0
Xenarthra	0	0	0	2	0	0
Total (%)	46 (25.4)	70 (38.7)	11 (6.1)	19 (10.5)	23 (12.7)	12 (6.6)

cally Endangered nationally. Proportionally, however, the most threatened groups (i.e. the groups in which the proportion of species classified as Vulnerable, Endangered or Critically Endangered was greater) were Ungulates, Carnivora and Primates (with, respectively, 54.5%, 46.4%, and 39.8% of the species considered threatened in at least one of the lists).

Regarding the conservation status of species by group, the Least Concern status was the one in which most of the species of any group were classified. The group Carnivora, however, presented the most significant difference between the lists, with 13 species considered threatened according to the national list but only three according to the global one (table 1). Statistically significant differences between the proportions of species classified in each conservation status (excluding Least Concern) between the two lists were only observed for the groups Carnivora (p -value = 0.001) and Chiroptera (p -value = 0.01). While the Brazilian list has more species classified as Vulnerable, IUCN classifies more species as Near Threatened. Considering only the endemic species (and also excluding species classified as Least Concern), on the other hand, no statistically significant difference was observed between lists for any group. Although the two lists are similar when considering the total number of species classified in each conservation status, further analysis shows that this equivalence may be apparent, since the status of many species varies between the two lists.

Considering the complete lists and excluding the species that are classified as Data Deficient in either assessment, 420 species (85.7% of the total) had the same conservation status on both lists, whereas 27 (5.5%) had a lower status according to the national assessment, and 43 (8.8%) had a lower status on the global list (table 2). However, when only the endemic species were considered, we observed that 100 species (79.4%) were classified with the same status on both lists, while 16 (12.7%) had a lower status on the national list and 10 (7.9%) had a lower status on the global list (table 2). Nevertheless, divergence

between lists was even more pronounced when we restricted our analysis to threatened species. In this case, 51 species (47.7%) had the same conservation status on both lists, 21 (19.6%) had a lower status according to the national assessment, and 35 (32.7%) had a lower status on the global list (table 2). Finally, considering the endemic species that are also threatened, 35 species (60.4%) had the same status on both lists, whereas 13 (22.4%) had a lower status on the national list and 10 (17.2%) on the global list (table 2).

Considering the species analyzed by group, the Carnivora, once again, stands out: of the 13 analyzed species considered to be threatened, 11 (84.6%) had a lower status on the global list and only one (7.7%) had equal status on both lists (table 2). This pattern was also observed in the Aquatic Mammals group, where six of the 10 analyzed species (60.0%) had a lower status according to the global assessment. Endemic didelphimorphs also presented a tendency of divergence between lists: only half of the six species considered had the same conservation status on both lists.

The average difference between the years in which species evaluations took place in each list was 2.73 years, with 21 species evaluated in the same year on both lists, six evaluated one year apart, 341 two years apart, 153 three years apart, 17 four years apart, 67 five years apart, 30 six years apart and one that was evaluated seven years apart.

Discussion

Although the two lists pursue the same goal (i.e. to evaluate extinction risks of species and classify them accordingly) and use the same categories of threat and the same criteria on their assessments, the conservation status of more than half of the threatened taxa differed between lists, and this variation was more marked in some mammal groups than in others. Since a species threatened nationally may not be threatened globally (Gäddendorfs, 2001), one

Table 2. Number of species (out of a total of 490) that have either the same or lower conservation status according to the analyzed lists.

Tabla 2. Número de especies (de un total de 490) que tienen el mismo o diferente estado de conservación de acuerdo con las listas analizadas.

	All species		
	Same status	Lower status	Lower status
	in both lists	in Brazilian Red Book	in IUCN Red List
Aquatic Mammals	14	1	7
Carnivora	15	1	11
Chiroptera	114	4	3
Didelphimorphia	35	1	5
Glires	148	3	8
Primates	74	17	7
Ungulates	7	0	1
Xenarthra	13	0	1
Total (%)	420 (85.7)	27 (5.5)	43 (8.8)

	Endemic species		
	Same status	Lower status	Lower status
	in both lists	in Brazilian Red Book	in IUCN Red List
Aquatic Mammals	0	0	0
Carnivora	0	0	1
Chiroptera	4	2	0
Didelphimorphia	3	1	2
Glires	46	3	6
Primates	45	10	0
Ungulates	1	0	0
Xenarthra	1	0	1
Total (%)	100 (79.4)	16 (12.7)	10 (7.9)

	Threatened species		
	Same status	Lower status	Lower status
	in both lists	in Brazilian Red Book	in IUCN Red List
Aquatic Mammals	4	0	6
Carnivora	1	1	11
Chiroptera	1	1	3
Didelphimorphia	0	1	4
Glires	13	3	6
Primates	24	15	3
Ungulates	5	0	1
Xenarthra	3	0	1
Total (%)	51 (47.7)	21 (19.6)	35 (32.7)

Table 2. (Cont.)

	Threatened endemic species		
	Same status in both lists	Lower status in Brazilian Red Book	Lower status in IUCN Red List
Aquatic Mammals	0	0	0
Carnivora	0	0	1
Chiroptera	0	1	0
Didelphimorphia	0	1	2
Glires	12	3	6
Primates	21	8	0
Ungulates	1	0	0
Xenarthra	1	0	1
Total (%)	35 (60.4)	13 (22.4)	10 (17.2)

of the main reasons why the conservation status of many non-endemic species differ between the two lists becomes clear. If we look at mammal groups composed mostly of species with wide geographic distributions, in which rates of endemism are low (such as the orders Carnivora and Cetacea), this becomes even more evident. Indeed, the groups Carnivora and Aquatic Mammals were those with the greatest proportion of threatened species having a lower status in the global list than on the national list. The puma (*Puma concolor*), for example, can be found across much of the American continent, from Canada to southern Argentina (Nielsen et al., 2015) and it is classified as Least Concern globally, even though it is considered Vulnerable in Brazil. Similarly, the southern right whale (*Eubalaena australis*) has a circumpolar distribution across the entire Southern Hemisphere (Cooke and Zerbini, 2018) and is also classified as Least Concern globally, but as Endangered in Brazil. In such cases, the IUCN recommends that national assessments evaluate species as if they were endemic or completely isolated from other populations to obtain a preliminary status. After taking this first step, the status of the species can either be changed or subsequently maintained, considering the possibility of migration of individuals into and out of the region under analysis (IUCN, 2012).

Endemic species, on the other hand, present a more delicate situation. As an endemic species only occurs within a restricted area, its regional population also corresponds to the global one. Therefore, it was expected that the conservation status of endemic species would not differ between national and global lists. However, our analysis has shown that this was not always the case, as the conservation status of 20.6% of the endemic species and of 39.6% of the species that were both threatened and endemic varied between lists.

One possible factor responsible for variation in status between lists is the period in which the evaluation of

the status of taxa was carried out. However, if we consider the time interval between the national and global evaluations of a given species, it is noteworthy that this never exceeded seven years. Furthermore, the Brazilian three-banded armadillo (*Tolypeutes tricinctus*) was classified as Endangered according to the Brazilian Red Book and as Vulnerable according to the IUCN Red List, despite being endemic to Brazil and both assessments taking place in 2013. This could indicate that the period in which the evaluation was carried out may not be the only reason for the divergences observed, nor the main reason for all of them. Nonetheless, we recognize that changes in the conservation status of a given species can occur within short periods of time, following new publications concerning reassessments of its geographic distribution and of major changes undergone by its habitat (e.g. Fernandes et al., 2007; Attias et al., 2009; Hirsch and Chiarello, 2012), and taxonomic revisions (especially in cases where a single species is divided into two or more, e.g. Agapow et al., 2004; Nascimento and Feijó, 2017; Ang et al., 2020). The Brazilian Red Book (ICMBio/MMA, 2018) also mentions that more recent and accurate information (especially regarding declines or recoveries of populations) and adjustments in the method itself may be responsible for changes in the conservation status of species, sometimes even resulting in their removal from the list of threatened taxa (i.e. when a species classified as Vulnerable, Endangered or Critically Endangered is re-classified as Least Concern or Near Threatened). This was the case of the humpback whale (*Megaptera novaeangliae*): previously classified as nationally threatened, the prohibition of whaling activities by the Brazilian government in 1987 resulted in an increase in the number of individuals in national waters (Andriolo et al., 2010; Bortolotto et al., 2016) and led to the re-classification of the species under the Near Threatened status (ICMBio/MMA, 2018).

Table 3. Endemic species considered to be threatened by at least one of the lists and whose conservation status varied between the assessments: * species with higher conservation risk according to the Brazilian Red Book (national assessment) than with the IUCN Red List (global assessment).

Tabla 3. Especies endémicas consideradas amenazadas por al menos una de las listas cuyo estado de conservación varió entre las evaluaciones: * especies que tienen mayor riesgo de extinción según el Libro Rojo de Brasil (evaluación nacional) que según la Lista Roja de UICN (evaluación global).

Species	Order	BR status	IUCN status
<i>Marmosops paulensis</i> *	Didelphimorphia	VU	LC
<i>Thylamys karimii</i>	Didelphimorphia	LC	VU
<i>Thylamys velutinus</i> *	Didelphimorphia	VU	NT
<i>Tolypeutes tricinctus</i> *	Cingulata	EN	VU
<i>Brachyteles arachnoides</i>	Primates	EN	CR
<i>Callithrix kuhlii</i>	Primates	NT	VU
<i>Leontopithecus caissara</i>	Primates	EN	CR
<i>Mico leucippe</i>	Primates	LC	VU
<i>Sapajus flavius</i>	Primates	EN	CR
<i>Sapajus xanthosternos</i>	Primates	EN	CR
<i>Chiropotes albinasus</i>	Primates	NT	EN
<i>Chiropotes utahickae</i>	Primates	VU	EN
<i>Lycalopex vetulus</i> *	Carnivora	VU	LC
<i>Lonchophylla bokermanni</i>	Chiroptera	NT	EN
<i>Kerodon rupestris</i> *	Rodentia	VU	LC
<i>Euryoryzomys lamia</i>	Rodentia	EN	VU
<i>Hylaeamys laticeps</i>	Rodentia	LC	VU
<i>Rhagomys rufescens</i>	Rodentia	LC	VU
<i>Thalpomys cerradensis</i> *	Rodentia	VU	LC
<i>Thalpomys lasiotis</i> *	Rodentia	EN	LC
<i>Ctenomys lami</i> *	Rodentia	EN	VU
<i>Trinomys eliasi</i> *	Rodentia	VU	NT
<i>Sylvilagus brasiliensis</i>	Lagomorpha	LC	EN

A possible additional cause of divergences may be the evaluation process itself. Although both lists are based on expert opinion and follow a strict process to have assessments performed as accurately as possible, it should be considered that there may be a subjective component in assessing the risk of losing species (especially if the methods are not strictly followed). Costa et al. (2005) stated that national lists could also benefit from scientific knowledge generated by unpublished data, including theses, dissertations, local journals, and personal field experience. However, we observed that global lists can also use this type of data to assess species extinction risks. Therefore, some divergences between lists may not be related to the type of publication used, but as we have mentioned, to the data and to the process itself.

Some previous works have attempted to evaluate and compare Red Lists in a similar way to ours. However, contrary to what we expected, publications focusing on Brazilian mammals are not that common. Costa et al. (2005) briefly compared the conservation status of threatened Brazilian mammals using the 2003 national list. Nonetheless, in addition to the current list being much more comprehensive than the previous ones, those authors did not carry out as many analyzes as we did. The Brazilian national species list was also compared with the IUCN Red List by Brito et al. (2010) in a work that addressed various taxa from three other countries besides Brazil: Colombia, China, and the Philippines. Other relevant works dealing with vertebrate groups other than mammals are those of Garcia and Marini (2006), who focused on threatened

Brazilian birds, Morais et al. (2012), who addressed threatened Brazilian amphibians, and Bender et al. (2012), who focused on Brazilian reef fishes. As in our study, these studies found divergences between lists that needed to be resolved because they could raise doubts on the credibility and usefulness of these important conservation tools.

Nonetheless, there is little point in debating whether one list is better than the other. The main goal of our study was to draw attention to the fact that differences in the conservation status of species may exist between global and national lists and that such differences do not necessarily represent errors or outdated information. The two lists are based on different spatial scales and, consequently, have distinct potential uses. The national list (i.e. the Brazilian Red Book), at least in Brazil, is the one used to define which species of Brazilian fauna are considered threatened, so that those species can be fully protected under the Brazilian laws, and actions such as their capture, transportation and commercialization be prohibited. The IUCN, on the other hand, aims to show what actions are needed to save species from extinction and where they should be directed (Rodrigues et al., 2006). The IUCN Red List therefore plays a fundamental role in guiding scientific research, influencing allocation of resources for conservation, and informing policies and conventions (especially international ones) (Rodrigues et al., 2006). Both lists also provide useful information about the assessed species, including their geographic range, ecology, natural history, and the main threats to their survival. It seems reasonable to assume that while regional lists are critical to decision makers within a given country, serving as a basis for the elaboration of national public policies and during the creation of conservation units and other legally protected areas, global lists, which can also guide such actions within a bigger scenario, may function as a 'barometer of life' (an expression the IUCN often uses to describe its own potential) at a global scale. The global list gains a greater visibility than national lists, since it is internationally recognized, and is fundamental for the conservation of species with wide geographic distribution.

Assessing the extinction risk of a species is not an easy task since there are uncertainties and predictions throughout the process. We thus recognize the quality of the work that is done by the authorities responsible for evaluations and recommend that communication and information exchange between authorities and researchers be improved. Perhaps the best way to avoid future divergences between lists (especially for endemic species) would be to undertake a joint assessment between the authorities responsible for the national and global assessments. It is also extremely important to keep the lists updated so that they always reflect the current status of each species. Standardizing both the type of information and the data itself to be used in those assessments would, if possible, also be of great value, as would be the presentation, by the Brazilian Red Book, of the conservation status of all species at the specific level (as we have mentioned, some species were evaluated only at the subspecific level).

We also recommend special attention when making future conservation status assessments of species that, although endemic, were classified with different status in each of the lists (see table 3). Additionally, it is important to focus on species classified as Data Deficient since the main reason that leads a species to be classified as such is the lack of adequate information about its distribution and/or its population (ICMBio/MMA, 2018). Thus, the possibility that a given species classified as Data Deficient is threatened should not be overlooked.

Finally, we would like to mention that, while we focused on two main lists in this article, several other lists could be similarly analyzed. The larger the scale, the harder it is to detect and identify eventual regional discrepancies. Thus, state and biome lists, for example, can also be important, especially in a country of continental dimensions like Brazil. Indeed, while a few Brazilian states have their own lists of threatened fauna, most states still lack these (see Brito, 2008). Analyses at smaller scales may allow more accurate conclusions and, when interpreted together, tend to promote a better understanding of how threatened a species really is. In this regard, some recent studies deserve to be highlighted because they have proposed novel approaches related to conservation status assessments using, for example, data on habitat preference and population abundance (e.g. Santini et al., 2019), or on ecological traits (e.g. Davidson et al., 2009). It is also important to highlight that endemism is a relative measure related to the idea of habitat restriction. Since all species end up being endemic to a certain area (although this area may be large enough to correspond to several countries, for example), care must be taken when using this concept. Still, we believe that national lists may be easier to incorporate into effective conservation strategies than international lists. Conflicts in conservation policy can be avoided if the evaluation process is not confounded by processes that do not operate within the study area. Nonetheless, we believe that the use of both global and national lists in a complementary way (or at least the mention, in the publications, of how threatened the studied species is, both at the global level and where the corresponding study took place) tends to make conservation studies and publications more comprehensible, providing readers with a better understanding of how threatened the studied species is.

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Supplementary material

Table 1s. Mammal species, their conservation status according to the Brazilian Red Book (BR status) and to the IUCN Red List (IUCN status), whether they are endemic or not to Brazil, and the year in which their conservation status was analyzed: E, endemic; * species that were evaluated only as subspecies by the Brazilian Red Book.

Tabla 1s. Especies de mamíferos, su estado de conservación según el Libro Rojo de Brasil (BR status) y la Lista Roja de la UICN (IUCN status), si son endémicas o no de Brasil, y el año en que se analizó su estado de conservación: E, endémica; * especies que fueron evaluadas solo como subespecies por el Libro Rojo de Brasil.

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Caluromys lanatus</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Caluromys philander</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Caluromysiops irrupta</i>	Didelphimorphia	CR	LC	2013	2015	No
<i>Chironectes minimus</i>	Didelphimorphia	DD	LC	2013	2015	No
<i>Cryptonanus agricolai</i>	Didelphimorphia	LC	DD	2013	2016	Yes
<i>Cryptonanus chacoensis</i>	Didelphimorphia	DD	LC	2013	2016	No
<i>Cryptonanus guahybae</i>	Didelphimorphia	DD	DD	2013	2016	Yes
<i>Didelphis albiventris</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Didelphis aurita</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Didelphis imperfecta</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Didelphis marsupialis</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Glironia venusta</i>	Didelphimorphia	DD	LC	2013	2016	No
<i>Gracilinanus agilis</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Gracilinanus emiliae</i>	Didelphimorphia	LC	DD	2013	2015	No
<i>Gracilinanus microtarsus</i>	Didelphimorphia	LC	LC	2013	2015	Yes
<i>Hyladelphys kalinowskii</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Lutreolina crassicaudata</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Marmosa constantiae</i>	Didelphimorphia	DD	LC	2013	2016	No
<i>Marmosa demerarae</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Marmosa lepida</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Marmosa murina</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Marmosa paraguayana</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Marmosa regina</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Marmosops bishopi</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Marmosops impavidus</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Marmosops incanus</i>	Didelphimorphia	LC	LC	2013	2015	Yes
<i>Marmosops neblina</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Marmosops noctivagus</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Marmosops ocellatus</i>	Didelphimorphia	NT	LC	2013	2016	No
<i>Marmosops parvidens</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Marmosops paulensis</i>	Didelphimorphia	VU	LC	2013	2016	Yes

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Marmosops pinheiroi</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Metachirus nudicaudatus</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Monodelphis americana</i>	Didelphimorphia	LC	LC	2013	2016	Yes
<i>Monodelphis brevicaudata</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Monodelphis dimidiata</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Monodelphis domestica</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Monodelphis emiliae</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Monodelphis glirina</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Monodelphis iheringi</i>	Didelphimorphia	NT	DD	2013	2016	Yes
<i>Monodelphis kunsi</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Monodelphis scalops</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Monodelphis unistriata</i>	Didelphimorphia	DD	CR	2013	2016	No
<i>Philander andersoni</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Philander frenatus</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Philander mcilhennyi</i>	Didelphimorphia	LC	LC	2013	2015	No
<i>Philander opossum</i>	Didelphimorphia	LC	LC	2013	2016	No
<i>Thylamys karimii</i>	Didelphimorphia	LC	VU	2013	2016	Yes
<i>Thylamys macrurus</i>	Didelphimorphia	EN	NT	2013	2014	No
<i>Thylamys velutinus</i>	Didelphimorphia	VU	NT	2013	2016	Yes
<i>Bradypus torquatus</i>	Pilosa	VU	VU	2013	2013	Yes
<i>Bradypus tridactylus</i>	Pilosa	LC	LC	2013	2013	No
<i>Bradypus variegatus</i>	Pilosa	LC	LC	2013	2013	No
<i>Cyclopes didactylus</i>	Pilosa	LC	LC	2013	2013	No
<i>Choloepus didactylus</i>	Pilosa	LC	LC	2013	2013	No
<i>Choloepus hoffmanni</i>	Pilosa	DD	LC	2013	2013	No
<i>Myrmecophaga tridactyla</i>	Pilosa	VU	VU	2013	2013	No
<i>Tamandua tetradactyla</i>	Pilosa	LC	LC	2013	2013	No
<i>Cabassous tatouay</i>	Cingulata	DD	LC	2013	2013	No
<i>Cabassous unicinctus</i>	Cingulata	LC	LC	2013	2013	No
<i>Dasypus hybridus</i>	Cingulata	DD	NT	2013	2013	No
<i>Dasypus kappleri</i>	Cingulata	LC	LC	2013	2013	No
<i>Dasypus novemcinctus</i>	Cingulata	LC	LC	2013	2013	No
<i>Dasypus septemcinctus</i>	Cingulata	LC	LC	2013	2013	No
<i>Euphractus sexcinctus</i>	Cingulata	LC	LC	2013	2013	No
<i>Priodontes maximus</i>	Cingulata	VU	VU	2013	2013	No
<i>Tolypeutes matacus</i>	Cingulata	DD	NT	2013	2013	No
<i>Tolypeutes tricinctus</i>	Cingulata	EN	VU	2013	2013	Yes
<i>Tapirus terrestris</i>	Perissodactyla	VU	VU	2012	2018	No
<i>Blastocerus dichotomus</i>	Artiodactyla	VU	VU	2012	2016	No
<i>Mazama americana</i>	Artiodactyla	DD	DD	2012	2015	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Mazama bororo</i>	Artiodactyla	VU	VU	2012	2015	Yes
<i>Mazama gouazoubira</i>	Artiodactyla	LC	LC	2012	2015	No
<i>Mazama nana</i>	Artiodactyla	VU	VU	2012	2015	No
<i>Mazama nemorivaga</i>	Artiodactyla	DD	LC	2012	2016	No
<i>Odocoileus virginianus</i>	Artiodactyla	DD	LC	2012	2015	No
<i>Ozotoceros bezoarticus*</i>	Artiodactyla	VU	NT	2012	2015	No
<i>Pecari tajacu</i>	Artiodactyla	LC	LC	2012	2011	No
<i>Tayassu pecari</i>	Artiodactyla	VU	VU	2012	2012	No
<i>Trichechus inunguis</i>	Sirenia	VU	VU	2012	2016	No
<i>Trichechus manatus</i>	Sirenia	EN	VU	2012	2008	No
<i>Eubalaena australis</i>	Cetacea	EN	LC	2012	2017	No
<i>Balaenoptera acutorostrata</i>	Cetacea	LC	LC	2012	2018	No
<i>Balaenoptera bonaerensis</i>	Cetacea	DD	NT	2012	2018	No
<i>Balaenoptera borealis</i>	Cetacea	EN	EN	2012	2018	No
<i>Balaenoptera edeni</i>	Cetacea	DD	LC	2012	2017	No
<i>Balaenoptera musculus</i>	Cetacea	CR	EN	2012	2018	No
<i>Balaenoptera physalus</i>	Cetacea	EN	VU	2012	2018	No
<i>Megaptera novaeangliae</i>	Cetacea	NT	LC	2012	2018	No
<i>Delphinus delphis</i>	Cetacea	DD	LC	2012	2008	No
<i>Feresa attenuata</i>	Cetacea	LC	LC	2012	2017	No
<i>Globicephala macrorhynchus</i>	Cetacea	LC	LC	2012	2018	No
<i>Globicephala melas</i>	Cetacea	LC	LC	2012	2018	No
<i>Grampus griseus</i>	Cetacea	LC	LC	2012	2018	No
<i>Lagenodelphis hosei</i>	Cetacea	DD	LC	2012	2018	No
<i>Orcinus orca</i>	Cetacea	LC	DD	2012	2017	No
<i>Peponocephala electra</i>	Cetacea	LC	LC	2012	2019	No
<i>Pseudorca crassidens</i>	Cetacea	LC	NT	2012	2018	No
<i>Sotalia fluviatilis</i>	Cetacea	NT	DD	2012	2010	No
<i>Sotalia guianensis</i>	Cetacea	VU	NT	2012	2017	No
<i>Stenella attenuata</i>	Cetacea	LC	LC	2012	2018	No
<i>Stenella clymene</i>	Cetacea	LC	LC	2012	2018	No
<i>Stenella coeruleoalba</i>	Cetacea	LC	LC	2012	2018	No
<i>Stenella frontalis</i>	Cetacea	DD	LC	2012	2018	No
<i>Stenella longirostris</i>	Cetacea	DD	LC	2012	2018	No
<i>Steno bredanensis</i>	Cetacea	LC	LC	2012	2018	No
<i>Tursiops truncatus</i>	Cetacea	DD	LC	2012	2018	No
<i>Inia geoffrensis</i>	Cetacea	EN	EN	2012	2018	No
<i>Kogia breviceps</i>	Cetacea	LC	DD	2012	2012	No
<i>Kogia sima</i>	Cetacea	LC	DD	2012	2008	No
<i>Physeter macrocephalus</i>	Cetacea	VU	VU	2012	2008	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Pontoporia blainvillei</i>	Cetacea	CR	VU	2012	2017	No
<i>Ziphius cavirostris</i>	Cetacea	DD	LC	2012	2008	No
<i>Aotus azarae*</i>	Primates	DD	LC	2013	2015	No
<i>Aotus nancymae</i>	Primates	LC	VU	2013	2017	No
<i>Aotus nigriceps</i>	Primates	LC	LC	2013	2015	No
<i>Aotus trivirgatus</i>	Primates	LC	LC	2013	2015	No
<i>Aotus vociferans</i>	Primates	LC	LC	2013	2015	No
<i>Alouatta belzebul</i>	Primates	VU	VU	2013	2019	Yes
<i>Alouatta caraya</i>	Primates	NT	LC	2013	2008	No
<i>Alouatta discolor</i>	Primates	VU	VU	2013	2008	Yes
<i>Alouatta guariba*</i>	Primates	VU	LC	2013	2008	No
<i>Alouatta juara</i>	Primates	LC	LC	2013	2008	No
<i>Alouatta macconnelli</i>	Primates	LC	LC	2013	2008	No
<i>Alouatta nigerrima</i>	Primates	LC	LC	2013	2015	Yes
<i>Alouatta puruensis</i>	Primates	NT	LC	2013	2008	No
<i>Alouatta ululata</i>	Primates	EN	EN	2013	2008	Yes
<i>Ateles belzebuth</i>	Primates	VU	EN	2013	2019	No
<i>Ateles chamek</i>	Primates	VU	EN	2013	2008	No
<i>Ateles marginatus</i>	Primates	EN	EN	2013	2019	Yes
<i>Ateles paniscus</i>	Primates	LC	VU	2013	2019	No
<i>Brachyteles arachnoides</i>	Primates	EN	CR	2013	2019	Yes
<i>Brachyteles hypoxanthus</i>	Primates	CR	CR	2013	2019	Yes
<i>Lagothrix cana*</i>	Primates	EN	EN	2013	2008	No
<i>Lagothrix lagothricha</i>	Primates	VU	VU	2013	2008	No
<i>Lagothrix poeppigii</i>	Primates	VU	VU	2013	2008	No
<i>Callibella humilis</i>	Primates	LC	LC	2013	2015	Yes
<i>Callimico goeldii</i>	Primates	LC	VU	2013	2008	No
<i>Callithrix aurita</i>	Primates	EN	EN	2013	2015	Yes
<i>Callithrix flaviceps</i>	Primates	EN	EN	2013	2008	Yes
<i>Callithrix geoffroyi</i>	Primates	LC	LC	2013	2015	Yes
<i>Callithrix jacchus</i>	Primates	LC	LC	2013	2015	Yes
<i>Callithrix kuhlii</i>	Primates	NT	VU	2013	2015	Yes
<i>Callithrix penicillata</i>	Primates	LC	LC	2013	2015	Yes
<i>Cebuella pygmaea*</i>	Primates	LC	VU	2013	2015	No
<i>Leontopithecus caissara</i>	Primates	EN	CR	2013	2008	Yes
<i>Leontopithecus chrysomelas</i>	Primates	EN	EN	2013	2008	Yes
<i>Leontopithecus chrysopygus</i>	Primates	EN	EN	2013	2008	Yes
<i>Leontopithecus rosalia</i>	Primates	EN	EN	2013	2015	Yes
<i>Mico acariensis</i>	Primates	LC	LC	2013	2015	Yes
<i>Mico argentatus</i>	Primates	LC	LC	2013	2015	Yes

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Mico chrysoleucos</i>	Primates	LC	LC	2013	2015	Yes
<i>Mico emiliae</i>	Primates	LC	LC	2013	2015	Yes
<i>Mico humeralifer</i>	Primates	LC	DD	2013	2008	Yes
<i>Mico intermedius</i>	Primates	LC	LC	2013	2015	Yes
<i>Mico leucippe</i>	Primates	LC	VU	2013	2008	Yes
<i>Mico marcai</i>	Primates	DD	DD	2013	2015	Yes
<i>Mico mauesi</i>	Primates	LC	LC	2013	2008	Yes
<i>Mico melanurus</i>	Primates	NT	LC	2013	2008	No
<i>Mico nigriceps</i>	Primates	LC	NT	2013	2015	Yes
<i>Mico rondoni</i>	Primates	VU	VU	2013	2015	Yes
<i>Mico saterei</i>	Primates	LC	LC	2013	2015	Yes
<i>Saguinus bicolor</i>	Primates	CR	CR	2013	2015	Yes
<i>Saguinus fuscicollis*</i>	Primates	LC	LC	2013	2008	No
<i>Saguinus fuscus</i>	Primates	LC	LC	2013	2008	No
<i>Saguinus imperator*</i>	Primates	LC	LC	2013	2015	No
<i>Saguinus inustus</i>	Primates	LC	LC	2013	2015	No
<i>Saguinus labiatus*</i>	Primates	LC	LC	2013	2015	No
<i>Saguinus martinsi*</i>	Primates	NT	NT	2013	2015	Yes
<i>Saguinus midas</i>	Primates	LC	LC	2013	2015	No
<i>Saguinus mystax*</i>	Primates	LC	LC	2013	2015	No
<i>Saguinus niger</i>	Primates	VU	VU	2013	2008	Yes
<i>Saguinus nigricollis</i>	Primates	DD	LC	2013	2008	No
<i>Cebus albifrons</i>	Primates	LC	LC	2013	2008	No
<i>Cebus cuscinus</i>	Primates	DD	NT	2013	2015	No
<i>Cebus kaapori</i>	Primates	CR	CR	2013	2015	Yes
<i>Saimiri boliviensis</i>	Primates	LC	LC	2013	2015	No
<i>Saimiri sciureus</i>	Primates	LC	LC	2013	2008	No
<i>Saimiri ustus</i>	Primates	NT	NT	2013	2015	Yes
<i>Saimiri vanzolinii</i>	Primates	VU	VU	2013	2008	Yes
<i>Sapajus apella</i>	Primates	LC	LC	2013	2015	No
<i>Sapajus cay</i>	Primates	VU	LC	2013	2015	No
<i>Sapajus flavius</i>	Primates	EN	CR	2013	2008	Yes
<i>Sapajus libidinosus</i>	Primates	NT	NT	2013	2015	Yes
<i>Sapajus macrocephalus</i>	Primates	LC	LC	2013	2015	No
<i>Sapajus nigritus*</i>	Primates	NT	NT	2013	2015	No
<i>Sapajus robustus</i>	Primates	EN	EN	2013	2015	Yes
<i>Sapajus xanthosternus</i>	Primates	EN	CR	2013	2008	Yes
<i>Cacajao ayresi</i>	Primates	DD	VU	2013	2008	Yes
<i>Cacajao calvus*</i>	Primates	LC	VU	2013	2008	No
<i>Cacajao hosomi</i>	Primates	EN	VU	2013	2008	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Cacajao melanocephalus</i>	Primates	LC	LC	2013	2015	No
<i>Callicebus baptista</i>	Primates	DD	LC	2013	2015	Yes
<i>Callicebus barbarabrownae</i>	Primates	CR	CR	2013	2008	Yes
<i>Callicebus bernhardi</i>	Primates	LC	LC	2013	2015	Yes
<i>Callicebus brunneus</i>	Primates	NT	LC	2013	2008	No
<i>Callicebus caligatus</i>	Primates	LC	LC	2013	2015	Yes
<i>Callicebus cinerascens</i>	Primates	LC	LC	2013	2015	Yes
<i>Callicebus coimbrai</i>	Primates	EN	EN	2013	2008	Yes
<i>Callicebus cupreus</i>	Primates	LC	LC	2013	2015	No
<i>Callicebus donacophilus</i>	Primates	DD	LC	2013	2015	No
<i>Callicebus dubius</i>	Primates	LC	LC	2013	2016	No
<i>Callicebus hoffmannsi</i>	Primates	LC	LC	2013	2015	Yes
<i>Callicebus lucifer</i>	Primates	LC	LC	2013	2015	No
<i>Callicebus lugens</i>	Primates	LC	LC	2013	2015	No
<i>Callicebus melanochir</i>	Primates	VU	VU	2013	2008	Yes
<i>Callicebus moloch</i>	Primates	LC	LC	2013	2008	Yes
<i>Callicebus nigrifrons</i>	Primates	LC	NT	2013	2008	Yes
<i>Callicebus personatus</i>	Primates	VU	VU	2013	2008	Yes
<i>Callicebus purinus</i>	Primates	LC	LC	2013	2015	Yes
<i>Callicebus regulus</i>	Primates	LC	LC	2013	2015	Yes
<i>Callicebus stephennashi</i>	Primates	DD	DD	2013	2015	Yes
<i>Callicebus torquatus</i>	Primates	LC	LC	2013	2015	Yes
<i>Callicebus vieirai</i>	Primates	DD	DD	2013	2015	Yes
<i>Chiropotes albinasus</i>	Primates	NT	EN	2013	2008	Yes
<i>Chiropotes chiropotes</i>	Primates	LC	LC	2013	2015	No
<i>Chiropotes satanas</i>	Primates	CR	CR	2013	2008	Yes
<i>Chiropotes utahickae</i>	Primates	VU	EN	2013	2008	Yes
<i>Pithecia albicans</i>	Primates	LC	LC	2013	2015	Yes
<i>Pithecia monachus*</i>	Primates	LC	LC	2013	2015	No
<i>Pithecia pithecia*</i>	Primates	LC	LC	2013	2015	No
<i>Atelocynus microtis</i>	Carnivora	VU	NT	2012	2011	No
<i>Cerdocyon thous</i>	Carnivora	LC	LC	2012	2015	No
<i>Chrysocyon brachyurus</i>	Carnivora	VU	NT	2012	2015	No
<i>Lycalopex gymnocercus</i>	Carnivora	LC	LC	2012	2016	No
<i>Lycalopex vetulus</i>	Carnivora	VU	LC	2012	2008	Yes
<i>Speothos venaticus</i>	Carnivora	VU	NT	2012	2011	No
<i>Leopardus colocolo</i>	Carnivora	VU	NT	2012	2014	No
<i>Leopardus geoffroyi</i>	Carnivora	VU	LC	2012	2014	No
<i>Leopardus guttulus</i>	Carnivora	VU	VU	2014	2014	No
<i>Leopardus pardalis</i>	Carnivora	LC	LC	2012	2014	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Leopardus tigrinus</i>	Carnivora	EN	VU	2014	2016	No
<i>Leopardus wiedii</i>	Carnivora	VU	NT	2012	2014	No
<i>Panthera onca</i>	Carnivora	VU	NT	2012	2016	No
<i>Puma concolor</i>	Carnivora	VU	LC	2012	2014	No
<i>Puma yagouaroundi</i>	Carnivora	VU	LC	2012	2014	No
<i>Conepatus chinga</i>	Carnivora	LC	LC	2012	2015	No
<i>Conepatus semistriatus</i>	Carnivora	LC	LC	2012	2015	No
<i>Eira barbara</i>	Carnivora	LC	LC	2012	2015	No
<i>Galictis cuja</i>	Carnivora	LC	LC	2012	2015	No
<i>Galictis vittata</i>	Carnivora	LC	LC	2012	2015	No
<i>Lontra longicaudis</i>	Carnivora	NT	NT	2012	2014	No
<i>Mustela africana</i>	Carnivora	DD	LC	2012	2015	No
<i>Pteronura brasiliensis</i>	Carnivora	VU	EN	2012	2014	No
<i>Otaria flavescens</i>	Carnivora	LC	LC	2012	2015	No
<i>Bassaricyon alleni</i>	Carnivora	LC	LC	2012	2015	No
<i>Nasua nasua</i>	Carnivora	LC	LC	2012	2015	No
<i>Potos flavus</i>	Carnivora	LC	LC	2012	2015	No
<i>Procyon cancrivorus</i>	Carnivora	LC	LC	2012	2015	No
<i>Centronycteris maximiliani</i>	Chiroptera	LC	LC	2013	2016	No
<i>Cormura brevirostris</i>	Chiroptera	LC	LC	2013	2016	No
<i>Cyttarops alecto</i>	Chiroptera	DD	LC	2013	2016	No
<i>Diclidurus albus</i>	Chiroptera	LC	LC	2013	2016	No
<i>Diclidurus ingens</i>	Chiroptera	DD	DD	2013	2016	No
<i>Diclidurus isabella</i>	Chiroptera	DD	LC	2013	2016	No
<i>Diclidurus scutatus</i>	Chiroptera	DD	LC	2013	2016	No
<i>Peropteryx kappleri</i>	Chiroptera	LC	LC	2013	2016	No
<i>Peropteryx leucoptera</i>	Chiroptera	LC	LC	2013	2015	No
<i>Peropteryx macrotis</i>	Chiroptera	LC	LC	2013	2015	No
<i>Peropteryx trinitatis</i>	Chiroptera	DD	DD	2013	2016	No
<i>Rhynchonycteris naso</i>	Chiroptera	LC	LC	2013	2016	No
<i>Saccopteryx bilineata</i>	Chiroptera	LC	LC	2013	2015	No
<i>Saccopteryx canescens</i>	Chiroptera	LC	LC	2013	2015	No
<i>Saccopteryx gymnura</i>	Chiroptera	LC	DD	2013	2016	No
<i>Saccopteryx leptura</i>	Chiroptera	LC	LC	2013	2015	No
<i>Furipterus horrens</i>	Chiroptera	VU	LC	2013	2016	No
<i>Cynomops abrasus</i>	Chiroptera	LC	DD	2013	2016	No
<i>Cynomops greenhalli</i>	Chiroptera	DD	LC	2013	2015	No
<i>Cynomops paranus</i>	Chiroptera	DD	DD	2013	2016	No
<i>Cynomops planirostris</i>	Chiroptera	LC	LC	2013	2015	No
<i>Eumops auripendulus</i>	Chiroptera	LC	LC	2013	2015	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Eumops bonariensis</i>	Chiroptera	DD	LC	2013	2016	No
<i>Eumops delticus</i>	Chiroptera	LC	DD	2013	2016	No
<i>Eumops glaucinus</i>	Chiroptera	LC	LC	2013	2016	No
<i>Eumops hansae</i>	Chiroptera	LC	LC	2013	2015	No
<i>Eumops maurus</i>	Chiroptera	LC	DD	2013	2016	No
<i>Eumops patagonicus</i>	Chiroptera	DD	LC	2013	2015	No
<i>Eumops perotis</i>	Chiroptera	LC	LC	2013	2015	No
<i>Eumops trumbulli</i>	Chiroptera	LC	LC	2013	2018	No
<i>Molossops neglectus</i>	Chiroptera	LC	DD	2013	2016	No
<i>Molossops temminckii</i>	Chiroptera	LC	LC	2013	2015	No
<i>Molossus aztecus</i>	Chiroptera	DD	LC	2013	2018	No
<i>Molossus coibensis</i>	Chiroptera	DD	LC	2013	2016	No
<i>Molossus currentium</i>	Chiroptera	DD	LC	2013	2016	No
<i>Molossus molossus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Molossus pretiosus</i>	Chiroptera	DD	LC	2013	2018	No
<i>Molossus rufus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Neoplaticomops mattogrossensis</i>	Chiroptera	LC	LC	2013	2018	No
<i>Nyctinomops aurispinosus</i>	Chiroptera	LC	LC	2013	2018	No
<i>Nyctinomops laticaudatus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Nyctinomops macrotis</i>	Chiroptera	LC	LC	2013	2015	No
<i>Promops centralis</i>	Chiroptera	LC	LC	2013	2018	No
<i>Promops nasutus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Tadarida brasiliensis</i>	Chiroptera	LC	LC	2013	2015	No
<i>Pteronotus davyi</i>	Chiroptera	LC	LC	2013	2018	No
<i>Pteronotus gymnonotus</i>	Chiroptera	LC	LC	2013	2018	No
<i>Pteronotus parnellii</i>	Chiroptera	LC	LC	2013	2016	No
<i>Pteronotus personatus</i>	Chiroptera	LC	LC	2013	2016	No
<i>Natalus macrourus</i>	Chiroptera	VU	NT	2013	2016	No
<i>Noctilio albiventris</i>	Chiroptera	LC	LC	2013	2015	No
<i>Noctilio leporinus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Ametrida centurio</i>	Chiroptera	LC	LC	2013	2016	No
<i>Anoura caudifer</i>	Chiroptera	LC	LC	2013	2016	No
<i>Anoura geoffroyi</i>	Chiroptera	LC	LC	2013	2016	No
<i>Artibeus concolor</i>	Chiroptera	LC	LC	2013	2016	No
<i>Artibeus fimbriatus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Artibeus lituratus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Artibeus obscurus</i>	Chiroptera	LC	LC	2013	2016	No
<i>Artibeus planirostris</i>	Chiroptera	LC	LC	2013	2015	No
<i>Carollia benkeithi</i>	Chiroptera	LC	LC	2013	2016	No
<i>Carollia brevicauda</i>	Chiroptera	LC	LC	2013	2016	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Carollia perspicillata</i>	Chiroptera	LC	LC	2013	2015	No
<i>Chiroderma doriae</i>	Chiroptera	LC	LC	2013	2015	No
<i>Chiroderma trinitatum</i>	Chiroptera	LC	LC	2013	2016	No
<i>Chiroderma villosum</i>	Chiroptera	LC	LC	2013	2015	No
<i>Chiroderma vizottoi</i>	Chiroptera	DD	DD	2013	2016	Yes
<i>Choeroniscus godmani</i>	Chiroptera	DD	LC	2013	2015	No
<i>Choeroniscus minor</i>	Chiroptera	LC	LC	2013	2016	No
<i>Chrotopterus auritus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Dermanura anderseni</i>	Chiroptera	DD	LC	2013	2016	No
<i>Dermanura cinérea</i>	Chiroptera	DD	LC	2013	2016	No
<i>Dermanura glauca</i>	Chiroptera	DD	LC	2013	2015	No
<i>Dermanura gnoma</i>	Chiroptera	DD	LC	2013	2015	No
<i>Desmodus rotundus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Diaemus youngii</i>	Chiroptera	LC	LC	2013	2015	Yes
<i>Diphylla ecaudata</i>	Chiroptera	LC	LC	2013	2016	No
<i>Dryadonycteris capixaba</i>	Chiroptera	DD	DD	2013	2016	Yes
<i>Glossophaga commissarisi</i>	Chiroptera	LC	LC	2013	2016	No
<i>Glossophaga longirostris</i>	Chiroptera	DD	LC	2013	2017	No
<i>Glossophaga soricina</i>	Chiroptera	LC	LC	2013	2015	No
<i>Glyphonycteris behnii</i>	Chiroptera	VU	DD	2013	2016	No
<i>Glyphonycteris daviesi</i>	Chiroptera	LC	LC	2013	2018	No
<i>Glyphonycteris sylvestris</i>	Chiroptera	LC	LC	2013	2018	No
<i>Hsunycteris thomasi</i>	Chiroptera	LC	LC	2013	2015	No
<i>Lampronnycteris brachyotis</i>	Chiroptera	LC	LC	2013	2018	No
<i>Lichonycteris degener</i>	Chiroptera	DD	LC	2013	2016	No
<i>Lionycteris spurrelli</i>	Chiroptera	LC	LC	2013	2018	No
<i>Lonchophylla bokermanni</i>	Chiroptera	NT	EN	2014	2016	Yes
<i>Lonchophylla dekeyseri</i>	Chiroptera	EN	EN	2013	2016	No
<i>Lonchophylla mordax</i>	Chiroptera	LC	NT	2013	2016	Yes
<i>Lonchophylla perachii</i>	Chiroptera	LC	LC	2014	2016	Yes
<i>Lonchorhina aurita</i>	Chiroptera	VU	LC	2013	2015	No
<i>Lonchorhina inusitata</i>	Chiroptera	DD	DD	2013	2016	No
<i>Lophostoma brasiliense</i>	Chiroptera	LC	LC	2013	2016	No
<i>Lophostoma carrikeri</i>	Chiroptera	LC	LC	2013	2016	No
<i>Lophostoma schulzi</i>	Chiroptera	LC	LC	2013	2016	No
<i>Lophostoma silvicola</i>	Chiroptera	LC	LC	2013	2016	No
<i>Macrophyllum macrophyllum</i>	Chiroptera	LC	LC	2013	2015	No
<i>Mesophylla macconnelli</i>	Chiroptera	LC	LC	2013	2015	No
<i>Micronycteris brosseti</i>	Chiroptera	DD	DD	2013	2016	No
<i>Micronycteris hirsuta</i>	Chiroptera	LC	LC	2013	2016	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Micronycteris megalotis</i>	Chiroptera	LC	LC	2013	2015	No
<i>Micronycteris microtis</i>	Chiroptera	LC	LC	2013	2019	No
<i>Micronycteris minuta</i>	Chiroptera	LC	LC	2013	2015	No
<i>Micronycteris sanborni</i>	Chiroptera	LC	LC	2013	2017	Yes
<i>Micronycteris schmidtorum</i>	Chiroptera	LC	LC	2013	2016	No
<i>Mimon bennettii</i>	Chiroptera	LC	LC	2013	2018	No
<i>Mimon crenulatum</i>	Chiroptera	LC	LC	2013	2018	No
<i>Neonycteris pusilla</i>	Chiroptera	DD	DD	2013	2016	Yes
<i>Phylloderma stenops</i>	Chiroptera	LC	LC	2013	2015	No
<i>Phyllostomus discolor</i>	Chiroptera	LC	LC	2013	2015	No
<i>Phyllostomus elongatus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Phyllostomus hastatus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Phyllostomus latifolius</i>	Chiroptera	LC	LC	2013	2016	No
<i>Platyrrhinus aurarius</i>	Chiroptera	LC	LC	2013	2016	No
<i>Platyrrhinus brachycephalus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Platyrrhinus fusciventris</i>	Chiroptera	LC	LC	2013	2016	No
<i>Platyrrhinus incarum</i>	Chiroptera	LC	LC	2013	2016	No
<i>Platyrrhinus infuscus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Platyrrhinus lineatus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Platyrrhinus recifinus</i>	Chiroptera	LC	LC	2013	2016	Yes
<i>Pygoderma bilabiatum</i>	Chiroptera	LC	LC	2013	2015	No
<i>Rhinophylla fischeriae</i>	Chiroptera	LC	LC	2013	2016	No
<i>Rhinophylla pumilio</i>	Chiroptera	LC	LC	2013	2015	No
<i>Scleronycteris ega</i>	Chiroptera	DD	DD	2013	2016	No
<i>Sphaeronycteris toxophyllum</i>	Chiroptera	DD	LC	2013	2017	No
<i>Sturnira lilium</i>	Chiroptera	LC	LC	2013	2016	No
<i>Sturnira magna</i>	Chiroptera	DD	LC	2013	2015	No
<i>Sturnira tildae</i>	Chiroptera	LC	LC	2013	2016	No
<i>Tonatia bidens</i>	Chiroptera	LC	DD	2013	2016	No
<i>Tonatia saurophila</i>	Chiroptera	LC	LC	2013	2018	No
<i>Trachops cirrhosus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Trinycteris nicefori</i>	Chiroptera	LC	LC	2013	2015	No
<i>Uroderma bilobatum</i>	Chiroptera	LC	LC	2013	2019	No
<i>Uroderma magnirostrum</i>	Chiroptera	LC	LC	2013	2015	No
<i>Vampyressa pusilla</i>	Chiroptera	LC	DD	2013	2016	No
<i>Vampyressa thylene</i>	Chiroptera	LC	LC	2013	2015	No
<i>Vampyriscus bidens</i>	Chiroptera	LC	LC	2013	2016	No
<i>Vampyriscus brocki</i>	Chiroptera	LC	LC	2013	2016	No
<i>Vampyrodes caraccioli</i>	Chiroptera	LC	LC	2013	2016	No
<i>Vampyrum spectrum</i>	Chiroptera	LC	NT	2013	2018	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Xeronycteris vieirai</i>	Chiroptera	VU	DD	2013	2015	Yes
<i>Thyroptera devivoi</i>	Chiroptera	DD	DD	2013	2015	No
<i>Thyroptera discifera</i>	Chiroptera	DD	LC	2013	2018	No
<i>Thyroptera lavalii</i>	Chiroptera	DD	DD	2013	2016	No
<i>Thyroptera tricolor</i>	Chiroptera	LC	LC	2013	2015	No
<i>Eptesicus andinus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Eptesicus brasiliensis</i>	Chiroptera	LC	LC	2013	2015	No
<i>Eptesicus chiriquinus</i>	Chiroptera	LC	LC	2013	2018	No
<i>Eptesicus diminutus</i>	Chiroptera	LC	LC	2013	2016	No
<i>Eptesicus furinalis</i>	Chiroptera	LC	LC	2013	2015	No
<i>Eptesicus taddeii</i>	Chiroptera	VU	DD	2013	2016	Yes
<i>Histiotus alienus</i>	Chiroptera	DD	DD	2013	2016	No
<i>Histiotus laephotis</i>	Chiroptera	DD	LC	2013	2019	No
<i>Histiotus macrotus</i>	Chiroptera	DD	LC	2013	2016	No
<i>Histiotus montanus</i>	Chiroptera	LC	LC	2013	2016	No
<i>Histiotus velatus</i>	Chiroptera	LC	DD	2013	2016	No
<i>Lasiurus blossevillii</i>	Chiroptera	LC	LC	2013	2016	No
<i>Lasiurus castaneus</i>	Chiroptera	DD	DD	2013	2016	No
<i>Lasiurus cinereus</i>	Chiroptera	LC	LC	2013	2015	No
<i>Lasiurus ebenus</i>	Chiroptera	DD	DD	2013	2016	Yes
<i>Lasiurus ega</i>	Chiroptera	LC	LC	2013	2016	No
<i>Lasiurus egregius</i>	Chiroptera	DD	DD	2013	2016	No
<i>Myotis albescens</i>	Chiroptera	LC	LC	2013	2015	No
<i>Myotis dinelli</i>	Chiroptera	DD	LC	2013	2016	No
<i>Myotis izecksohni</i>	Chiroptera	DD	DD	2013	2016	Yes
<i>Myotis lavalii</i>	Chiroptera	DD	LC	2013	2017	No
<i>Myotis levis</i>	Chiroptera	LC	LC	2013	2016	No
<i>Myotis nigricans</i>	Chiroptera	LC	LC	2013	2019	No
<i>Myotis riparius</i>	Chiroptera	LC	LC	2013	2015	No
<i>Myotis ruber</i>	Chiroptera	LC	NT	2013	2018	No
<i>Myotis simus</i>	Chiroptera	LC	DD	2013	2016	No
<i>Rhogeessa hussoni</i>	Chiroptera	LC	DD	2013	2016	No
<i>Rhogeessa io</i>	Chiroptera	DD	LC	2013	2016	No
<i>Cavia aperea</i>	Rodentia	LC	LC	2014	2016	No
<i>Cavia fulgida</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Cavia intermedia</i>	Rodentia	CR	CR	2014	2016	Yes
<i>Cavia magna</i>	Rodentia	NT	LC	2014	2016	No
<i>Galea spixii</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Hydrochoerus hydrochaeris</i>	Rodentia	LC	LC	2014	2016	No
<i>Kerodon acrobata</i>	Rodentia	VU	DD	2014	2016	Yes

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Kerodon rupestres</i>	Rodentia	VU	LC	2014	2016	Yes
<i>Abrawayaomys ruschii</i>	Rodentia	LC	LC	2014	2016	No
<i>Akodon azarae</i>	Rodentia	LC	LC	2014	2016	No
<i>Akodon cursor</i>	Rodentia	LC	LC	2014	2016	No
<i>Akodon lindberghi</i>	Rodentia	LC	DD	2014	2016	Yes
<i>Akodon mystax</i>	Rodentia	VU	DD	2014	2016	Yes
<i>Akodon montensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Akodon paranaensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Akodon reigi</i>	Rodentia	LC	LC	2014	2016	No
<i>Akodon sanctipaulensis</i>	Rodentia	DD	DD	2014	2016	Yes
<i>Bibimys labiosus</i>	Rodentia	LC	LC	2014	2016	No
<i>Blarinomys breviceps</i>	Rodentia	LC	LC	2014	2016	No
<i>Brucepattersonius griserufescens</i>	Rodentia	LC	DD	2014	2017	Yes
<i>Brucepattersonius iheringi</i>	Rodentia	LC	LC	2014	2016	No
<i>Brucepattersonius igniventris</i>	Rodentia	DD	DD	2014	2017	Yes
<i>Brucepattersonius soricinus</i>	Rodentia	LC	DD	2014	2017	Yes
<i>Calomys callidus</i>	Rodentia	LC	LC	2014	2016	No
<i>Calomys callosus</i>	Rodentia	LC	LC	2014	2016	No
<i>Calomys expulsus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Calomys laucha</i>	Rodentia	LC	LC	2014	2016	No
<i>Calomys tener</i>	Rodentia	LC	LC	2014	2016	No
<i>Calomys tocantinsi</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Cerradomys maracajuensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Cerradomys marinhus</i>	Rodentia	LC	LC	2014	2017	Yes
<i>Cerradomys scotti</i>	Rodentia	LC	LC	2014	2017	No
<i>Cerradomys subflavus</i>	Rodentia	LC	LC	2014	2016	No
<i>Delomys dorsalis</i>	Rodentia	LC	LC	2014	2016	No
<i>Delomys sublineatus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Deltamys kempii</i>	Rodentia	LC	LC	2014	2016	No
<i>Drymoreomys albimaculatus</i>	Rodentia	DD	NT	2014	2017	Yes
<i>Euryoryzomys lamia</i>	Rodentia	EN	VU	2014	2017	Yes
<i>Euryoryzomys russatus</i>	Rodentia	LC	LC	2014	2016	No
<i>Euryoryzomys emmonsae</i>	Rodentia	LC	DD	2014	2017	Yes
<i>Euryoryzomys macconnelli</i>	Rodentia	LC	LC	2014	2016	No
<i>Euryoryzomys nitidus</i>	Rodentia	LC	LC	2014	2016	No
<i>Holochilus brasiliensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Holochilus chacarius</i>	Rodentia	LC	LC	2014	2016	No
<i>Holochilus sciureus</i>	Rodentia	LC	LC	2014	2016	No
<i>Hylaeamys laticeps</i>	Rodentia	LC	VU	2014	2017	Yes
<i>Hylaeamys megacephalus</i>	Rodentia	LC	LC	2014	2016	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Hylaeamys oniscus</i>	Rodentia	NT	NT	2014	2016	Yes
<i>Hylaeamys perenensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Hylaeamys yunganus</i>	Rodentia	LC	LC	2014	2016	No
<i>Juliomys pictipes</i>	Rodentia	LC	LC	2014	2016	No
<i>Juliomys rimofrons</i>	Rodentia	NT	NT	2014	2016	Yes
<i>Kunsia tomentosus</i>	Rodentia	DD	LC	2014	2016	No
<i>Lundomys molitor</i>	Rodentia	DD	LC	2014	2016	No
<i>Microakodontomys transitorius</i>	Rodentia	EN	EN	2014	2016	Yes
<i>Neacomys minutus</i>	Rodentia	LC	LC	2014	2017	Yes
<i>Neacomys dubosti</i>	Rodentia	LC	LC	2014	2017	No
<i>Neacomys musseri</i>	Rodentia	LC	LC	2014	2017	No
<i>Neacomys paracou</i>	Rodentia	LC	LC	2014	2017	No
<i>Neacomys spinosus</i>	Rodentia	LC	LC	2014	2016	No
<i>Necomys lasiurus</i>	Rodentia	LC	LC	2014	2016	No
<i>Necomys lenguarum</i>	Rodentia	LC	LC	2014	2016	No
<i>Nectomys apicalis</i>	Rodentia	LC	LC	2014	2016	No
<i>Nectomys rattus</i>	Rodentia	LC	LC	2014	2016	No
<i>Nectomys squamipes</i>	Rodentia	LC	LC	2014	2016	No
<i>Neusticomys ferreirai</i>	Rodentia	LC	DD	2014	2017	Yes
<i>Neusticomys oyapocki</i>	Rodentia	LC	DD	2014	2017	No
<i>Oecomys auyantepui</i>	Rodentia	LC	LC	2014	2016	No
<i>Oecomys bicolor</i>	Rodentia	LC	LC	2014	2016	No
<i>Oecomys catherinae</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Oecomys cleberi</i>	Rodentia	LC	DD	2014	2017	Yes
<i>Oecomys concolor</i>	Rodentia	LC	LC	2014	2016	No
<i>Oecomys mamorae</i>	Rodentia	LC	LC	2014	2016	No
<i>Oecomys paricola</i>	Rodentia	LC	DD	2014	2017	No
<i>Oecomys rex</i>	Rodentia	LC	LC	2014	2016	No
<i>Oecomys roberti</i>	Rodentia	LC	LC	2014	2016	No
<i>Oecomys rutilus</i>	Rodentia	LC	LC	2014	2016	No
<i>Oecomys superans</i>	Rodentia	LC	LC	2014	2016	No
<i>Oecomys trinitatis</i>	Rodentia	LC	LC	2014	2016	No
<i>Oligoryzomys chacoensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Oligoryzomys flavescens</i>	Rodentia	LC	LC	2014	2016	No
<i>Oligoryzomys microtis</i>	Rodentia	LC	LC	2014	2016	No
<i>Oligoryzomys moojeni</i>	Rodentia	LC	DD	2014	2017	Yes
<i>Oligoryzomys nigripes</i>	Rodentia	LC	LC	2014	2016	No
<i>Oligoryzomys rupestris</i>	Rodentia	EN	DD	2014	2017	Yes
<i>Oligoryzomys stramineus</i>	Rodentia	LC	LC	2014	2017	Yes
<i>Oxymycterus amazonicus</i>	Rodentia	LC	LC	2014	2016	Yes

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Oxymycterus dasytrichus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Oxymycterus delator</i>	Rodentia	LC	LC	2014	2016	No
<i>Oxymycterus inca</i>	Rodentia	DD	LC	2014	2016	No
<i>Oxymycterus nasutus</i>	Rodentia	LC	LC	2014	2016	No
<i>Oxymycterus quaestor</i>	Rodentia	LC	LC	2014	2016	No
<i>Oxymycterus rufus</i>	Rodentia	DD	LC	2014	2016	No
<i>Phaenomys ferrugineus</i>	Rodentia	DD	EN	2014	2016	Yes
<i>Pseudoryzomys simplex</i>	Rodentia	LC	LC	2014	2016	No
<i>Rhagomys rufescens</i>	Rodentia	LC	VU	2014	2016	Yes
<i>Reithrodon typicus</i>	Rodentia	NT	LC	2014	2016	No
<i>Rhipidomys cariri</i>	Rodentia	VU	DD	2014	2017	Yes
<i>Rhipidomys emiliae</i>	Rodentia	DD	LC	2014	2016	Yes
<i>Rhipidomys gardneri</i>	Rodentia	LC	LC	2014	2017	No
<i>Rhipidomys ipukensis</i>	Rodentia	DD	DD	2014	2016	Yes
<i>Rhipidomys itoan</i>	Rodentia	DD	LC	2014	2016	Yes
<i>Rhipidomys leucodactylus</i>	Rodentia	LC	LC	2014	2016	No
<i>Rhipidomys macrurus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Rhipidomys mastacalis</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Rhipidomys nitela</i>	Rodentia	LC	LC	2014	2016	No
<i>Rhipidomys tribei</i>	Rodentia	EN	DD	2014	2016	Yes
<i>Scapteromys aquaticus</i>	Rodentia	LC	LC	2014	2016	No
<i>Scapteromys tumidus</i>	Rodentia	DD	LC	2014	2016	No
<i>Scolomys ucayalensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Sigmodon alstoni</i>	Rodentia	LC	LC	2014	2016	No
<i>Sooretamys angouya</i>	Rodentia	LC	LC	2014	2016	No
<i>Thalpomys cerradensis</i>	Rodentia	VU	LC	2014	2016	Yes
<i>Thalpomys lasiotis</i>	Rodentia	EN	LC	2014	2016	Yes
<i>Thaptomys nigrita</i>	Rodentia	LC	LC	2014	2016	No
<i>Wiedomys cerradensis</i>	Rodentia	LC	DD	2014	2017	Yes
<i>Wiedomys pyrrhorhinus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Wilfrodomys oenax</i>	Rodentia	EN	EN	2014	2016	No
<i>Zygodontomys brevicauda</i>	Rodentia	LC	LC	2014	2016	No
<i>Ctenomys flamarioni</i>	Rodentia	EN	EN	2014	2016	Yes
<i>Ctenomys ibicuiensis</i>	Rodentia	NT	DD	2014	2013	Yes
<i>Ctenomys lami</i>	Rodentia	EN	VU	2014	2017	Yes
<i>Ctenomys minutus</i>	Rodentia	VU	DD	2014	2016	Yes
<i>Ctenomys nattereri</i>	Rodentia	DD	LC	2014	2016	No
<i>Ctenomys torquatus</i>	Rodentia	LC	LC	2014	2016	No
<i>Cuniculus paca</i>	Rodentia	LC	LC	2014	2016	No
<i>Dasyprocta azarae</i>	Rodentia	LC	DD	2014	2016	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Dasyprocta croconota</i>	Rodentia	LC	DD	2014	2016	Yes
<i>Dasyprocta fuliginosa</i>	Rodentia	LC	LC	2014	2016	No
<i>Dasyprocta iacki</i>	Rodentia	LC	DD	2014	2016	Yes
<i>Dasyprocta leporina</i>	Rodentia	LC	LC	2014	2016	No
<i>Dasyprocta prymnolopha</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Myoprocta acouchy</i>	Rodentia	LC	LC	2014	2016	No
<i>Myoprocta pratti</i>	Rodentia	LC	LC	2014	2016	No
<i>Dinomys branickii</i>	Rodentia	DD	LC	2014	2016	No
<i>Callistomys pictus</i>	Rodentia	EN	EN	2014	2016	Yes
<i>Carterodon sulcidens</i>	Rodentia	DD	DD	2014	2016	Yes
<i>Clyomys laticeps</i>	Rodentia	LC	LC	2014	2016	No
<i>Dactylomys boliviensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Dactylomys dactylinus</i>	Rodentia	LC	LC	2014	2016	No
<i>Echimys chrysurus</i>	Rodentia	LC	LC	2014	2016	No
<i>Echimys vieirai</i>	Rodentia	DD	DD	2014	2016	Yes
<i>Euryzygomatomys spinosus</i>	Rodentia	LC	LC	2014	2016	No
<i>Isothrix bistrata</i>	Rodentia	LC	LC	2014	2016	No
<i>Isothrix negrensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Isothrix paguros</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Isothrix sinnamariensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Kannabateomys amblyonyx</i>	Rodentia	LC	LC	2014	2016	No
<i>Lonchothrix emiliae</i>	Rodentia	DD	LC	2014	2016	Yes
<i>Makalata didelphoides</i>	Rodentia	LC	LC	2014	2016	No
<i>Makalata macrura</i>	Rodentia	LC	LC	2014	2016	No
<i>Makalata obscura</i>	Rodentia	DD	DD	2014	2016	Yes
<i>Mesomys hispidus</i>	Rodentia	LC	LC	2014	2016	No
<i>Mesomys occultus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Mesomys stimulax</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Myocastor coypus</i>	Rodentia	LC	LC	2014	2016	No
<i>Phyllomys brasiliensis</i>	Rodentia	EN	EN	2014	2016	Yes
<i>Phyllomys dasythrix</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Phyllomys kerri</i>	Rodentia	DD	DD	2014	2016	Yes
<i>Phyllomys lamarum</i>	Rodentia	DD	DD	2014	2016	Yes
<i>Phyllomys lundi</i>	Rodentia	EN	EN	2014	2016	Yes
<i>Phyllomys mantiqueirensis</i>	Rodentia	DD	CR	2014	2016	Yes
<i>Phyllomys medius</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Phyllomys nigrispinus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Phyllomys pattoni</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Phyllomys sulinus</i>	Rodentia	LC	DD	2014	2016	Yes
<i>Phyllomys thomasi</i>	Rodentia	EN	EN	2014	2016	Yes

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Phyllomys unicolor</i>	Rodentia	CR	CR	2014	2016	Yes
<i>Proechimys breviceauda</i>	Rodentia	LC	LC	2014	2016	No
<i>Proechimys cuvieri</i>	Rodentia	LC	LC	2014	2016	No
<i>Proechimys echinothrix</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Proechimys gardneri</i>	Rodentia	LC	DD	2014	2016	No
<i>Proechimys goeldii</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Proechimys guyannensis</i>	Rodentia	LC	LC	2014	2016	No
<i>Proechimys kulinae</i>	Rodentia	LC	DD	2014	2016	No
<i>Proechimys longicaudatus</i>	Rodentia	LC	LC	2014	2016	No
<i>Proechimys pattoni</i>	Rodentia	LC	LC	2014	2016	No
<i>Proechimys quadruplicatus</i>	Rodentia	LC	LC	2014	2016	No
<i>Proechimys roberti</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Proechimys simonsi</i>	Rodentia	LC	LC	2014	2016	No
<i>Proechimys steerei</i>	Rodentia	LC	LC	2014	2016	No
<i>Thrichomys apereoides</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Thrichomys laurentius</i>	Rodentia	LC	DD	2014	2016	Yes
<i>Thrichomys inermis</i>	Rodentia	DD	LC	2014	2016	Yes
<i>Thrichomys pachyurus</i>	Rodentia	LC	LC	2014	2016	No
<i>Tromys grandis</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Trinomys albispinus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Trinomys dimidiatus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Trinomys eliasi</i>	Rodentia	VU	NT	2014	2016	Yes
<i>Trinomys iheringi</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Trinomys mirapitanga</i>	Rodentia	EN	DD	2014	2016	Yes
<i>Trinomys moojeni</i>	Rodentia	EN	EN	2014	2016	Yes
<i>Trinomys paratus</i>	Rodentia	LC	DD	2014	2016	Yes
<i>Trinomys setosus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Trinomys yonenagae</i>	Rodentia	EN	EN	2014	2016	Yes
<i>Chaetomys subspinosus</i>	Rodentia	VU	VU	2014	2016	Yes
<i>Coendou bicolor</i>	Rodentia	LC	LC	2014	2016	No
<i>Coendou baturitensis</i>	Rodentia	DD	DD	2014	2016	Yes
<i>Coendou insidiosus</i>	Rodentia	LC	LC	2014	2016	Yes
<i>Coendou melanurus</i>	Rodentia	LC	LC	2014	2016	No
<i>Coendou nycthemera</i>	Rodentia	LC	DD	2014	2016	Yes
<i>Coendou prehensilis</i>	Rodentia	LC	LC	2014	2016	No
<i>Coendou roosmalenorum</i>	Rodentia	LC	DD	2014	2016	Yes
<i>Coendou speratus</i>	Rodentia	EN	EN	2014	2013	Yes
<i>Coendou spinosus</i>	Rodentia	LC	LC	2014	2016	No
<i>Guerlinguetus aestuans</i>	Rodentia	LC	LC	2014	2016	No
<i>Hadroscurus igniventris</i>	Rodentia	LC	LC	2014	2016	No

Table 1s. (Cont.)

Species	Order	Status		Year		E
		BR	IUCN	BR	IUCN	
<i>Hadrosciurus pyrrhinus</i>	Rodentia	LC	DD	2014	2016	No
<i>Hadrosciurus spadiceus</i>	Rodentia	LC	LC	2014	2016	No
<i>Microsciurus flaviventer</i>	Rodentia	LC	LC	2014	2016	No
<i>Sciurillus pusillus</i>	Rodentia	LC	LC	2014	2016	No
<i>Sylvilagus brasiliensis</i>	Lagomorpha	LC	EN	2014	2018	Yes