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Scope(s): Global
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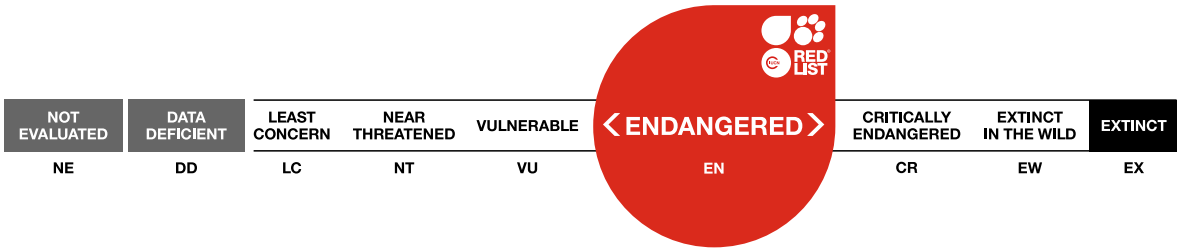
Callithrix aurita, Buffy-tufted-ear Marmoset

Amendment version

Assessment by: de Melo, F.R. *et al.*



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Primates	Callitrichidae

Scientific Name: *Callithrix aurita* (É. Geoffroy in Humboldt, 1812)

Common Name(s):

- English: Buffy-tufted-ear Marmoset, White-eared Marmoset
- French: Marmouset À Oreilles Blanches, Oustiti Oreillard, Oustiti À Oreilles Blanches
- German: Ohrbüschel-Seidenäffchen, Weißohr-Seidenaffe, Weißohrseidenaffe
- Portuguese: Sagüi-da-serra-escuro

Taxonomic Notes:

In the past, the eastern Brazilian marmosets (*penicillata* É. Geoffroy, 1812; *geoffroyi* É. Geoffroy in Humboldt, 1812; *aurita* É. Geoffroy in Humboldt, 1812; and *flaviceps* Thomas, 1903) of the '*jacchus* group' were considered to be subspecies of *Callithrix jacchus*, following Hershkovitz (1977). All taxa were later elevated to full species level (Coimbra-Filho 1984, Mittermeier *et al.* 1988, Marroig *et al*. 2004, Coimbra-Filho *et al*. 2006).

Coimbra-Filho (1986a, b, 1990, 1991) has argued that the similarity in dental morphology (Natori 1986), behaviour, pelage (infants of the two forms are practically identical in appearance), vocalizations (Mendes 1997b,c) and the recent discovery of wild groups of hybrids between *C. aurita* and *C. flaviceps* at Carangola, Minas Gerais (Ferrari and Mendes 1991), suggest subspecific status (Coimbra-Filho *et al*. 1993). Ferrari *et al*. (1996) studied and reviewed the ecology and behaviour of *C. aurita* and *C. flaviceps* groups and concluded that although undoubtedly very similar, the "comparison appears to have done more to re-emphasize the enormous flexibility underlying the behavioural ecology of the marmosets as a whole than clarify the relationships between these two taxa in particular". Here, Rylands' (2012) proposed taxonomy is followed; it considers *C. aurita* and *C. flaviceps* as full species.

Assessment Information

Red List Category & Criteria: Endangered A2cde ver 3.1

Year Published: 2021

Date Assessed: January 26, 2015

Justification:

This species is listed as Endangered based on a suspected population reduction of >50% over the past three generations (2000-2018) due to habitat loss (>43%), competition and hybridization with invasive species, and occasional live capture for the pet trade.

Previously Published Red List Assessments

2020 – Endangered (EN)
https://dx.doi.org/10.2305/IUCN.UK.2020-1.RLTS.T3570A166617776.en

https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T3570A191700629.en

2019 – Endangered (EN)
https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T3570A17936433.en

2008 – Vulnerable (VU)
https://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T3570A9949843.en

2000 – Endangered (EN)

1996 – Endangered (EN)

1994 – Endangered (E)

1990 – Endangered (E)

1988 – Endangered (E)

1986 – Endangered (E)

1982 – Endangered (E)

Geographic Range

Range Description:

Callithrix aurita occurs in the montane rain forests of south-eastern Brazil, in the southern part of the state of Minas Gerais, the state of Rio de Janeiro, and the East and North-east of the state of São Paulo (see Coimbra-Filho 1986b, Olmos and Martuscelli 1995, Brandão and Develey 1998, Ferrari *et al*. 1996). Hershkovitz (1977) marks the northern limit in Minas Gerais as the Rio Muriaé, but it occurs to the north in the Rio Doce State Park in Minas Gerais (Mittermeier *et al.* 1982), and hybrids (with *C. flaviceps*) have been recorded at Carangola in the Serra do Brigadeiro, Minas Gerais (Ferrari and Mendes 1991; Mendes 1997a,d; Cosenza and Melo 1998). Melo and Rylands (2008) described the geographical distribution of this taxon. The northern boundary of its distribution seems to be the Piracicaba River, in Minas Gerais; the southern limit is the river Doce. In the West, it seems to extend to Espinhaço in Minas Gerais, and to the transition areas of the Cerrado in São Paulo. To the East, in Rio de Janeiro, the species is limited to the tops of the slopes of the Serra do Mar, with the exception of the southern state, where *C. aurita* can be found almost at sea level.Its southern boundary is still unknown, because the great mass of Paranapiacaba in Sao Paulo can house relict populations, as well as *Leontopithecus chrysopygus* (Lima *et al.* 2003). Hershkovitz (1977) indicated the south-easternmost locality to be the Rio Ribeira de Iguapé in São Paulo. However, Olmos and Martuscelli (1995) failed to find evidence for this. They reported that extensive fieldwork (1982-1995) in such localities as the Fazenda Intervales State Park, Alto Ribeira State Park, Ilha do Cardoso and Carlos Botelho, and the Jureia Ecological Station and the muncipalities of Juquitiba amd Miracatú in the Serra da Paranapicaba consistently failed to find *C. aurita*. They proposed the southern limit to be near the city of São Paulo, north of the junction of the Rios Pinheiros and Tietê. The Rio Tieté forms the southernmost boundary and the most southerly record is close to Ipanema (23°26'S, 47°36'W), today Araçoiaba da Serra (the type locality for *Leontopithecus chrysopygus*). From there it extends west between the upper reaches of the Rios Tieté/Piracicaba. Again the exact limits are unclear, but believed to be the junction of these two rivers (Olmos and Martusecelli 1995).

Brandão and Develey (1998) carried out surveys to better understand the range of *C. aurita*. Although generally believed to be largely montane in its range (600-1,200 m asl) according to Olmos and

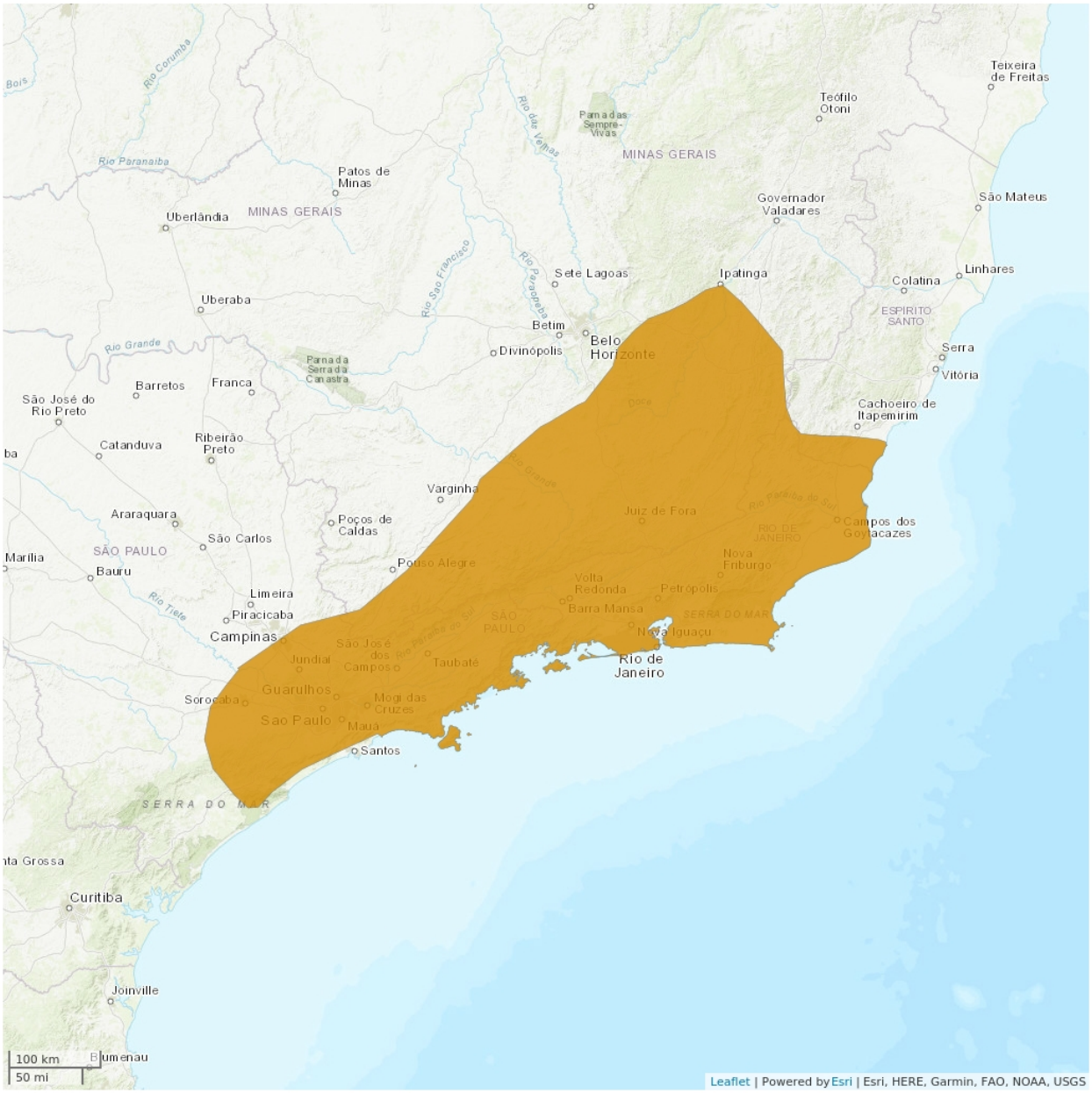
Martuscelli (1995), and (500-800 m asl) according to Rylands (1994), museum specimens have been collected on the foothills of the Serra do Mar, south of Rio de Janeiro (Pedra Blanca, municipality of Paratí at 80 m asl, and Mambucaba, municipality of Angra dos Reis at 100 m asl; Brandão and Develey 1998). Coimbra-Filho (1991) and Mendes (1993) also indicated that it occurred elsewhere in lowland Rio de Janeiro, including the North-east, but is probably today extinct there. All recent records are montane. Brandão and Develey (1998) carried out extensive surveys of the lowland coastal forests of São Paulo and Rio de Janeiro and were unable to obtain evidence of the species' existence anywhere except at Mambucaba where they found one in captivity and observed a group at 165 m asl.

This marmoset has been recorded north of the Rio Paraíba do Sul at the following sites: Mogi-Guaçú (Rio Mogi-Guaçú) by R. A. Mittermeier (unpubl.) and Muskin (1984); Alfenas, upper Rio Grande, in Minas Gerais (Hershkovitz 1977, Muskin 1984a); Vargem Grande, São Paulo (Muskin 1984a); Fazenda Monte Alegre, Monte Belo, Minas Gerais (Muskin 1984a) and in the vicinity of Viçosa, Minas Gerais (Mendes 1993); Serra do Capanema, Rio de Janeiro (21°03'S, 42°03'W) (Mendes 1993), Fazenda João Abdo, Rio de Janeiro (21°27'S, 41°56'W) (Mendes 1993). The westernmost locality shown by Hershkovitz (1977) is Boracéia, north-east of Bauru, on the upper Rio Tieté (22°10'S, 48°45'W), but Olmos and Martuscelli (1995) found this to be an outlier and suggested that this locality actually refers to the Boracéia Biological Station near the headwaters of the Rio Tietê.Recent *C. aurita* records have been published, in the northwest of the state of Rio de Janeiro (Bergallo *et al*. 2009a,b;. D. Pereira, unpubl. data) and in enclaves of Cerrado in São Paulo and in the southern and southeastern areas of Minas Gerais (Bechara 2012). More samples to define the southern distributional limit are required. Regions such as the great mass of Paranapiacaba and the south bank of the Tiete River in Sao Paulo are areas of potential local occurrence of this taxon (Melo and Rylands 2008).

Country Occurrence:

Native, Extant (resident): Brazil (Minas Gerais, Rio de Janeiro, São Paulo)

Distribution Map



Legend

EXTANT (RESIDENT)

Compiled by:

Biodiversitas Brazil 2008

The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

Callithrix aurita is nowhere common, and populations in the National Parks of Bocaina and Serra dos Orgãos are small (Coimbra-Filho 1984). Nine months of surveys in the Carlos Botelho State Park in the Serra do Paranapiacaba, in the south of its range, failed to provide any evidence for the survival of this marmoset (Paccagnella 1991; see also Torres de Assumpção 1983). Although recorded as rare in the Itatiaia National Park by Ávila-Pires and Gouveia (1977), Mittermeier *et al*. (1982) reported it to be extinct there. It may still occur in much reduced numbers according to Coimbra-Filho (1986b). It is extremely rare in the private reserve of the Fazenda Barreiro Rico (3,259 ha of forest), São Paulo. Milton and Lucca (1984) estimated no more than 8-12 animals in the entire area.

Other recorded density estimates include: 15 individuals/km² at the Fazenda Barreiro Rico, São Paulo (Torres de Assumpção 1983); 0.02-0.08 individuals/km² in the Rio Doce State Park, Minas Gerais (Stallings and Robinson 1991); and 20-23 individuals/km² in the Serra do Mar State Park (esp. Núcleo Cunha), São Paulo (Corrêa 1995). Currently, it is estimated that the size of the remaining total population is 176 subpopulations (Bechara 2012), with the number of mature individuals of this taxon being greater than 10,000. The species has suffered severe population decline, due to the loss and fragmentation of their habitat, as demonstrated by Bechara (2012), which showed a reduction of approximately 43% in this marmoset's area of occupancy (AOO) within 18 years. The population decline estimated for the species is intensified by competition and hybridization with invasive species, like *C. penicillata* and *C. jacchus*, and hybrids of the genus *Callithrix*. Thus, it is suspected that the reduction of *C. aurita* populations is at least 50% over the last 18 years.

Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

Callithrix aurita occurs in montane rain forests and forests of the inland plateau, at altitudes up to 1,300 m, where dry season temperatures can fall close to freezing (Ferrari *et al*. 1996, Brandão and Develey 1998). *Callithrix aurita* and *C. flaviceps* are the southernmost forms of marmosets within the natural range of the genus (*C. jacchus*, *C. penicillata* and *C. geoffroyi* have been introduced further south in Paraná, São Paulo, Santa Catarina and Argentina). There is what would appear to be a natural hybrid zone with *Callithrix flaviceps*, at the Serra do Brigadeiro, Carangola, in south-eastern Minas Gerais (Coimbra-Filho *et al.* 1993, Cosenza 1993, Cosenza and Melo 1998).

Marmosets and tamarins are distinguished from other Neotropical primates by their small size, modified claws rather than nails on all digits except the big toe, the presence of two as opposed to three molar teeth on either side of each jaw, and by the occurrence of twin births. They eat fruits, flowers, nectar, plant exudates (gums, saps, latex) and animal prey (including frogs, snails, lizards, spiders and insects). Marmosets have morphological and behavioural adaptations for gouging tree trunks and branches (and vines of certain species), to stimulate the flow of gum, which they eat, and in some species form a notable component of the diet (Coimbra-Filho 1972, Rylands 1984). They live in extended family groups of 4 to 15 individuals. Generally, only one female per group breeds during a particular breeding season. Brandão (1999) recorded a home range size of 39.9 ha (extending as high as 1,350 m asl) for one group at the Bananal Ecological Station, São Paulo.

The ecology and behaviour of *C. aurita* was studied by Muskin (1984a,b; Martins 1998a,b; Martins and

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Setz 2000; Santos and Martins 2000) in southern Minas Gerais and by Brandão (1999) and Brandão and Devely (1998) at the Bananal State Ecological Station in Brazil. Corrêa (1995), Ferrari *et al*. (1996), Corrêa *et al.* (2000), Coutinho (1996) and Coutinho and Corrêa (1995) studied the behavioural ecology of the species at the Núcleo Cunha of the Serra do Mar State Park in São Paulo, Brazil. Coutinho (1996) studied particularly the social and reproductive behaviour.

The dentition of *Callithrix aurita* is less specialized for tree-gouging to obtain gum than it is in *C. jacchus* and *C. penicillata* (see Natori 1986). Despite this, gum is an important part of their diet all year round, and largely obtained from sites where it is available without requiring gouging (Muskin 1984a, b; Coimbra-Filho 1991; Corrêa 1995; Ferrari *et al.* 1996; Martins and Setz 2000). Martins (2000) recorded them foraging on army ant (Eciton burchelli) swarms. Notable for this species is its consumption of fungi, otherwise recorded only in *Callimico goeldii.* They find the fruiting bodies of fungi on the stems of bamboo species (*Merostachys* spp.) and the South American mountain bamboo (*Chusquea* spp.), both of the family Poaceae.
Size:Female weight: 400-450 g (Garber 1992); Male weight: 400-450 g (Garber 1992)

Systems: Terrestrial

Use and Trade

The species is sometimes captured for the pet trade.

Threats (see Appendix for additional information)

The widespread destruction of forests within this marmoset's range, especially along the valley of the Rio Paraiba and in the lowland forests is a major threat to this species (Coimbra-Filho 1986b; Brandão and Develey 1998). It might still remain in some areas of the lowland forest of Rio de Janeiro (Mambucaba, Angra dos Reis), but is considered extinct in lowland forests of São Paulo State (Brandão and Develey 1998).

Callithrix aurita faces competition from other invasive marmosets (Pereira 2006, 2010, Melo and Rylands 2008, Pereira *et al*. 2008, Port-Carvaho and Kierulff 2009, Nogueira *et al*. 2011, Bechara 2012, Carvalho *et al*. 2013, Carvalho 2015, Melo *et al.* 2015, Nunes 2015, Goncalves 2016), as well as hybridization with several of its congeners (Pereira 2010, Nogueira *et al*. 2011, Carvalho *et al*. 2013, Carvalho 2015).

The species is sometimes captured for the pet trade.

It is possible that introduced *Callithrix jacchus* and *Callithrix penicillata* have competed, and are still competing with and displacing this species, particularly in Rio de Janeiro and Sao Paulo. Many non-native *Callithrix* are also interbreeding with *C. aurita* resulting in hybridization, although the extent of this threat needs further investigation.In the state of Rio de Janeiro, these threats are considered quite intense. Based on studies by Pereira (2006, 2010) and Pereira *et al*. (2008), *C. aurita* is certainly at a critical stage of extinction risk, especially due to the introduction of *C. penicillata*, *C. jacchus* and *Callithrix hybrids* into protected areas where *C. aurita* occurs.In the state of São Paulo, the risk of hybridization and competition with exotic, invasive species is also extremely worrying, but there is still no accurate diagnosis of the current situation. In the Serra da Cantareira, invaders and hybrids are both

present particularly in the area surrounding PE Cantareira, a situation that did not prevail 10 years ago (M. Port-Carvalho, unpubl. data).

Conservation Actions (see Appendix for additional information)

Callithrix aurita is listed on Appendix I of CITES. The species also occurs in a number of protected areas:

Minas Gerais

• APA Agua Santa da Minas (15,680 ha)
• Parque Natural Municipal Antônio Guimarães de Almeida, Tombos
• Parque Natural Municipal Cachoeira de Tombos, Tombos
• Rio Doce State Park (36,000 ha; Stallings and Robinson 1991)
• Serra do Brigadeiro State Park (32,500 ha; Cosenza and Melo 1998)
• RPPN Dr. Marcos Vidigal de Vasconcellos

Rio de Janeiro

• Serra dos Orgaos National Park (10,500 ha; Pereira 2006, 2010)
• Desengano State Park (22,400 ha)
• Pedra Branca State Park (12,500 ha)
• Tres Picos State Park (65,100 ha)
• Piraí Ecological Station (4,000 ha)
• RPPN Sitio do Café (Oliveira 2012)
• APA Petropolis (68,224 ha)
• APA Estadual da Bacia do Rio Macacu (19,508 ha)
• APA Estadual de Macae de Cima (35,308 ha)
• APA Municipal da Pedra Branca (5,388 ha)
• RPPN Fazenda Barra do Sana (162 ha)
• RPPN Maria Francisca Guimares (1 ha)

Rio de Janeiro/Sao Paulo

• Serra da Bocaina National Park (110,000 ha)
• APA de Cairucu (34,690 ha)

Rio de Janeiro/Minas Gerais

• Itatiaia National Park (30,000 ha. Ávila-Pires and Gouveia 1977; Mittermeier *et al.* 1982; Coimbra-Filho 1986b, 1991; Loretto and Rajão 2005)

Sao Paulo

• APA Manancias do Rio Paraiba do Sul (292,000 ha)
• APA Sao Francisco Xavier (11,559 ha)
• APA do Sistema Cantareira (249,200)
• APA Cananeia-Iguape-Peruibe (202,308 ha)
• APA Estadual de Campos do Jordao (28,800 ha)
• APA Estadual Jundiai (43,200 ha)
• ARIE Cerrado Pe-de-Gigante (1,200 ha)
• ESEC Estadual Bananal (884 ha; Brandao 1999)
• ESEC Estadual Itapeti (89 ha)
• ESEC Jureia-Itatins (84,425 ha)?
• ESEC de Mogi-Guaçu (980 Ha)
• ESEC Valinhos (17 ha; Rylands et al 1993)
• Campos do Jordao State Park (8,341 ha)

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• Cantareira State Park (7,917 ha; Coimbra-Filho 1981, Rylands *et al* 1993)
• Itaberaba State Park (15,000 ha)
• Itapetinga State Park (10,000 ha)
• Nascentes do Tiete State Park (134 ha, W. Lacerda pers. comm)
• Parque Natural Municipal Augusto Ruschi (200 hectares; W. Lacerda pers. comm.)
• Serra do Mar State Park (332,000 ha; Brandao and Dewey 1998, Correa 1995, Coutinho 1996, Ferrari *et al* 1996, Norris *et al* 2011)
• Parque Natural Municipal da Serra do Itapety (362 ha; Manzatti and Oliveira 1996, Oliveira *et al* 1999)
• Vassununga State Park (2,071 ha; Rylands *et al* 1993)
• Alto Ribeira Tourist State Park (35,712 ha)
• REBIO Estadual do Alto da Serra de Paranapiacaba (336 ha; Rylands *et al* 1993)
• RPPN Morro do Curussu Mirim (24 ha)
• RPPN Sitio Curucutu (11 ha)

Rio de Janeiro/Sao Paulo/Minas Gerais

• APA Serra da Mantiqueira (437,524 ha)

Credits

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External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.6. Forest - Subtropical/Tropical Moist Lowland	-	Suitable	Yes
1. Forest -> 1.9. Forest - Subtropical/Tropical Moist Montane	-	Suitable	Yes

Use and Trade

(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
Pets/display animals, horticulture	Yes	No	No

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	-	-	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.4. Unintentional effects: (large scale) [harvest]	Ongoing	-	-	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.5. Motivation Unknown/Unrecorded	Ongoing	-	-	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Callithrix penicillata)	Ongoing	-	-	Low impact: 3
	Stresses:	2. Species Stresses -> 2.3. Indirect species effects		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Callithrix jacchus)	Ongoing	-	-	Low impact: 3
	Stresses:	2. Species Stresses -> 2.3. Indirect species effects		

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Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place land/water protection
Conservation sites identified: Yes, over entire range
In-place education
Included in international legislation: Yes
Subject to any international management / trade controls: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action Needed
2. Land/water management -> 2.1. Site/area management

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Lower elevation limit (m): 80
Upper elevation limit (m): 1,375
Population
Number of mature individuals: 10,000-11,000
Population severely fragmented: No
Habitats and Ecology
Generation Length (years): 6

Amendment

Amendment reason: The list of Assessor names has been corrected in this assessment. A previous amended assessment corrected the threats codes for this species to reflect the unintentional effects of logging and wood harvesting on the species.

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