(5) *Saguinus geoffroyi* and *S. oedipus* are considered to be separate species, *contra* Hershkovitz (1977).
(6) Hernández-Camacho and Cooper (1976) and Hernández-Camacho and Defler (1985, 1989) consider *S. graellsi* to be a separate species from *S. nigricollis*.
(7) The distribution of *Aotus brumbacki* is poorly known, since specimens have been karyotyped from the environs of Villavicencio only. For this reason it seems important to categorize the species VU/DD. In fact it may be more correct to use only DD.
(8) *Aotus "hershkovitzi"*, a species with the highest known karyotype, 2n=58, is in the process of being described by Martha Bueno *et al.* (pers. comm.).
(9) *Saimiri sciureus, sensu* Hershkovitz (1984).
(10) *Cebus albifrons albifrons* = *C. albifrons unicolor* (Defler and Hernández-Camacho, in prep.).
(11) *Cebus albifrons versicolor*, an extremely variable subspecies with light and dark phases, includes *C. a. pleei* and *C. a. leucocephalus* (see Hernández-Camacho and Cooper, 1976).
(12) In this account no subspecies are distinguished for *Cebus capucinus*, since they are in doubt. (see Hernández-Camacho and Cooper, 1976; Mittermeier and Coimbra-Filho, 1981).
(13) *Pithecia monachus, sensu* Hershkovitz (1987).
(14) *Cacajao melanocephalus, sensu* Hershkovitz (1987).
(15) *Ateles geoffroyi* is considered here to include *Ateles fusciceps, sensu* Froehlich *et al.* (1991).
(16) *Ateles geoffroyi rufiventris* has priority over *A. g. robustus*.
(17) *Ateles hybridus* is considered a full species (Froehlich, pers. comm., 1993).
(18) Following Froehlich *et al.* (1991), *Ateles belzebuth* includes as subspecies "*belzebuth*", "*chamek*", and "*marginatus*".
(19) *Lagothrix lagothricha lugens* is considered here to be "VU", *contra* Rylands *et al.* (1995); but see Defler (1996).

of these animals will continue to be in flux, and future census work will undoubtedly result in some changes to the classification of many of the taxa listed here.

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References

Baillie, J. 1995. A closer look at the IUCN Red List categories: Areas of debate during the red list training workshop. *Species* (25):31-34.

Defler, T. R. 1996. The IUCN conservation status of *Lagothrix lagothricha lugens* Elliot, 1907. *Neotropical Primates* 4(3):78-80.

Defler, T. R. and Hernández-Camacho, J. In prep. The true identity and characteristics of *Simia albifrons* v. Humboldt, 1812.

Froehlich, J. W., Supriatna, J. and Froehlich, P. H. 1991. Morphometric analyses of *Ateles:* Systematic and biogeographic implications. *Am. J. Primatol.* 25:1-22.

Gärdenfors, U. 1995. A closer look at the IUCN Red List categories: The regional perspective. *Species* (25): 34-36.

Hernández-Camacho, J. and Cooper, R. W. 1976. The nonhuman primates of Colombia. In: *Neotropical Primates: Field Studies and Conservation*, R. W. Thorington, Jr. and P. G. Heltne (eds.), pp. 35-69. National Academy of Sciences, Washington, D.C.

Hernández-Camacho, J. and Defler, T. R. 1985. Some aspects of the conservation of non-human primates in Colombia. *Primate Conservation* (6):42-50.

Hernández-Camacho, J. and Defler, T.R. 1989. Algunos aspectos de la conservación de primates no-humanos en Colombia. In: *La Primatologia en Latinoamérica*, C. J. Saavedra, R. A. Mittermeier and I. B. Santos (eds.), pp. 67-100. World Wildlife Fund, Washington, D.C.

Hershkovitz, P. 1977. *Living New World Monkeys (Platyrrhini) Vol. 1.* University of Chicago Press, Chicago.

Hershkovitz, P. 1984. Taxonomy of squirrel monkeys genus *Saimiri* (Cebidae, Platyrrhini): a preliminary report with the description of a hitherto unnamed form. *Am. J. Primatol.* 6:257-312.

Hershkovitz, P. 1987. The taxonomy of the South American sakis, genus *Pithecia* (Cebidae, Platyrrhini): a preliminary report and critical review with the description of a new species and a new subspecies. *Am. J. Primatol.* 12:387-468.

IUCN. 1994. *IUCN Red List Categories.* The World Conservation Union (IUCN), Gland, Switzerland. November 1994.

Rylands, A. B., Mittermeier, R. A. and Rodríguez-Luna, E. 1995. A species list for the New World primates (Platyrrhini): Distribution by country, endemism, and conservation status according to the Mace-Lande system. *Neotropical Primates* 3(suppl.):113-160.

THE IUCN CONSERVATION STATUS OF *LAGOTHRIX LAGOTHRICHA LUGENS* ELLIOT, 1907

Recently, Rylands *et. al.* (1995) published the results of an evaluation by the Neotropical Section of the IUCN/SSC Primate Specialist Group (PSG) of the Mace-Lande categorization for the conservation status of the New World primates. In their article *Lagothrix lagothricha lugens* was classified as "CR" (Critically Endangered), which in the new Mace-Lande IUCN system is the most severe threat in the wild before extinction (IUCN, 1994; IUCN, 1995). The bases for this classification were the criteria B1 (populations severely fragmented), B2 (continuing decline, observed, inferred or projected, in extent of occurrence, area of occurrence, area, extent and/or quality of habitat, the number of locations or subpopulations, and the number of mature individuals), and C2a (a continuing decline, observed or projected, or inferred, in numbers of mature individuals and population structure due to severe fragmentation (i.e., no subpopulation estimated to contain more than 50 mature individuals) (Rylands *et al.*, 1995). In this note I propose that this taxon be categorized as vulnerable "VU", and I discuss here why I have come to this

conclusion.

Lagothrix lagothricha lugens (*sensu* Fooden, 1963) may be endemic to Colombia, although a small (unconfirmed) population is possibly located in the upper Apure River system of Venezuela (Hernández-Camacho and Cooper, 1976). The original distribution was the northern tip of the Cordillera Central (southern Bolívar) in the Serranía de San Lucas, isolated from the southern population of the upper Magdalena River. Also the distribution apparently included the western and eastern slopes of the Eastern Cordillera as well as the lowlands of western Caquetá and Putumayo Departments, southern Meta Department and the piedmont north at least to the Venezuelan border (see Fig. 1). The other subspecies in Colombia (*Lagothrix lagothricha lagothricha*) is distributed east of *lugens* throughout the lowland Amazonian forest.

Lagothrix l. lugens has been observed at altitudes of up to about 3,000 m. It is possible that there are other unknown populations which would enlarge its known distribution. Nevertheless, this subspecies has the smallest range of the four subspecies of *L. lagothricha*. The original range of this taxon has been fragmented, and its extent of occurrence reduced due to deforestation and colonization along most of the slopes of the cordilleras and along the piedmont to the east of the mountains. Nevertheless, there are at least six Colombian national parks (and perhaps one or two more) which legally protect *L. l. lugens*. Confirmed populations are located in Puracé, Cueva de los Guácharos, Cordillera de los Picachos, Tiniguas, La Macarena and El Cocuy National Parks. The taxon is probably also found in the Chingaza National Park. Extensive forest on the Eastern Cordillera of Caquetá Department, extending north to Picachos, probably protects more *L. l. lugens*, but security problems make it difficult to work there to census them. Indeed, on-ground protection even within Colombian parks is often rather difficult, for a number of reasons.

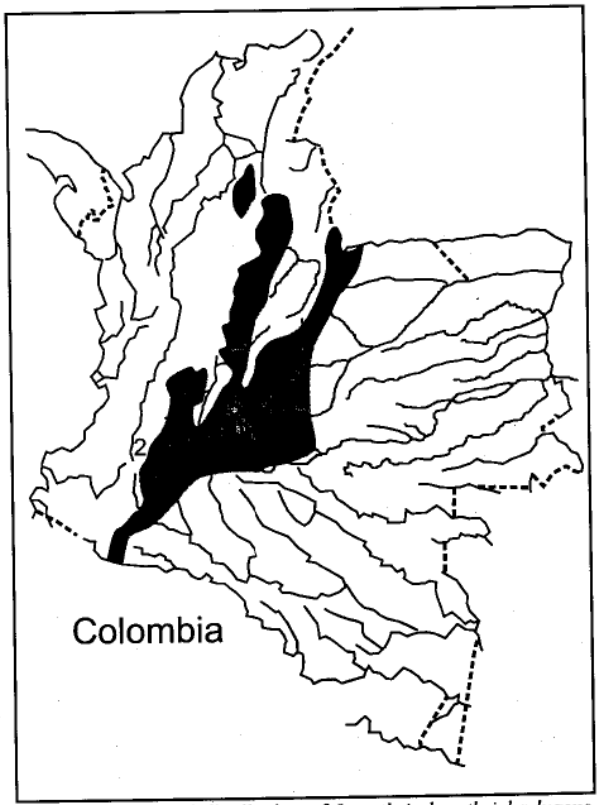

Fig. 1. Geographical distribution of *Lagothrix lagothricha lugens*, showing major confirmed populations. 1-Serranía de San Lucas (Bolívar); 2-Puracé National Park; 3-Cueva de los Guácharos National Park; 4-Serranía de La Macarena National Park; 5-Tiniguas National Park; 6-Cordillera de los Picachos National Park.

In order for this taxon to be classified as CR using the criteria of B1 and B2, the extent of occurrence would need to be estimated to be less than 100 km² or the area of occupancy should be estimated to be less than 10 km², and estimates should include any two of three points having to do with habitat fragmentation, decline, and fluctuation. However, for this note I have analyzed the minimum extent of occurrence as follows.

First, the subspecies is known mainly from the Serranía de la Macarena westward to the Cordillera. This includes a block of three national parks, La Macarena, Las Tiniguas and Los Picachos. I do not include the area of La Macarena east of the Serranía since *Lagothrix* does not appear to be present there. The extent of this block, up to an altitude of 3,000 m, is about 8,031 km² of intact forest with very little colonization, judging from a satellite image survey of the Colombian Amazon which I carried out from the mid-1980's (Defler, in press). The subspecies is confirmed in at least three other national Parks: Puracé, Cueva de los Guácharos and El Cocuy which adds roughly another 1,000 km² to the total.

The northernmost population of this taxon is found in a forest reserve in southern Bolívar, which adds, very approximately, 15,000 km². Hopefully a national park will be established in this region in the future, since it is the largest area of intact forest in the entire zone, mostly because it remains dangerous to outsiders, because of insurgents. Also, along the Cordillera Occidental from southern Caquetá up to the Cordillera de los Picachos National Park there are perhaps 7,000 km² of fairly intact forest on mountain slopes, which is *Lagothrix* habitat. This provides a corridor from La Cueva de los Guácharos to the Florencia road over the Cordillera, thence to Picachos. The total area of occupancy here is 30,081 km² and does not include other forests in the upper Magdalena and those along the Cordillera Oriental where populations of this subspecies are known, even though the habitat is quite fragmented. The conclusion here is

that B1 and B2 cannot be appropriately used as a basis for a classification as CR, nor EN (endangered), nor even VU.

The other criterion, C2a is also not valid. This states that C - the population is estimated to number less than 250 mature individuals, 2 - a continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of a severely fragmented (i.e., no subpopulation estimated to contain more than 50 mature individuals).

The joint Japanese-Los Andes University project on the Duda River in Tiniguas National Park has studied some habituated groups of *L. l. lugens* for several years and, using data found in Stevens *et al.* (unpublished, 1994), I have calculated a density of about 28 animals/km^2. About 98% of this national park is still forested (Defler, in press), so that multiplying 98% of the size of the park (2,019 km^2) by the density at this research site yields an optimistic approximate population of 54,401 *Lagothrix*. Using my own age-sex categories for a group of *Lagothrix* in the Amazon (another subspecies; Defler, 1996) we can say that roughly half of a woolly monkey group is made up of adult animals or 27,200 in Tiniguas. This is probably an overly optimistic calculation, given that there has been much timber extraction and other colonist activities in this park. But the total does not include *L. l. lugens* found in Picachos or La Macarena National Parks, both with sizeable woolly monkey populations, as well as the known populations in Puracé and Cueva de los Guácharos, which are probably smaller than Picachos, but still contribute to a total which does not begin to compare to the scanty populations of such species as *Brachyteles arachnoides* (EN) or three of the *Leontopithecus* species classified as critically endangered.

It would be incorrect to certify that there are over 10,000 mature individuals of *L. l. lugens*, since no censusing has been done. Nevertheless, the distinct possibility exists that there may be twice this number which would put the taxon out of the range for VU, as well. I personally believe that it is still possible that the population of mature individuals may be 20,000, given the large area of occupancy that still remains.

On the basis of the criteria A1c and A2c, I would place this taxon into the VU category at this time. All parts of the area of occupancy are surrounded by human activity. Following a fuller appraisal of the status of this woolly monkey, the correct classification may ultimately be Lower Risk cd (dependent on conservation efforts), but presently we are far from attaining this.

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References

Defler, T. R. 1996. Aspects of the ranging pattern in a group of wild woolly monkeys (*Lagothrix lagothricha*). *Am. J. Primatol.* 38:289-302.

Defler, T. R. In press. An analysis of the state of the forest cover in the Colombian Amazon: A study of the extent and pattern of forest conversion. Conservation International, Washington, D. C.

Defler, T. R. In prep. *Primates of Colombia: Natural History and Conservation.*

Fooden, J. 1963. A revision of the woolly monkey (genus *Lagothrix*). *J. Mammal.* 44(2):213-247.

Hernández-Camacho, J. and Cooper, R. W. 1976. The nonhuman primates of Colombia. In: *Neotropical Primates: Field Studies and Conservation*, R. W. Thorington, Jr. and P. G. Heltne (eds.), pp. 35-69. National Academy of Sciences, Washington, D. C.

IUCN. 1994. *IUCN Red List Categories.* The World Conservation Union (IUCN), Species Survival Commission, Gland, Switzerland.

IUCN. 1995. A new system for classifying threatened status. *Neotropical Primates* 3 (suppl.):104-112.

Rylands, A. B., Mittermeier, R. A. and Rodríguez Luna, E. 1995. A species list for the New World primates (Platyrrhini): Distribution by country, endemism, and conservation status according to the Mace-Lande system. *Neotropical Primates* 3 (suppl.):113-160.

Stevenson, P. R., Quiñones, M. and Ahumada, J. 1994. Ecological strategies of woolly monkeys *(Lagothrix lagotricha)* at Tinigua National Park, Colombia. *Am. J. Primatol.* 32:123-140.

Stevenson, P. R., Quiñones, M. and Ahumada, J. 1994. Relación entre la abundancia de frutos y las estrategias alimenticias de cuatro especies de primates en La Macarena, Colombia. Unpublished manuscript.

La Primatología en la Argentina: Estudios Sobre Evolución, Ecología y Manejo en Cautiverio

A lo largo de los últimos años se han publicado notas con el objeto de divulgar los temas y grupos que en la Argentina desarrollan trabajos de investigación en primates. Dada la diversidad de publicaciones, resulta una tarea difícil obtener información bibliográfica y conocer los proyectos en desarrollo. En este artículo se presenta una reseña de las actividades desarrolladas por especialistas del Grupo de Investigación en Biología Evolutiva (GIBE) y del Museo Argentino de Ciencias Naturales (MACN).