

- Cabrera, A. and Yepes, J. 1940. *Mamíferos Sul-Americanos (Vida, Costumbres y Descripción)*. Historia natural Ediar. Compañía Argentina de Editores.
- Chinchilla F. A. 1997. La dieta del jaguar (*Panthera onca*), el puma (*Felis concolor*) y el manigordo (*Felis pardalis*) en el Parque Nacional Corcovado, Costa Rica. *Revista de Biología Tropical* 45: 1223–1229.
- Emmons, L. H. (1987). Comparative feeding ecology of felids in a neotropical rainforest. *Behav. Ecol. Sociobiol.* 20: 271–283.
- Goldizen, A. W. 1987. Tamarins and Marmosets: communal care of offspring. In: *Primates Societies*, Smuts, B. B.; Cheney, D. L., Seyfert, R. M., Wrangham, R. W. and Strusaker, T. S. (eds.), Pp. (34–43). The University of Chicago Press.
- Gordo, M., Calleia, F. O., Moreira, A. L. B. and Leite, J. J. F. 2005. Estratègia de fuga e vigilância de grupos selvagens de *Saguinus bicolor*. *XI Congresso brasileiro de primatologia*, Porto Alegre pp. 107.
- Izawa, K. 1978. A field study of the ecology and behavior of the Black-mantle Tamarin (*Saguinus nigricollis*). *Primates* 19(2): 241–274.
- Konecny, M. J. 1989. Movement patterns and food habits of four sympatric carnivore species in Belize, Central America. In: *Advances in Neotropical Mammalogy* (Redford, K. H. and Eisenberg, J. F. (eds.), Pp. 243–264. Sandhill Crane Press, Florida.
- Matsuda, I. and Izawa, K. 2008. Predation of wild spider monkeys at La Macarena, Colombia. *Primates* 49: 65–68.
- Miranda, J. M. D., Vernardi, I. P., Abreu K. C. and Passos F.C. 2005. Predation on *Alouatta guariba clamitans* Cabrera (Primates, Atelidae) by *Leopardus pardalis* (Linnaeus) (Carnivora, Felidae). *Rev. Bras. Zool.* 22:793–795.
- Mondolfi, E. 1986. Notes on the biology and status of the small wild cats in Venezuela. in *Cats of the world: biology, conservation, and management*, Miller, S. D. and Everett, D. D. (eds.), Pp. 125–146. *National Wildlife Federation*, Washington, District of Columbia.
- Novack A. J., Main M. B., Sunquist M. E., Labisky R. F. 2005. Foraging ecology of jaguar (*Panthera onca*) and puma (*Puma concolor*) in hunted and non-hunted sites within the Maya Biosphere Reserve, Guatemala. *J. of Zool.* 267: 167–178.
- Oliveira, T. G. 1998. *Leopardus wiedii*. *Mammalian species* 579: 1–6.
- Oliveira, T. G. 1994. *Neotropical cats: ecology and conservation*. Edufma, São Luís, Brazil, 220 pp.
- Olmos, F. 1994. Jaguar predation on murequi, *Brachyteles arachnoides*. *Neotrop. Primates* 2: 16.
- Peetz, A., Norconk, M. A. and Kinzey, W. G. 1992. Predation by jaguar on howler monkeys (*Alouatta seniculus*) in Venezuela. *Am. J. Primatol.* 28: 223–228.
- Ribeiro, J. E. L. S., Hopkins, M. J. C., Vicentini, A., Sothers, C. A., Costa, M. A. S., Brito, J. M., Souza, M. A., Martins, L. H., Lohmam, L. G., Pereira, E. C., Silva, C. F., Mesquita, M. R. and Procópio, L. C. 1999. *Flora da Reserva Ducke: guia de identificação das plantas vasculares de uma floresta de terra firme na Amazônia Central*. INPA, Manaus, 816 pp.
- Röhe, F., Antunes, A. P. and Tófoli, C. F. 2003. The Discovery of a new sub-population of the black lion tamarins (*Leontopithecus chrysopygus*) at Serra de Paranapiacaba, São Paulo, Brazil. *Neotrop. Primates*, 11(2): 75–76.
- Röhe, F. 2007. *Mamíferos de médio e grande porte do médio Rio Madeira*. In: Py-Daniel, L. R. et al. (Org.). *Biodiversidade do Médio Madeira*. INPA/MMA.
- Tófoli, C. F.; Röhe, F.; Setz, E. Z. F. 2009. Jaguarundi (*Puma yagouaroundi*) food habits in mosaic of Atlantic Rainforest and eucalypt plantations of southeastern Brazil. *Braz. J. Biol.* 69(3): 631–637.
- Ximenes A. 1982. Notas sobre félidos neotropicales VIII: Observaciones sobre el contenido estomacal y el comportamiento alimentar de diversas especies de felinos. *Rev. Nord. de Biol.* 5(1): 89–91.

PERUVIAN RED UAKARI MONKEYS (*CACAJAO CALVUS UCAYALII*) IN THE PACAYA-SAMIRIA NATIONAL RESERVE — A RANGE EXTENSION ACROSS A MAJOR RIVER BARRIER

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According to Hershkovitz (1987) *Cacajao calvus ucayalii*, listed as Vulnerable by the IUCN, (Veiga & Bowler, 2008) is distributed from the east bank of the Rio Ucayali in an easterly direction to the Rio Yavarí and from the Rio Amazonas in the north to the Rio Urubamba in the south. Hershkovitz (1987) also includes the east bank of the lower Yavarí in Brazil, but its presence there has not been confirmed and it is possible that museum specimens marked as collected on the Brazilian bank of the Yavarí actually came from the Peruvian side where this primate is locally abundant. Surveys conducted between 1979 and 1986 (Aquino 1988) showed that the range was much reduced, hunting having exterminated the species in several areas. Aquino (1988) suggested that the southern limit is now probably the Rio Sheshea and that populations close to the Rios Ucayali and Amazonas have also been reduced and in some areas populations have been exterminated (Fig. 1). Populations of *Cacajao calvus* observed by Peres (1997) on the upper Rio Juruá and unconfirmed reports by Fernandes (1990) in the Brazilian state of Acre on the upper Juruá and Purus are either of *Cacajao calvus novaesi* or *Cacajao calvus ucayalii*, which would extend the known ranges of either of these subspecies.

The Rio Ucayali is the largest tributary of the Rio Amazonas and at 400–1,200m wide presents a significant barrier to primate populations. However, the constantly-changing course of the river means that very large islands of forest

big enough to support small primate populations effectively cross from one side of the river to the other as oxbow lakes are formed, particularly near the mouth of the river where it meets the Rio Mara on to form the Rio Amazonas. *Cacajao calvus calvus* has been found on both sides of the Rio Amazonas (Sousa e Silva J nior and Martins 1999), demonstrating that the ranges of subspecies of *Cacajao calvus* can traverse major river barriers. Isolated reports of red uakari monkeys west of the Ucayali on the Rio Yanayacu, a tributary of the Rio Mara on, running more or less parallel to the Rio Ucayali, in the Pacaya-Samiria National Reserve (PSNR) have occurred for a number of years. Until now, these reports have been unconfirmed. Rumoured sightings have emanated largely from the community of Yarina on the Rio Yanayacu, a seasonally blackwater stream about 40m in width flowing exclusively through white-water *varzea* forests in the Pacaya-Samiria National Park. The Yanayacu flows 158 km from Lago El Dorado, to meet the Rio Mara on 30km upstream from the city of Nauta. Yarina was founded in the PSNR in the 1980s, and for this reason most of the adults in the community have not lived in Yarina or the PSNR all their lives. The NGO ProNaturaleza has worked with the communities on the Yanayacu for various years, and has coordinated a successful community-based conservation program here. Hunting for wild meat is not a principle activity in Yarina, and there are healthy populations of wild animals.

In September 2006, we made a short expedition to conduct interviews in Yarina and search the site for red uakari monkeys. Although red uakaris were not encountered during this expedition, several residents of Yarina reported seeing red uakari monkeys, usually in small groups on

the banks of the river. Only two residents of Yarina regularly hunt, and both reported infrequent observations of groups of 20 or more uakaris. In addition to the recent observations, 3 older men (one from Yarina and two from the small nearby village of Arequipa) claimed to have seen red uakari monkeys years ago, when they used to make hunting and fishing expeditions into the forest. There was a high level of consistency between interviews, and considerable detail was given within some of the interviews. The observations were virtually all within an area of about 200km² (20,000ha) bounded by a large bend in the Rio Yanayacu (Fig. 2).

On three days between 3-10-2008 to 5-10-2008, during investigations on the Rio Yanayacu for a project on Giant Otters *Pteronura brasiliensis*, Mark Bowler from the Durrell Institute of Conservation and Ecology and Tony Laiche from the community of Yarina visited Quebrada Ahuara, a site highlighted during interviews in 2006 as one where persistent sightings of red uakaris occurred. At 10am on 3rd October 2008, we encountered a group of red uakaris near Quebrada Ahuara (04 56'19.9"S, 74 08'26.1"W) (Fig. 2). We followed the group for one hour and 10 minutes covering at least 900m, but the uakaris were nervous and fled throughout the encounter. During the follow, we counted at least six individuals including at least one adult male, an adult female carrying a baby, a juvenile, and two older juveniles or sub adults. From the contact calls given by the monkeys, we estimated that the group contained at least ten individuals. Four clearly-different individuals were photographed (Fig. 3). We searched the area around the sightings for several hours on the following two days, but were unable to relocate the group. These new observations and interviews confirm the presence of the species on the west bank of the Ucayali extending the known range of *Cacajao calvus ucayalii* into the PSNR (Fig. 1). Until this discovery, the only protected area known to contain the subspecies was the regional Tamshiyacu-Tahuayo Communal Reserve, and while managing hunting is seen as the priority in this region (Bodmer 1995), protected areas play

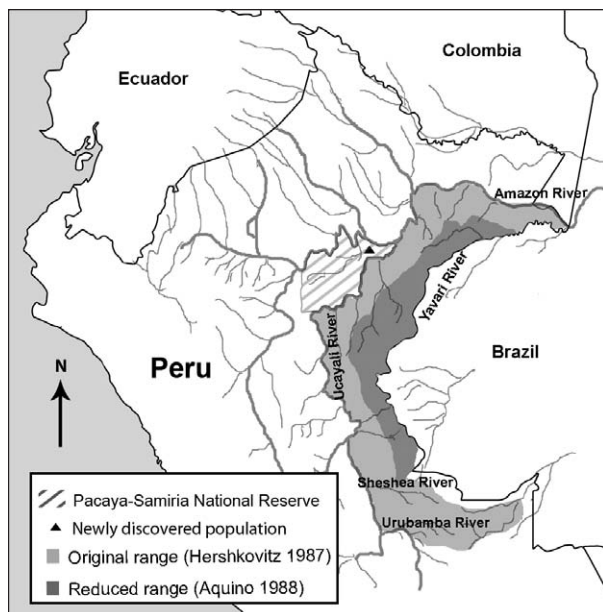


Figure 1. The original distribution of *Cacajao calvus ucayalii* (Hershkovitz, 1987), the distribution in 1986 (Aquino, 1988) and the newly discovered population. Map adapted from Aquino (1988).

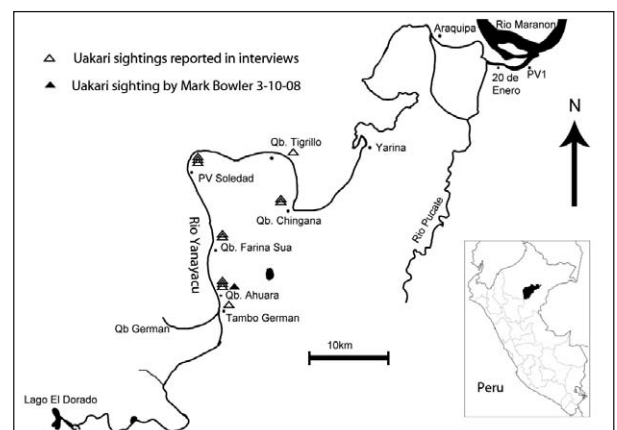


Figure 2. Locations of red uakari sightings on the Rio Yanayacu given in interviews (open triangles) and by Mark Bowler on 3-10-2008 (closed triangle).

an important role in national and regional conservation strategies and conservation projects often focus around these areas.

The confirmation of red uakari monkeys in the Pacaya-Samiria National Reserve adds a new primate to the species list for the reserve, bringing the total number of species to 13. This is an extremely diverse primate community and one unequalled in areas of extensive *várzea*. The striking appearance and rarity of this monkey means it is used as a flagship species and as focus for conservation efforts in the Peruvian Amazon and will may prove a draw for tourism on the Rio Yanayacu, even though sightings of the monkeys would probably be very infrequent. Tourism already appears to be working well within the successful management plans for the area overseen by ProNaturaleza.

Informal conversations with people from the communities of Yarina and Manco Capac who were working in the community guard posts around Lago El Dorado and on the Yanayacu during our expedition, mentioned that large groups of uakaris used to inhabit the area around the community of Manco Capac in the Reserve, on the bank of the Ucayali River contiguous with the forests around Quebrada Ahuara. However, the species had not been seen there for 10 or 20 years. Higher levels of activity on this river in the past, from illegal loggers and people entering the reserve to extract resources have probably reduced densities of this primate by hunting. The uakaris observed at Quebrada Ahuara were very nervous, and fled from investigators. This suggests that the group may have experienced hunting in the past. However, the area is now protected by members of the community of Yarina, who do not hunt

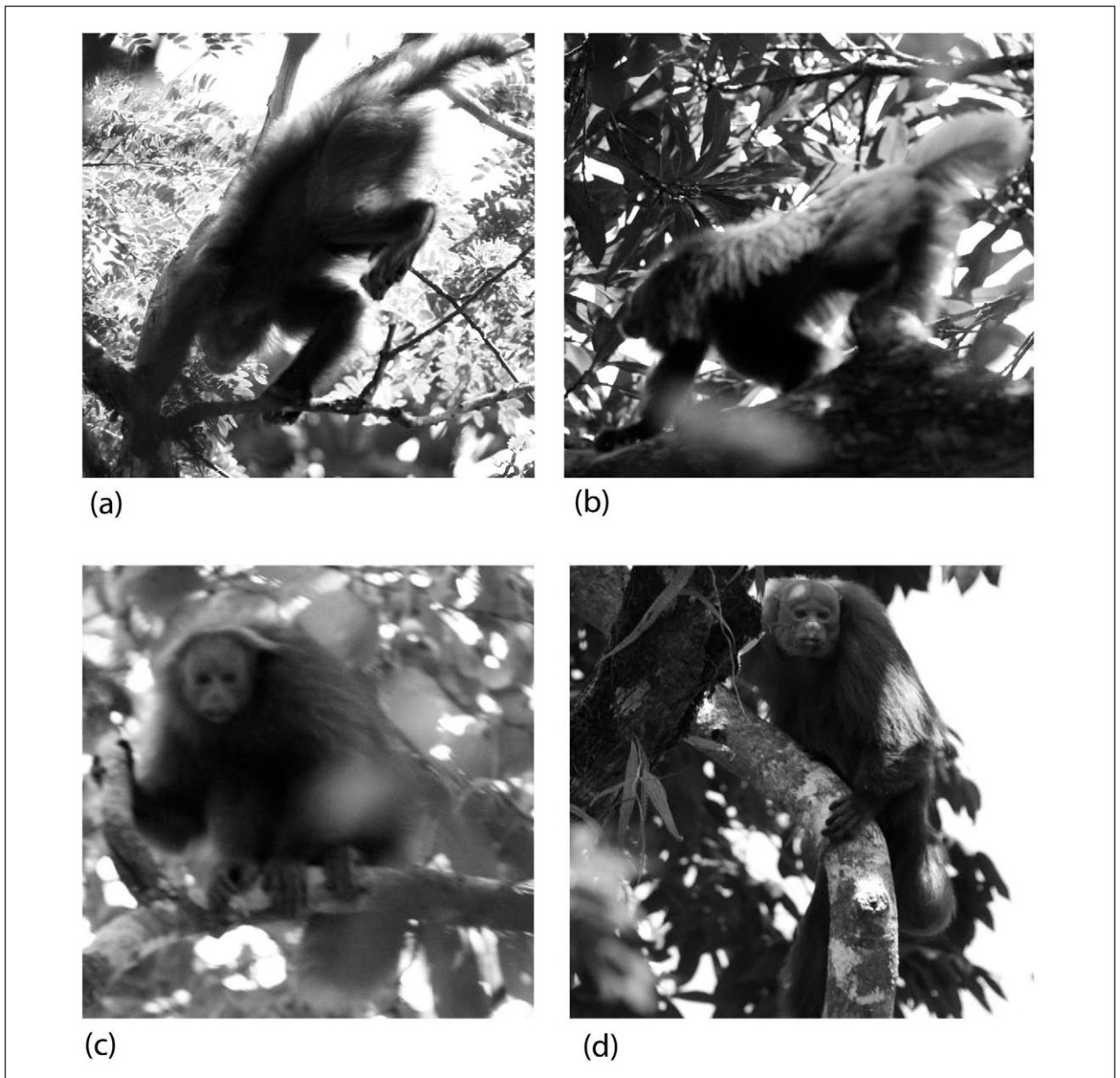


Figure 3. Four recognisably different red uakaris photographed on the River Yanayacu on 3-10-2008 by Mark Bowler; a) Juvenile, b) juvenile/subadult, c) juvenile/subadult, d) adult male.

this primate. This small population of uakaris would be extremely vulnerable to illegal hunters entering the reserve from the Rio Ucayali. Although a detailed census has yet to be conducted, the population must be extremely small, may be experiencing inbreeding, and it will require special consideration if it is to persist. The population in the PSNR is the only known population of the subspecies *Cacajao calvus ucayalii* occurring in the complete absence of non-flooding *terra firme* forests. Establishing the size and composition of this population will be essential in estimating its viability, and putting in measures for its conservation. Monitoring the population in the long term might also give an idea about how this species might fare when its densities are low. More complete census is therefore required. Community groups and ProNaturaleza will then have to consider conservation actions for this primate.

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References

- Aquino, R. 1988. Preliminary surveys on the population of *Cacajao calvus ucayalii*. *Primate Conservation* 9: 24–26.
- Bodmer, R. E. 1995. Susceptibility of mammals to overhunting in Amazonia. In: *Integrating People and Wildlife for a Sustainable Future*, J. Bissonette and P. Krausman (eds.), The Wildlife Society, Bethesda, Maryland, pp. 292–295.
- Fernandes, M. C. A. G. 1990. *Distribuição de primates nao-humanos no estado de Acre e vizinhanças: Um estudo preliminar*. Monograph, Departamento de Ciências da Natureza, Universidade Federal do Acre, Rio Branco.
- Hershkovitz, P. 1987. Uacaries, New World monkeys of the genus *Cacajao* (Cebidae, Platyrrhini): A preliminary taxonomic review with the description of a new subspecies. *Am. J. Primatol.* 12: 1–53.
- Peres, C. A. 1997. Primate community structure at twenty Amazonian flooded and unflooded forests. *J. Trop. Ecol.* 13: 381–405.
- Sousa e Silva Jr., J. de, and Martins, E. de S. 1999. On a new white bald uakari population in Southwestern Brazilian Amazonia. *Neotrop. Primates.* 7 (4): 119–121.
- Veiga, L. M. & Bowler, M. 2008. *Cacajao calvus ssp. ucayalii*. In: IUCN 2008. 2008 IUCN Red List of Threatened Species. <www.iucnredlist.org>. Downloaded on 12 March 2009.

COMUNICACIÓN VOCAL DE UN GRUPO DE TITÍ GRIS (*SAGUINUS LEUCOPUS*) EN MARIQUITA, COLOMBIA

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Introducción

El tití gris (*Saguinus leucopus*) es un primate arborícola pequeño, endémico de Colombia, que habita bosques primarios y secundarios y en la actualidad, muchas de sus poblaciones se han adaptado a sobrevivir en hábitats altamente fragmentados y degradados (Fajardo, 2000). La alteración de sus hábitats naturales y otros factores como la cacería y el comercio ilícito, han puesto en riesgo la supervivencia de las poblaciones naturales (Deffer, 2003). En cuanto a estudios sobre bioacústica de la especie, Blumer y Epple (reporte no publicado) realizaron un trabajo sobre el comportamiento y las vocalizaciones de tres machos y una hembra tití gris, en condiciones de laboratorio. Sin embargo, hasta el momento no se habían realizado investigaciones sobre el tema con poblaciones naturales. Aunque *Saguinus leucopus* es una especie objeto de interés a nivel nacional e internacional, lo cual se refleja en las diferentes investigaciones realizadas enfocadas hacia su ecología, comportamiento, genética, manejo *ex situ*, entre otras temáticas (Vargas y Solano, 1996; Cuartas-Calle, 2001, 2004; Poveda y Sánchez-Palomino, 2004; Roncancio, 2005; Leguizamón-Hernández *et al.*, 2006; Morales-Jiménez, 2007; Sánchez-Londoño, 2007a, 2007b), aún existen vacíos de información principalmente sobre aspectos como densidad, distribución, comportamiento y salud física de las poblaciones naturales actuales. En este sentido, el presente trabajo pretende ampliar el conocimiento sobre la comunicación vocal de la especie y aportar información novedosa desde la bioacústica, que pueda aplicarse en estudios de ecología poblacional; específicamente el uso de vocalizaciones como herramienta en censos y en la estimación de densidades poblacionales para la especie. Esta investigación presenta una caracterización del repertorio vocal de un grupo de *Saguinus leucopus*, en la cual se identifican, describen y relacionan las vocalizaciones con los patrones comportamentales, sexo y edad de los individuos.

Métodos

Área de estudio

El estudio se desarrolló en San Sebastián de Mariquita, departamento del Tolima, en la casa de la Fundación Segunda Expedición Botánica–Funbotánica (FSEB) (Fig. 1). Mariquita está localizada al norte del departamento del