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# Short Articles

## Altitudinal Range Extension for *Cebus albifrons* (Primates: Cebidae) in Southern Ecuador

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### Introduction

Capuchins in the genus *Cebus* (Cebidae) are medium-sized, gregarious, and generally arboreal monkeys found in Central and South America (Emmons and Feer, 1997; Eisenberg and Redford, 1999). Like other *Cebus*, the white-fronted capuchin (*Cebus albifrons* Humboldt, 1812) is omnivorous, consuming seeds, fruit, invertebrates, and vertebrates (Defler, 1979a; Eisenberg and Redford, 1999; Tirira, 2007). *Cebus albifrons* can occupy a home range as large as 120 ha and the species is known to wander to varied habitat types in search of widely separated food resources (Defler, 1979a; Terborgh, 1983; Haugaasen and Peres, 2005).

Capuchins are mostly lowland species although *Cebus apella* and *C. albifrons* have been recorded up to 2,130 m a.s.l. and 2,000 m a.s.l. respectively (Tate, 1939; Hershkovitz, 1949; Emmons and Feer, 1997). *Cebus albifrons* is known from humid to dry forests in isolated areas of northern Colombia and Venezuela, in western Ecuador, and in the upper and middle Amazon basin of Colombia, Ecuador, Peru, Bolivia, and Brazil west of the Ríos Tapajós and Negro (Emmons and Feer, 1997; Eisenberg and Redford, 1999; Tirira, 2007). *Cebus albifrons* includes several subspecies whose distributions and morphological differences have been incompletely studied. Historically, 11 subspecies were recognized (Cabrera, 1957), but more recently, Groves (2005) recognized only five, two of which occur in Ecuador, *C. a. aequatorialis* and *C. a. yuracus*. The latter is most likely involved in our records in southern Ecuador. *Cebus albifrons aequatorialis* is endemic to humid to dry tropical and subtropical forests west of the Andes in Ecuador (Albuja and Arcos, 2007; Tirira, 2007); its type locality is Río de Oro, Manabí province (Cabrera, 1957). *Cebus albifrons yuracus* is found in humid tropical and subtropical forests east of the Andes in Ecuador and northeastern Peru, between the Marañón and Putumayo rivers (Emmons and Feer, 1997; Tirira, 2007); its type locality is Montalvo, Río Bobonaza, Pastaza province, Ecuador (Cabrera, 1957).

The highest altitude records for *C. albifrons* across its distribution are as follows. In Colombia, the highest known record of the species is 2,000 m a.s.l. in the department of Tolima (Defler, 2003). The highest confirmed record in Perú comes from the eastern foothills of the upper Río Comainas, Cordillera del Cóndor (Amazonas department) at 1,738 m a.s.l. (Schulenberg and Awbrey, 1997; this record is of *C. a. yuracus*) and there are unconfirmed sightings from the headwaters of the Río Poyeni, Cordillera de Vilcabamba (Apurimac department) at 2,050 m a.s.l. (Alonso *et al.*, 2001). In Venezuela, the species is known up to 850 m a.s.l. (Linares, 1998). In Bolivia, the altitudinal range of the species has not been well documented but there are no specimen records at altitudes greater than 2,000 m a.s.l. (Anderson, 1997). In Ecuador, the highest previously reported altitudes for *C. a. yuracus* are 1,600 m a.s.l. from Sardinayacu in Sangay National Park (02°03'S, 78°09'W; Albuja, 1996) and 1,550 m a.s.l. in Coangos, Morona-Santiago province (03°29'S, 78°14'W; Schulenberg and Awbrey, 1997). *C. a. aequatorialis* was once reported from 1,660 m a.s.l. at Gualea, Pichincha province (Allen, 1914). Allen (1914) indicated that the altitude of Gualea is "7,000 ft" (2,330 m a.s.l.). As Gualea actually lies at 1,660 m a.s.l., this elevation must be erroneous and no future authors have included this high elevation record. Here we report *C. a. yuracus* (subspecies inferred by range) from 2,425-2,515 m a.s.l. in montane upper subtropical forest in the Cordillera de Sabanilla, Zamora-Chinchipe province, Ecuador. This record extends the known altitudinal range of the species by 515 m and for *C. a. yuracus* by 777 m.

### Study Site and Methods

We observed *C. albifrons* in mature forest at 2,425-2,515 m a.s.l. (4°29'S, 79°07'W) in the Tapichalaca Biological Reserve, a 2,870 ha protected area administered by the Jocotoco Conservation Foundation located above the town of Valladolid, Zamora-Chinchipe province, adjacent to Podocarpus National Park. The forest in this area, characterized as upper subtropical forest (Krabbe *et al.*, 1999), has an average canopy height of approximately 10 m with 20 m emergent crowns and it receives about 4 m of rainfall annually. The canopy is characterized by Moraceae (*Ficus* sp.), Euphorbiaceae (*Croton* sp.), Lauraceae, and Rubiaceae, and the understory is largely made up of bamboo (*Chusquea* sp.), Piperaceae, and Melastomataceae. The vegetation at Tapichalaca is covered in abundant mosses and liverworts as well as vascular epiphytes in families such as Bromeliaceae, Araceae, and Orchidaceae (Krabbe *et al.*, 1999).

### Results and Discussion

On 15 January 2007 at 11:00 (EST), PJAL and VMI observed one individual *C. albifrons* for 5 minutes at 2,425 m a.s.l. Then on 31 January, approximately 500 m up the same trail, JBCH and VMI observed three individuals for 2.5 hr (from 9:00-11:30) at 2,515 m a.s.l. The weather on both observation days was partly cloudy and warm (approx. 16° C). We photographed and made audio recordings of the group on 31 January. The capuchins fed on *Persea* sp. (Lauraceae) and *Croton* sp. (Euphorbiaceae) fruits, and unidentified small items inside bromeliads

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(probably arthropods). We were unable to sex the capuchins but all individuals appeared to be adults (Fig. 1). The capuchins spent all of the observation time in trees. The following observations apply to the group of three capuchins we observed on 31 January. The capuchins made frequent, although quiet vocalizations, as is typical for the species (Defler, 1979b). The three individuals often made soft *yah* danger calls (Defler, 1979b) throughout the 2.5 h observation period, and were likely using the calls to communicate the presence of the human observers (T. Defler, pers. comm.). The capuchins vocalized frequently but the calls were quiet and could only be heard within approximately 30 m of the vocalizing individual. Once, a capuchin approached a human observer and stared and shook branches for 30 sec; this behavior is a common sign of aggression in *C. albifrons* (Defler, 1979b; Fig. 1). The dense vegetation and the abundance of epiphytes made it difficult to monitor all of the individuals constantly but it seemed no capuchin was ever farther than 20 m from another. During the observation period the group of capuchins traveled approximately 150 m.

*Cebus albifrons* is most often observed in groups of 7-35 individuals (Defler, 1979a,b; Defler, 1982; Terborgh, 1983; Eisenberg and Redford, 1999), and our observations of much smaller groups are unusual for the species. We are unsure why the species apparently lives in such small groups in the Tapichalaca area but we hypothesize that small group size may confer some advantage in the high altitude habitat. Additionally, *C. albifrons* may inhabit Tapichalaca in low numbers because the high Andes are at the very limit of the species' distribution. This pattern of rarity at the edge of a distribution is shown in many widely-distributed animals (Brown, 1984). It is also possible that we observed subgroups of larger capuchin groups in the area. Subgroups are sometimes formed in *Cebus* when seasonal changes cause resources to be dispersed (Izar, 2003; Lynch Alfaro, 2007). The high altitude environment at Tapichalaca may provide more dispersed food resources than lower elevation habitats which may result in similar *Cebus* subgrouping. More research is needed to better understand small group size of highland capuchins.



**Figure 1.** Aggressive stare of white-fronted capuchin (*Cebus albifrons*) in upper subtropical forest (2,515 m) in southern Ecuador.

*Cebus albifrons* has never before been recorded at Tapichalaca, even though the area has been frequented by experienced observers since 1997. We searched for the species for several days following these observations but could not relocate any capuchins. In addition, we conducted extensive field work in the area for the following seven months and never re-encountered the species. The small number of records of *C. albifrons* can partially be explained by the species' large home range size and quiet, inconspicuous behavior, but the species is likely to be rare in the area. We hypothesize that *C. albifrons* is a low density resident in upper subtropical forest in the Tapichalaca region.

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## New Occurrence Records of Maués Marmoset, *Mico Mauesi* (Primates, Callitrichidae)

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*Wilson Roberto Spironello*
*Dayse Campista Ferreira*

### Introduction

The Maués marmoset, *Mico mauesi* (Mittermeier *et al.,* 1992), was described in the last decade of the 20th century and originally placed in the genus *Callithrix*. The species was described from a specimen at the Museu Paraense Emílio Goeldi (holotype: MPEG -22177) and observations of captive and wild animals. At the time of its description the species was only known to occur at the type locality, on the left bank of the Rio Maués-Açu (03°23´S, 57°46´W), just across from the city of Maués in the state of Amazonas, Brazil. Based on distribution patterns of other species of Amazonian marmoset, Mittermeier *et al*. (1992) predicted that the new species would occur throughout the entire medium to lower Maués-Urariá-Abacaxis interfluve and that its range would be limited by these three rivers.

During primate surveys conducted in and around the Canumã-Urariá-Abacaxis interfluve, Silva Jr. and Noronha (1995, 2000) registered the presence of *M. mauesi* at two localities on the right bank of the lower Rio Abacaxis: Abacaxis (03°55´S, 58°45´W) and Santa Maria (03°54´S, 58°46´W). Three specimens were collected at Santa Maria and deposited in the zoological collection of the Museu Paraense Emílio Goeldi (MPEG – 23962, 23963, 23964). These findings (Silva Jr. and Noronha, 1995, 2000) and data from the literature (Hershkovitz, 1977; Vivo, 1988, 1991), confirm the northern and western limits of the species' range as proposed by Mittermeier *et al*. (1992). According to the range map produced by these authors, the distribution of *M. mauesi* should be limited to the east by the Rio Maués-Açu and extend as far south as 05º S. The objective of this study is to update knowledge of the geographic distribution of *M. mauesi* through the collection and analysis of new field data.

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