Short Articles

Observations of *Callimico goeldii* with *Saguinus imperator* in the Serra do Divisor National Park, Acre, Brazil

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Goeldi's monkey, *Callimico goeldii* (Callimiconinae, Callitrichidae), is patchily distributed in western Amazonia, in parts of Colombia, Peru, Bolivia and Brazil between the Ríos Manuripi or Tahuamanu to the south and the Río Caquetá to the north (Hershkovitz, 1977; Izawa, 1979; Ferrari *et al.*, 1999). It is listed in Appendix I of CITES and considered "Near Threatened" by the IUCN (Hilton-Taylor, 2003). Its behavior and ecology have been studied in the wild in the Pando Department of Bolivia (Masataka, 1981; Pook and Pook, 1981, 1982; Christen, 1999; Hanson, 2000; Porter, 2000, 2001), and in eastern Acre, Brazil (Garber and Leigh, 2001; Rehg, 2003). These study sites are only 220 km apart, and are characterized by similar *terra firma* forests, including primary forest, secondary forest, stream edge habitats, and stands of bamboo (Daly and Silveira, 2003; Porter, 2000; Rehg, 2003). The primate communities known from these two areas are essentially identical (Porter, 2000; Rehg, 2003). Little is known about populations of *C. goeldii* in more northern or western sites (Defler *et al.*, 2003).

The state of Acre, located in northwestern Brazil and bordering both Peru and Bolivia, is inhabited by four species of tamarins (*Saguinus*). *S. fuscicollis* occurs throughout the state, while other species (within the *S. mystax* species group) occur allopatrically, separated by headwater rivers of the Amazon. The Rio Acre, for example, separates *S. labiatus labiatus* on its southeastern bank from *S. imperator imperator* on its northwestern bank (Hershkovitz, 1977; Emmons, 1997). At the western edge of Acre, in the Serra do Divisor National Park, the Rio Juruá separates *S. imperator* on the eastern bank from *S. mystax* on the western bank (Hershkovitz, 1977; Emmons, 1997; although Azevedo Lopes [in prep.] has found indications of possible sympatry between *S. mystax* and *S. imperator*).

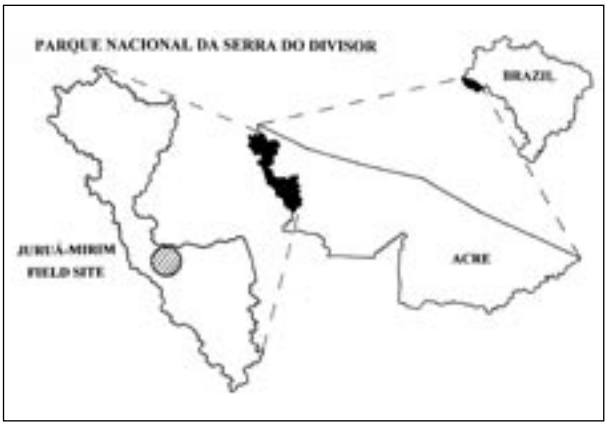

Figure 1. Location of the field site, Juruá-Mirim, in the Serra do Divisor National Park, Acre, Brazil.

At both the Pando and Acre sites (Fig. 1), *C. goeldii* spends much of its time in mixed-species groups (or polyspecific associations) with two other callitrichids: *Saguinus labiatus*, the red-bellied tamarin, and *Saguinus fuscicollis weddelli*, the southernmost subspecies of saddle-backed tamarin (Pook and Pook, 1982; Porter, 2001; Rehg, 2003). We had been unaware of reports of *C. goeldii* in association with other species of *Saguinus* from more northerly or westerly sites. Terborgh (1983), for example, reported only two brief sightings of *C. goeldii* near his study site of Cocha Cashu in the Manu region of Peru, despite many months of observations on mixed-species groups of *S. imperator* and *S. fuscicollis*. Subsequently, we have learned that associations of *C. goeldii* with *S. imperator* and *S. fuscicollis* have been briefly observed in Manu (Barry, 2002).

Here we report two observations by the first author (AL) of *C. goeldii* in association with *S. imperator* in the Serra do Divisor National Park in the northwest corner of Acre. The primate community in the park is different from that found in southeastern Acre and the Pando (Table 1). In addition, the park is situated along the eastern Andes, and this region of Acre is generally wetter (an average of 2200 mm rainfall per year, compared to less than 2000 mm for eastern Acre) and the vegetation is different from that of the Pando and eastern Acre where *C. goeldii* has been studied previously (Daly and Silveira, 2003).

Table 1. Primate communities at a field site in southeastern Acre and at the Serra do Divisor National Park.

Southeastern Acre, Fazenda Experimental Catuaba (Rehg, 2003)	Serra do Divisor National Park, Acre (southern portion) (Azevedo Lopes, in prep.)
Saguinus fuscicollis	*Saguinus fuscicollis*
Saguinus labiatus	*Saguinus imperator*
Callimico goeldii	*Saguinus mystax*
Saimiri sciureus	*Callimico goeldii*
Cebus apella	*Saimiri sciureus*
Cebus albifrons	*Aotus nigriceps*
Aotus trivirgatus	*Cebus apella*
Callicebus cupreus	*Cebus albifrons*
Pithecia irrorata	*Callicebus cupreus*
*Alouatta seniculus**	*Callicebus caligatus*
	Pithecia irrorata
	Pithecia monachus
	Cacajao calvus
	Alouatta seniculus
	Lagothrix lagotricha
	Ateles chamek

* Regionally present, but locally absent due to hunting pressure.

The Serra do Divisor National Park covers over 843,000 ha and is in the northwest corner of the state of Acre, along the border with Peru. It is divided into two parts, North and South, connected by a corridor and bordered by the mountains of the Serra do Divisor to the west. The park is at the divide of the hydrographic basins of the middle valley of the Río Ucayali (Peru) and of the upper valley of the Rio Juruá; ten major tributaries originate within the park and drain into the Rio Juruá. Three main vegetation types are found there: 1) dense forest with a continuous upper canopy and emergents; 2) open forests with variation in the locally dominant vegetation, including the presence of bamboos, palms, and lianas; and 3) alluvial forests with a predominance of palms. Rainfall is frequent throughout the year, with a peak between November and April.

We conducted this research as a component of the implementation of a management plan for the park, developed by the NGO SOS Amazônia (SOS Amazônia, 1998) in partnership with the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA) and The Nature Conservancy (TNC). We surveyed the mammal populations, especially the primates, in the park from July 2002 to March 2003, in order to evaluate hunting pressure on vulnerable species. Following the specifications of the management plan, AL carried out censuses in the southern part of the park at two sites: an area near the Rio Ouro Preto and another near the Rio Juruá-Mirim (Azevedo Lopes, in prep.). Systematic censuses along transects at the Rio Ouro Preto and the Rio Juruá-Mirim were conducted for fifteen days per month from November 2002 to March 2003.

Photo : Tab Rasmussen

Figure 2. *Callimico goeldii* feeding on fungus (*Auricularia* sp.) at the Fazenda Experimental Catuaba, in southeastern Acre, Brazil.

Mixed-species groups of *Saguinus imperator* and *Callimico goeldii* were seen on two different occasions during this time, both at the site near the Rio Juruá-Mirim. In August 2002, AL and her field team observed a group of about eight *S. imperator* together with five *C. goeldii*, near the camp by a small stream, feeding on mature fruit of the taboca bamboo (*Guadua weberbaueri*, Poaceae). The Goeldi's monkeys fled as soon as they noticed the people.

In November 2002, the two species were seen together again on one of the transect trails. Both were moving through the middle strata of the forest canopy, foraging at a height of approximately 12 m. A group of seven *S. imperator* was observed first, as they were vocalizing and crossing the trail when sighted, and at least three *C. goeldii* were traveling with them.

During systematic censusing at the Rio Juruá-Mirim site from November 2002 to March 2003, Azevedo Lopes (in prep.) recorded an additional 15 sightings of *C. goeldii* groups on their own, and eight sightings of solitary groups of *S. imperator. S. fuscicollis* was observed nine times at the Rio Juruá-Mirim site, but never in association with *S. imperator* (Azevedo Lopes, in prep.).

Observations of *C. goeldii* with *S. labiatus* and *S. fuscicollis* in eastern Acre have indicated that all three species take an active part in the formation and maintenance of mixed-species groups (Rehg, 2003). These mixed-species groups may persist for up to several hours a day, and continue for days, disrupted only by the separation of each species into different sleeping sites at night (Porter, 2000; Rehg, unpubl. data).

Although our observations of *C. goeldii* with *S. imperator* at the Serra do Divisor National Park were brief, they indicate that a similar mutual attraction to form groups may characterize these two species. Additional research at the park would provide an opportunity to further examine questions of the ecological benefits of callitrichid mixed-species groups, as well as expanding knowledge of the behavior and ecology of *C. goeldii* in a part of its range where it has not been studied.

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Some Observations on *Callicebus oenanthe* in the Upper Río Mayo Valley, Peru

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Introduction

Callicebus oenanthe was first described by Thomas (1924) from a specimen collected by one Lathan Rutter from Moyobamba on the Río Mayo at 2700 feet (823 m). Housed at the British Museum (Natural History), the holotype is the skin and skull of an adult male, Accession No. 1924.7.11.1 (Napier, 1976). Cabrera (1958) recognized the form as a subspecies of *Callicebus moloch*, and Hill (1960) as a subspecies of *Callicebus gigot* (Spix, 1823). Referring to it as the Isabelline titi, Hill noted that it was known only from the type locality and from "Yurac Yacu [= Yuracyacu], about 20 miles W. N. W. of that [the type] locality, where a female was collected by R. W. Hendee." That specimen was collected in 1926 at an altitude of 2500 feet, and is also in the British Museum (Natural History) (Napier, 1976). Hershkovitz (1963) classified it as a local variety of *Callicebus moloch discolor*. In his later revisions, however, Hershkovitz (1988, 1990) recognized it as a distinct species, characterized by a frontal blaze along the forehead (usually present), buffy or whitish hairs bordering the face, and orange fur on the inner surface of the limbs, chest and belly. It is known only from the upper Río Mayo valley in the northern section of the Department of San Martín, Peru (Hershkovitz, 1990). Besides the localities mentioned, Hershkovitz (1990) also listed a specimen from the Río Seco, 06°09'S, 77°15'W, San Martín, Peru (915 m) in the American Museum of Natural History, New York. Aquino and Encarnación (1994) provided very little information, mentioning only that it was the smallest of the Peruvian titi monkeys, occurring in cloud forest above 800 m, and sympatric with the yellow-tailed woolly monkey (*Oreonax flavicauda*) and the Andean night monkey (*Aotus miconax*). Van Roosmalen *et al.* (2002) agreed with Hershkovitz (1990) in recognizing *C. oenanthe* as a valid species.

Here I report on my findings regarding this species during a brief visit to five sites in the upper Río Mayo valley in the