

## Articles

### PRELIMINARY FIELD OBSERVATIONS OF GOLDEN-MANTLED TAMARINS, *SAGUINUS TRIPARTITUS*, IN EASTERN ECUADOR

Little is known about the natural history and behavior of the golden-mantled tamarin, *Saguinus tripartitus*. Published accounts of golden-mantled tamarins in the wild are limited to short reports on geographic distribution and group sizes observed during brief censuses (Albuja 1994; de la Torre, 1996; Aquino and Encarnación, 1996). Golden-mantled tamarins occur in lowland humid forest in eastern Ecuador and northern Peru, inhabiting a limited geographic range, thought to be bounded by the Río Napo and the Río Putumayo in the north and the Río Curaray in the south (Albuja, 1994; Aquino and Encarnación, 1996). In Ecuador, most, if not all, of the range of the golden-mantle tamarin lies within the boundaries of the Parque Nacional Yasuní and the Reserva Indígena Huaorani, areas that, until recently, were remote and largely inaccessible to researchers.

Between July 1994 and September 1996, I spent a total of five months locating and observing wild golden-mantled tamarins in eastern Ecuador: 1) six weeks in July-August 1994, as part of a survey of primate communities along the Pompeya Sur - Río Iro road in the Parque Nacional Yasuní, 2) eight weeks in July-September 1995, at the Proyecto Primates Study Site in the Parque Nacional Yasuní (near 76°33'W, 0°48'S, A. DiFiore, pers. comm.), and 3) six weeks in August-September 1996, at the Universidad San Francisco de Quito's Tiputini Biodiversity Station (76°20'W, 0°40'S), which lies on the north bank of the Río Tiputini and immediately north of the Parque Nacional Yasuní.

Study methods involved searching for golden-mantled tamarins while walking along trails and waiting for tamarins near specific trees, usually fruit or nectar sources or resting/sleeping trees, where tamarins had been previously observed. When groups were encountered, they were followed, both on and off trails, for as long as possible. Data on tamarin behavior were collected *ad libitum*. During longer follows, scan sampling at 5-minute intervals was used to record the behavior of all visible individuals. However, the number and temporal distribution of samples were insufficient to provide a meaningful description of the time budgets of golden-mantled tamarins at this time.

During the 1994 study period, golden-mantled tamarins were encountered on two of 20 days spent exploring the forest at various locations along the Pompeya Sur - Río Iro road. I also followed and observed a specific group of golden-mantled tamarins residing near kilometer 37 of the Pompeya Sur - Río Iro road on seven different days. At the Proyecto Primates Study Site in 1995, I encountered golden-mantled tamarins, belonging to at least three

different groups, on 15 (45%) of 33 search days. These encounters were usually brief, as the tamarins were unhabituated and often fled into areas of dense liana growth where they could not be followed. At the Tiputini Biodiversity Station, I encountered the tamarins on 25 (81%) of 31 study days. The tamarins observed at this site comprised at least five different groups. Several of them were already partially habituated to the presence of human observers, and I was able to follow them for extended periods of time. The four longest continuous follows, involving three different groups, were 2, 2½, 7, and 9 hours.

Groups of *S. tripartitus* for which I obtained reliable group counts ranged in size from four to seven individuals (N = 9), with a mean size of 5.8 individuals. These data are consistent with group sizes reported for *S. tripartitus* by Albuja (1994) and de la Torre (1996) and with those reported for other tamarin species in general (Sussman and Kinzey, 1984).

On one occasion during the 1995 study at the Proyecto Primates Study Site, I encountered a group of 10 *S. tripartitus* individuals that traveled together for a few minutes and then split into two groups of five individuals each, which fled in different directions. Since only groups of five individuals were seen in this area both prior to and subsequent to this observation, I concluded that the group of 10 was a temporary association. During the observed period of association, I did not see any aggression between individuals. This incident is of interest because most tamarins, like most primates, have aggressive intergroup relationships (Goldizen, 1987; Garber, 1993; Peres, 1989). Tolerant intergroup relationships and the formation of temporary, non-aggressive associations (also called "large groups"), where two or more neighboring groups travel and feed together, have been reported to date in only two other tamarin species: *S. nigricollis* (see Izawa, 1978; de la Torre *et al.*, 1995) and some populations of *S. fuscicollis* (see Izawa, 1976; Castro and Soini, 1977).

In my observations of golden-mantled tamarins, the temporary association described above was the only intergroup interaction observed. Thus, there is not yet sufficient information to determine whether intergroup tolerance and the formation of temporary associations between groups is a general feature of the social organization of golden-mantled tamarins, or whether the observed incident represents a rare occurrence of this behavior in this species. If intergroup tolerance proves to be the norm in golden-mantled tamarins, a study of the relationship of this unusual trait to other features of golden-mantled tamarin social organization and ecology would increase our understanding of the ecological causes and the social and reproductive consequences of different patterns of intergroup relationships in tamarins and other primates.

My observations of *S. tripartitus* suggest that its diet is qualitatively similar to those reported for other tamarin species (Sussman and Kinzey, 1984; Garber, 1993), including fruits, insects, and nectar. During all three study

years, subjects were observed feeding at the flowers of *Sterculia* sp. and/or *Matisia* (formerly *Quararibea*) spp., including *M. longiflora* and *M. obliquifolia*. The fact that tamarins did not remove or visibly damage flowers during feeding suggests that they were engaged in nectar (and/or pollen) extraction from these sources. Nectar feeding has been reported in numerous studies of other tamarin species, though the species of plants used as sources of nectar vary between study populations (e.g., *S. fuscicollis*: Terborgh, 1983; Peres, 1993; *S. imperator*: Terborgh, 1983; *S. mystax*: Peres, 1993). With respect to *Sterculia* and *Matisia*, Anne Savage (pers. comm.) has observed *S. oedipus* feeding from *Sterculia* sp. flowers in Colombia, and Terborgh (1983) reported seasonal nectar feeding by *S. fuscicollis* and *S. imperator* from several plant sources, including *Matisia* (formerly *Quararibea*) *cordata*, at Cocha Cashu in Manu National Park, Peru.

For the tamarins at Cocha Cashu, *M. cordata* nectar is a major food source during late July and August, Cocha Cashu's dry season, when fruit availability is low (Terborgh, 1983; Terborgh and Stern 1987). The time of year, July through September, in which I observed nectar feeding by golden-mantled tamarins in eastern Ecuador coincides with the period of heavy use of nectar resources by tamarins at Cocha Cashu. However, since the feeding behavior of golden-mantled tamarins has not been studied at other times of the year, no conclusions can yet be drawn about the extent to which nectar feeding is seasonal, nor about potential relationships between nectar feeding and seasonality in fruit availability for golden-mantled tamarins.

My observations of golden-mantled tamarins to date reveal that this previously unstudied species resembles other tamarins in general characteristics of its group size, diet, and behavior, at least during the months of July through September, and that this species may show the relatively uncommon characteristic of non-aggressive intergroup relationships. A long-term study of golden-mantled tamarins in the wild is necessary to further determine the extent to which this species resembles and differs from other tamarin species, including its well-studied and closely-related congener *S. fuscicollis* (e.g., Soini, 1987; Garber, 1988; Goldizen *et al.*, 1996). Further study of golden-mantled tamarins will expand our knowledge of the extent of variation in social behavior and ecology among callitrichids and may reveal novel combinations of traits that would allow us to test hypotheses about the ultimate and proximate factors underlying the unusual features of social organization, such as cooperative breeding and variability in mating patterns, that characterize these primates.

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