

distribution (Kellogg and Goldman, 1944), but that of *Cebuella*, while not improbable (Rylands *et al.*, 1993), would constitute an important extension of its geographical range. It is hoped further fieldwork, planned for 1996, will not only confirm the occurrence of these two species in the area, but will also provide insights into the factors determining their local distribution, and that of others such as *Alouatta seniculus*.

Two-hundred kilometers of line transect censusing were carried out during the present study, during which all but two species - *A. nigriceps* and *C. albifrons* - were recorded. A third species, *S. boliviensis*, was sighted on only one occasion. The most abundant species were *L. lagotricha*, *P. irrorata*, *S. fuscicollis* and *S. labiatus*, which together contributed 86.4% of sightings. *Lagothrix* appeared to be particularly abundant at the site, a good indication of a lack of hunting within the reserve.

The relative scarcity of the *Cebus* species, normally among the most abundant primates in western Amazonian communities, whether hunted or not (Peres, 1990), raises some interesting questions, especially in the light of the local distribution of *Alouatta*, for example. *Pithecia*, on the other hand, was recorded twice as frequently as *Cebus* at Três Irmãos, the opposite of the situation recorded at most other western Amazonian sites.

Fortunately, the Serra dos Três Irmãos Ecological Station is relatively isolated from Rondônia's principal areas of human colonization, which lie to the east/south of the Rio Madeira. The Station is accessible only by boat, and appears to suffer little encroachment, except by local fisherman. The results of the present study nevertheless indicate the need for the extension of the Station's limits to the left bank of the Madeira in order to protect fully the area's mammalian communities. This has been recommended to the state environment secretariat, and is currently under study.

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PREDATOR (*MUSTELA NIVALIS*) RESPONSES IN CAPTIVE-BRED *CALLITHRIX JACCHUS*

In 1985, a family of common marmosets was moved from a laboratory setting to a "wild" environment (Chamove and Rohrhuber, 1989). The group was composed of a pair of 2-year-old laboratory-born common marmosets (*Callithrix jacchus*) and their first set of laboratory-born twin sons (9 months old). The four lived together in a wire-mesh cage 3 x 2.1 x 1.4 m prior to release and were fed on a normal laboratory diet. Soon after moving to the garden, twins were born and were 1.2 months old at the time of this observation. The outside area included what was once a walled garden - long neglected - containing trees, shrubs, and vines. There was continuous woodland for several kilometers and the animals could move throughout a wide area without needing to go to the ground. Ivy covered most of the wall and extended out from it over 1.4 m in a tangle of old and new stems. Toads (*Bufo vulgaris*) and semi-wild domestic cats were also seen, but were never observed being approached by the monkeys. This is in contrast to Kleiman *et al.* (1986) who reported that lion tamarins showed great interest in toads. (Presumably other indigenous Scottish wildlife were present although not seen). Upon release, the marmoset family appeared to adapt quickly (Wendt, 1962). The most striking change in the behavior of the animals was the branch type they chose to use. When in the cages they spent most of the time on flat mesh surfaces and horizontal branches with infrequent, brief (0.8/min) visits to the floor. Unrestricted outside, they spent most of the time (89%) in the dense network of thin flexible ivy vines, where they could not be seen at a distance. They rarely visited more open shrubs (10%) or trees (1%). The monkeys were never observed on the ground. Although having no prior experience with gums, the monkeys were regularly observed feeding from gouges they had made

in elm trees (*Elnus*) preferring those of smaller girth.

In the laboratory, the monkeys reacted to soaring birds as well as to aeroplanes, giving alarm calls and then approaching the skylights to search for the bird once it had disappeared. On the outside the monkeys responded to soaring birds of all kinds, gulls were common, by leaping into dense bushes and remaining still. The marmosets appeared to ignore a large rubber snake located on the ground or in the branches, even when the head was made to move [see Heymann, 1987]. I found a dead weasel (*Mustela nivalis*) that had been flattened laterally by a car, and wedged its dry form into some branches in a life-like position. Three of the four marmosets mobbed the animal, giving alarm calls and directing threats at the predator. The father, carrying the 1-month-old babies, approached most hesitantly, remaining about 1.5 m away; the adult female approached closest, to within 10 cm, and appeared to be the most active in the mobbing. Surprisingly, the juvenile males were not the most vigorous mobbers (Millar, Evans, and Chamove, 1988). After about five minutes, and when the weasel did not move off, the marmosets' interest decreased. They moved away, still giving sporadic alarm calls, and looking back at the immobile weasel.

When the study was published, there were few reports of responses to predators of South American primates, and we reported the response of the marmosets as being presumably abnormal, maladaptive, and unlike what would be expected from wild animals. The report by Phillips (1995) seems to suggest that this might not be the case, with monkeys approaching predators more closely than humans would judge as safe. Phillips' white-faced capuchins were mobbing a tayra, approaching to within 2 m. Only one animal approached, but it was one of the two adult males. The monkey (female) carrying an infant did not approach closely. The remaining group members were intermediate in distance. Just like the tayra, our weasel made no aggressive response towards the monkeys in response to their mobbing. Could it be that there is a single animal that is the prime defender in a group; that is has the "role" of defender (Chamove, 1983)?

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WILD PRIMATES - NATURAL RESERVOIRS OF THERMOTOLERANT CAMPYLOBACTERS IN EASTERN PERU

Thermotolerant campylobacters have been shown to be one of the most important etiological agents of acute enteritis in humans, but in other mammalian species the bacteria are present in an apparently healthy carrier-state in the majority of cases (Rosef *et al.*, 1983). In order to determine the importance of wild primates as reservoirs of these zoonotic microorganisms, rectal swabs were obtained from a total of 43 individuals representing nine species (Table 1) from different areas in the vicinity of the town of Iquitos.

All samples were immediately placed into the transport and enrichment medium (Fernández, 1992) and cultivated within eight hours on modified Skirrow's medium (Fernández, 1983), at 42°C for 48h, in microaerophilic conditions. Suspected colonies were identified (Luechtefeld *et al.*, 1981b) using catalase and oxidase tests (both positive) and the morphological features observed in Gram-stain (curved S-shaped rods). Later, the thermotolerant *Campylobacter* species were identified using the criteria proposed by Lior (1984) and Goossens and Butzler (1992).

Campylobacters were isolated from 9 (20.9%) of the animals studied (Table 1). However, none of the animals showed signs of enteritis or other illness. This isolation rate was higher than that reported by Luechtefeld *et al.*