Habitat Preservation and the Translocation of Threatened Groups of Golden Lion Tamarins, *Leontopithecus rosalia*

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In 1968, Coimbra-Filho and Magnanini recorded the threatened status of the golden lion tamarin, *Leontopithecus rosalia*, and a subsequent paper by Coimbra-Filho (1969; see also Coimbra-Filho and Mittermeier, 1973) provided the first detailed documentation of the species' distribution in the lowland coastal Atlantic forest in the state of Rio de Janeiro, Brazil (Fig.1). Coimbra-Filho (1969) demonstrated the extreme reduction in the animal's geographic range, and likewise the extreme fragmentation of the remaining forests and the concurrent demise of the species.

The principal factors which threaten the survival of *L.rosalia* in the wild today include the small size and fragmented nature of the populations and the extremely limited amount of remaining habitat available (Fig. 1, Table 1). It is on these two fronts that the principal conservation efforts are concentrated. The resolution of the first problem will depend on the introduction of captive animals (Beck *et al.*, 1991) and also the translocation of isolated endangered groups to safer and larger forests (Table 1). The second problem involves measures to reverse habitat loss and increase the protection of the remaining habitat, comprising to a large extent small privately-owned forest patches. This involves reforestation in protected areas, especially in the Poço das Antas Biological Reserve, where the potential to increase the amount of forest totals 2,000 ha (Pessamílio, 1994), along with environmental education (Kleiman *et al.*, 1986; Dietz, *et al.*, 1994).

During 1991-1992, as part of the activities of the Golden Lion Tamarin Conservation Program of the National Zoological Park, Washington D.C., and following the recommendations of the International Management Committee for the species, a major survey was carried out to examine the status and distribution of golden lion tamarins, *Leontopithecus rosalia*, outside of the Poço das Antas Biological Reserve, and throughout its known and possible range in the state of Rio de Janeiro (Kierulff, 1993a, 1993b). It was carried out using satellite images to locate remnant forests, the large majority of which were visited to check for the existence or otherwise of lion tamarin populations (see Fig.1). One of the results of this survey was the location of 12 single and isolated groups in very small and very degraded forest patches (Table 1). These groups were found to be in serious danger of disappearing. All of the very small and isolated forests where they survive are hunted, logged, and threatened by pasture burning. The groups themselves are threatened by animal dealers, predation by domestic animals, and outright deforestation. Their importance, representing as they do a significant portion of the wild population outside of the Poço das Antas Biological Reserve (Table 1), and in terms of the genetic variability they represent, obviated the need for their translocation to a larger and protected forest. In 1994, a translocation program was set up, having located an area of well preserved and protected forest of 2,400 ha in the Fazenda União, municipality of Rio das Ostras, owned and managed by the Brazilian

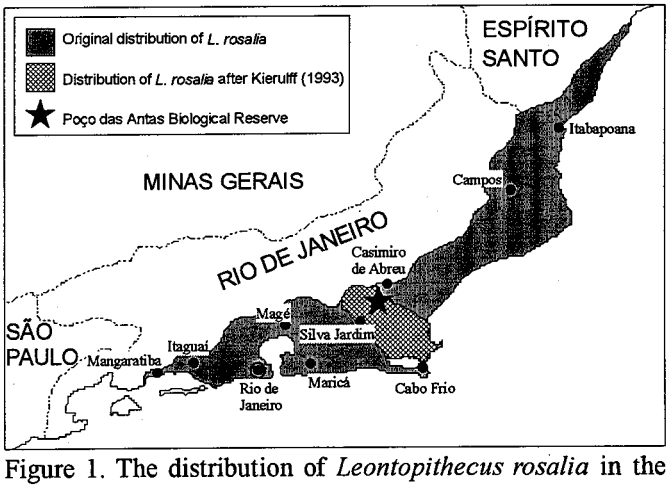

Figure 1. The distribution of *Leontopithecus rosalia* in the state of Rio de Janeiro.

Railway Company (*Rede Ferroviara Federal*) (see Fig. 2). After four months of negotiation, an agreement was signed between the Railway Company and the *Associação Mico-Leão Dourado*, created in 1993 to administer on-site the Golden Lion Tamarin Conservation Program, underway since 1983. The Agreement included the introduction of golden lion tamarin groups and the use of a house, which was restored as lodging and a laboratory for researchers.

The isolated groups were captured, measured, weighed, tattooed, and marked, and radio collars were placed on the adults. One of these 12 groups (A), a pair, found in a forest patch of 24 ha in the municipality of Cabo Frio (see Fig.1), was captured and followed for 15 days. In order to avoid unnecessary stress or interference in their already precarious situation, the pair were located and their sleeping sites recorded just once a day. During these 15 days, the animals were seen leaving their forest patch to enter two others, each of 1 and 5 ha. This involved crossing open grassland, and on the fifteenth day the male was found dead, probably predated by a dog. Traps were subsequently set up to capture the surviving female, but a search using play-back recordings failed to locate the animal, and, according to locals in the region, she had been caught by an animal dealer.

The second group (B) located in Búzios, in the municipality of Cabo Frio (Fig.2), was captured in July 1994, and accompanied during two months until the radio of the collared individual lost its antenna. The forest where they lived was hunted and there was some degree of forest cutting. The vegetation in this group's range was so dense that habituation was impossible, making it difficult to obtain data on feeding and behavior. Information was limited to plotting the group's movements according to the radio signals. The group was formed initially of five individuals which used the entire forest patch as well as an area of scrub and bushes (*macega*), totalling 20 ha. Only one sleeping site recorded. Two infants were born at the end of August 1994, and in October the group was caught and translocated to the Fazenda União. The seven lion tamarins are being followed by triangulation only, in order to minimize disturbing them.

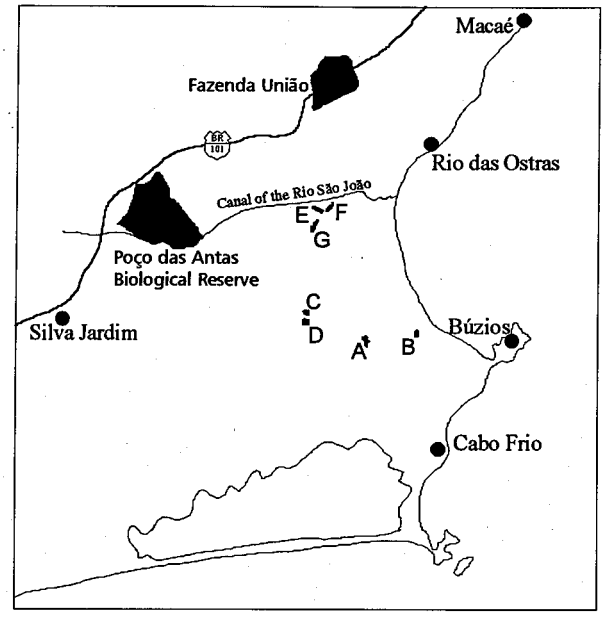

Figure 2. Location of the isolated groups of lion tamarins which will be translocated first to the Fazenda União.

During the first week in the Fazenda the group already occupied an area of 15 ha, and they are increasing their range day-by-day.

Groups C and D were found in the Fazenda Cabista, also in the municipality of Cabo Frio (Fig.2). The two forests of 57 and 81 ha where these two groups are surviving are the only ones left standing in the region, and scrub adjacent to them was cut for charcoal during our observations. It proved impossible to capture these groups using traditional methods. The traps were baited every two days during nine months. Eight

Table 1. Numbers of surviving wild groups of *L. rosalia* and the sizes of the forests where they occur.

Populations of *L. rosalia*	**Forest size**	**Number of groups**
Poço das Antas Biological Reserve	2,760 ha*	48 groups (Seal *et al.*, 1990)
Other wild populations	6,857 ha (4 areas of 340-4,600 ha)	43 groups (Kierulff, 1993a)
Reintroduced population (before May 1994)	1,700 ha**	28 groups (A. Martins, pers. com.)
Isolated groups which will be translocated	865 ha (9 isolated areas of 20-250 ha)***	12 groups (A. Martins, pers. com.)
TOTAL	12,182 ha	131 groups

* Total area of Poço das Antas is 5,500 ha.
** Estimated area.
*** These groups will be translocated to the Fazenda União (2,400 ha of forest).

different fruits were used, including some native to the forest patches. The groups would reply to tape-recorded calls, but never approached. Our continuing efforts to catch these groups will include the use of artificial tree-hole traps.

Groups E, F and G, also in the municipality of Cabo Frio, are isolated by drainage canals. Two of the groups are in two patches of gallery forest, of 48 and 61 ha, along the Rio São João. The other group was located in a forest of 120 ha, isolated by canals and large expanses of pasture. These forests suffer from hunting, fires and selective logging. They are accessible only by boat, but traps are being baited twice a week, and the groups will be translocated by the end of 1994. The remaining groups will hopefully be translocated in the first six months of 1995.

The effort and man-hours involved in translocating these groups is well compensated when considering their important genetic contribution to the wild population and the highly degraded state of the small and isolated forest and scrub where they are surviving now. The formation of a new population at the Fazenda União reserve, besides providing important experience regarding translocation techniques, will without doubt be a significant contribution for the species' survival in the wild. On the other hand the presence of the lion tamarins, the ongoing environmental education program, and the presence of the researchers themselves will certainly contribute to the preservation of the forest at Fazenda União, one of the largest and best preserved areas of Atlantic forest in the lowland coastal region of Rio de Janeiro.

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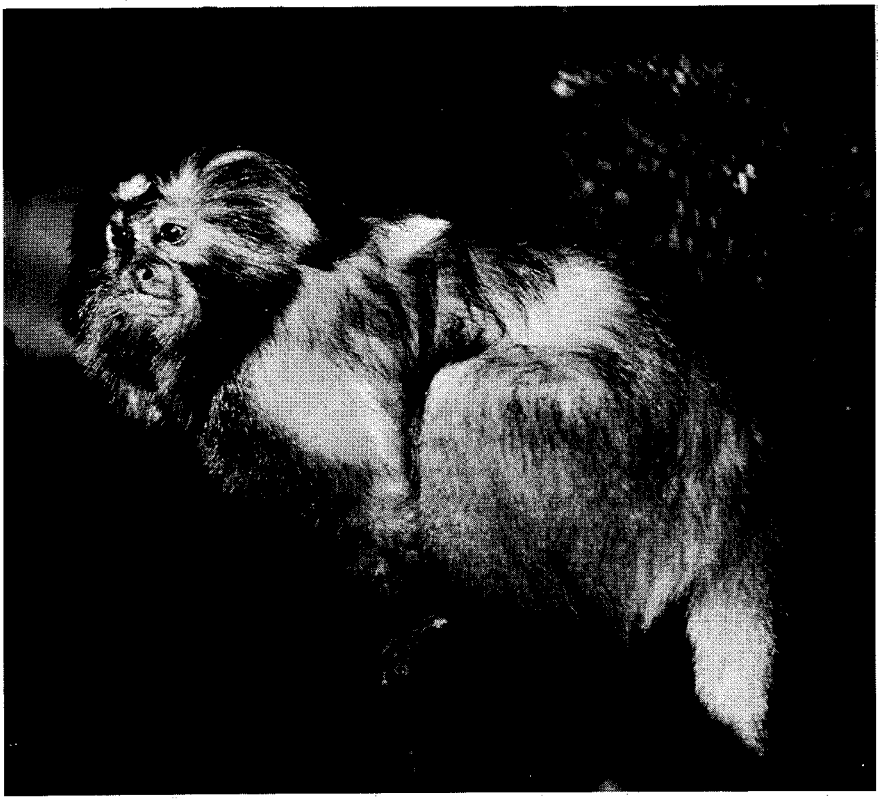

Golden lion tamarin (*Leontopithecus rosalia*). Photo by R. Mittermeier.

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