

Can the Black Lion Tamarin be saved from *Extinction*?

by Liana John and Marcos Santilli



This baby black lion tamarin faces a threat common to all wildlife: loss of suitable habitat.
Marcos Santilli

Brazil's golden lion tamarin (facing page) is another critically endangered primate.
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The black lion tamarin, named as a critically endangered primate by the International Union for the Conservation of Nature, may have a glimmer of hope if the professional devotion of a few researchers and environmentalists is any indication. Native to São Paulo, Brazil's most developed state and one of its most deforested, the black lion tamarin (*Leontopithecus chrysopygus*) belongs to the same genus as the better known golden lion tamarin, whose habitat is the coastal lowlands of Rio de Janeiro, the black-faced lion tamarin discovered last year in the state of Paraná, and the golden-faced lion tamarin from the vestiges of the Atlantic rainforest in Bahia.

Until 1990, about 400 black lion tamarins were thought to be living in the wild in the Morro do Diabo State Park. There are also approximately 100 of them in captivity, in the São Paulo Zoo and the Rio de Janeiro Center of Primatology. This year, however, a survey of São Paulo's largest private forest reservations brought six new groups to light. Forest engineer Laury Cullen Jr., who heads the survey, says it will continue until the end of 1991. "Next year, if we get the money, we plan to analyze blood samples from the new groups and try to cross-breed them," Cullen explains. The extra funding has to come from private contributions and international foundations, and the necessary permission from the landowners involved.

The discovery of new groups means the genetic diversity of the black lion tamarin may be sufficient to enable it to survive as a species. Preliminary blood tests indicate that wild and captive tamarins share the same genes. No genetic analysis has yet been performed for the new groups, since their habitats are isolated islands of rainforest; but their discovery means a chance of diversity.

Rebirth

The black lion tamarin has already been reborn once. It was deemed extinct in 1905 when the last known member of the species was caught, killed and sent to be "preserved" as a stuffed museum exhibit. But in 1973, after a long search, primatologist Adhelmar Coimbra Filho located a few groups at Pontal do Paranapanema in western São Paulo. They were living on an old forestry reservation run by the state government. Coimbra Filho took five tamarins to the Rio de Janeiro Center of Primatology, where studies began on reproduction in captivity. Other animals were later taken to São Paulo Zoo.



Meanwhile, constant encroachment undermined efforts to preserve their habitat on the reservation intact, encroachment not just by landless peasants but also by wealthy landowners and big corporations. Eventually, after political deals involving forged land titles, chunks of the 248,000-hectare park were broken off and handed over to these speculators.

Between the turn of the century and the 1970s, deforestation proceeded apace, until all that remained was a patch of 37,000 hectares, now the Morro do Diabo State Park, which became a reservation after a long political fight. Even so, 3000 hectares were lost in the 1980s when CESP, the São Paulo power utility, built the nearby Rosana hydropower plant and reservoir.

"It may seem surprising, but it was when they flooded 3000 hectares that we finally won the battle to have the remaining area declared a conservation area and be sure of a chance to protect the black lion tamarin," recalls Hélio Ogawa, director of the Forestry Institute. Rather than accept the usual cash compensation from CESP, the Forestry Institute negotiated an agreement to have the utility provide the necessary infrastructure for management of the area, fire prevention and patrolling. As a result, Morro do Diabo is one of Brazil's few parks where staffing is adequate, and there are even enough forest wardens.

Once the ecosystem had been stabilized, the conditions existed to study the animals' habitat and to determine the best way of conserving the species. This is what Cullen has been doing for the last year, along with biologist Claudio Pádua, who has been on the job since 1982. Pádua had studied the tamarins bred by the Rio Center of Primatology, where he had worked with Coimbra Filho. Now he is applying the latest theories on conservation. "I've been systematically following them step by step to make sure the species survives," Pádua says.

Search

The first step toward guaranteeing the conservation of the black lion tamarin was a search for other occurrences of the species. Pádua spent a year looking in every likely part of the west and southwest of São Paulo, but by 1983 he felt he had run out of luck. Apart from Morro do Diabo all he had found was a small group of tamarins in a tiny area of forest conserved by a farmer in Gália. This is now the Caititus Ecological Station.

Last year, with the arrival of Cullen, the search resumed, using satellite pictures to hunt down a few larger areas of remaining forest. "Based on data about the size of the tamarins' territory inside the park, we picked out some privately-owned forest areas nearby where we

thought tamarins would have enough room and food to breed," Cullen says. "I took a look at these areas one by one. With the owners' help I eventually located three families of tamarins."

Cullen also visited a large eucalyptus reforestation project containing strips of native vegetation in Lençóis Paulista. There he found three more groups of black lion tamarins, making a total of 30 animals in all six groups.

The next step in the conservation process is to analyze blood samples from known animals and analyze the degree of genetic diversity. The more diversity, the better the species' chance of adapting to changes in climate and environment, and hence of surviving for several generations.

Genetic diversity is a pointer to the probability of extinction. A very homogeneous species has less chance of survival. The fewer individuals there are a given species, the greater the trend toward homogeneity due to consanguineous mating. There is no genetic diversity among all the groups of black lion tamarins in the Morro do Diabo park, the Caititus area and the zoos. Hopes now focus on the newly discovered groups, which are currently being fitted with radio transmitters and markings to facilitate tracking. Blood samples for analysis should be available early next year.

Until then, the conservation of the forest areas where they live must be guaranteed. The three groups located in the reforestation project are fairly safe. The area belongs to Duratex, a leading producer of wood panels, veneer and plywood. The company says it has no intention of clearing the strips of native forest in the area, adding that its management of the eucalyptus trees it plants there includes respect for wildlife. In the three other privately-owned areas, however, the tamarins run





a tangible risk.

At Fazenda Ribeirão Bonito, a cotton farm in Pontal do Paranapanema, the tamarins live in a tiny 100-hectare patch of forest surrounded by plantations. Pesticides are used abundantly by Brazilian cotton growers, and the tamarins run a risk of indirect poisoning. "It seems the area isn't big enough for this group to live safely and feed," says Cullen. He reached this conclusion following the death of two baby tamarins. The animals may be foraging outside the forest and risk contamination by pesticide.

The other area in the Pontal region, inside Fazenda Rosanella, has been ravaged by bush fires and is also close to the cotton plantations. But it is a larger area and the tamarins may be able to survive on the food available there. The Rosanella reservation contains 300 hectares of good forest and a further 500 hectares of secondary vegetation also used by the animals.

The third area is in Fazenda Tucano, an estate belonging to Camargo Corrêa, a heavy construction company. This is where the tamarins run the greatest risks. Landless peasants are being settled nearby under an agreement between the state government and the company. "We've repeatedly asked the government people to give us guarantees that no native forest will be cleared," says Djalma Weffort, an environmentalist speaking on behalf of six NGOs that lobby for conservation in this part of Brazil. "There are plenty of unfarmed estates in the Pontal region where forest has long been cleared away. There is no need to settle the landless in areas where native forest is still intact, let alone just where the tamarins are living."

The environmentalists presented a petition personally to Alaor Caffé Alves, São Paulo State Secretary of the environment, and heard him promise to meet their demands. The settlement program was temporarily halted but a final decision is in the offing.

Education

To avoid conflicts of this kind and keep all the black lion tamarins out of danger, an ambitious environmental education program has begun in the Morro do Diabo Park. Headed by Suzana Machado Pádua, the program involves local schoolchildren, 1500 of whom have visited the park so far. Ms. Pádua has fitted out the main wardens' quarters for educational activities. Today the black lion tamarin is part of the children's world; their school essays show that they no longer see these animals as potential pets and are aware of the importance of leaving them at peace to live in the forest, where they play a role in maintaining the ecosystem.

The program must now be extended to include the adult population, Ms. Pádua says, especially the farm-

ers living nearby. Negotiations with them will also have to be based on ecological research, which is crucial to the effort to save the species anyway. Claudio Pádua has spent time tracking wild tamarins in the Morro do Diabo area and has noted every detail of their behavior — feeding habits, relationships, numbers of offspring, etc. He will include these findings in his Ph.D. thesis now being prepared for the University of Gainesville, Florida. The findings will also prove useful when the time comes to turn some of the black lion tamarins bred in captivity loose in the forest. An experiment of this kind has already been performed with the golden lion tamarin.

"We also intend to restructure their habitat so as to guarantee the survival of the wild tamarins," Claudio Pádua explains. "The black lion tamarin isn't too fussy. It can even survive in forest that has been cleared once, as long as there are hollow trees to live in and enough food." The species prefers larvae, insects and wild fruit.

Each family, averaging four tamarins, requires about 133 hectares of forest, almost three times the area required by the golden lion tamarin (48 hectares) or the golden-faced lion tamarin (40 hectares). "We want to conserve the forest as well as trying to locate other areas in the state where the conditions are ideal for reintroducing the species," says Ogawa of the Forestry Institute. "In this way we will be able to multiply the areas where tamarins can live."

1. Originally the black lion tamarin (*Leontopithecus chrysopygus*) lived in the Atlantic rainforests that covered much of the west and southwest of São Paulo State. Deforestation and settlement have left only one large area as a home for the species, the Morro do Diabo State Park, covering 37,000 hectares. The other areas are small tracts of native forest that remain like islands surrounded by pasture and farmland — they are the Caititus Ecological Station (1900 hectares), three areas in farms in Pontal do Paranapanema, and a reforested area in Lençóis Paulista.



2. The golden-faced lion tamarin (*Leontopithecus chrysomelas*) once lived in the marshlands of the Recôncavo of Bahia. It too is dying out owing to destruction of its habitat. The largest known group is found in the Una Biological Reservation. It is estimated to comprise 500 individuals.

3. The golden lion tamarin (*Leontopithecus rosalia*) used to be found throughout the coastal marshlands of Rio de Janeiro State, but has also been driven out by deforestation and human settlement. Today it is found only in isolated areas of forest between the city of Rio and the inland town of Campos in the same state. The known population of wild golden lion tamarins comprises 400 individuals living in the Poco das Antas Biological Reservation and a few privately-owned areas nearby.

4. The black-faced lion tamarin (*Leontopithecus caissara*) was discovered last year in the Superagui State Park in Paranã. No one is sure where it originally came from. Some scientists believe it may be a subspecies of the black lion tamarin. There are no estimates of the number of individuals alive, nor are there any animals of this species in captivity. The only black-faced lion tamarin found alive in Superagui Park was a pet kept by a Guarani Indian woman.

