

# The discovery of the Brazilian three banded armadillo in the Cerrado of Central Brazil

Jader Marinho-Filho

Departamento de Zoologia, Universidade de Brasília, 70910-900, Brasília, DF, Brazil.

Marília Marques Guimarães

PG-Ecologia, Universidade de Brasília, 70910-900, Brasília, DF, Brazil.

Marcelo Lima Reis

Jardim Zoológico de Brasília, Av. das Nações, L4 Sul, Brasília, DF, Brazil.

Flávio H. Guimarães Rodrigues

PG-Ecologia, Depto. Zoologia, Universidade Estadual de Campinas, 13083-970, Campinas, São Paulo, Brazil.

Osvaldo Torres

Fundação Pró-Natureza, SCLN 107, Bloco B, 70743-060, Brasília, DF, Brazil.

Guilherme de Almeida

Fundação Pró-Natureza, SCLN 107, Bloco B, 70043-060, Brasília, DF, Brazil

## Abstract

The Brazilian three-banded armadillo, *Tolypeutes tricinctus*, a rare species threatened with extinction, has been described as a Caatinga endemic. However, it has recently been found in native cerrado areas on the border of the states of Goiás and Bahia. These animals were mostly captured in natural Cerrado areas, but they were also caught in such areas as *Pinus* and *Eucalyptus* reforestation and corn and soy bean crops. As in the Caatinga region, their populations have been diminishing drastically, and some measures must be considered and implemented to allow for the survival of this species where it is still present, and also permit its reintroduction in areas where it is already locally extinct.

## Introduction

The Xenarthra radiated in South America between the Paleocene (65 M. a.) and Pliocene (5 M. a.), when the continent was isolated. This mammalian order does not have favorable prospects concerning its conservation: its four families (Myrmecophagidae, Bradypodidae, Megalonychidae, Dasypodidae) include 29 species, of which three are "endangered", five are "vulnerable", two are "near threatened" and six are "data deficient", according to IUCN's Red List (IUCN, 1996). This means that more than 55% of xenarthran species are at risk or are poorly known.

*Tolypeutes tricinctus* is one of the species categorized by the IUCN Red List as "vulnerable" (IUCN, 1996), and is included as "endangered" in the Brazilian Official list of Species Threatened with Extinction (Bernardes *et al.*, 1989). The Brazilian three-banded armadillo is one of the rarest and least known armadillo species in Brazil. It had not been seen by scientists for more than 20 years, leading some scientists to think that it was extinct in the wild (Cole *et al.*, 1994). Recently, however, it was found in various sites in the caatinga region (Cardoso da Silva & Oren, 1993; Santos *et al.*, 1994).

*Tolypeutes tricinctus* is the only endemic Brazilian armadillo, and considered a Caatinga endemic (Wetzel, 1985a, 1985b; Nowak, 1991; Cardoso da Silva & Oren, 1993; Redford, 1994; Santos, 1994; Santos *et al.*, 1994), because all previous records have from this region (Sanborn, 1930; 1931; Moojen, 1943; Cardoso da Silva & Oren, 1993; Santos *et al.*, 1994). In this paper we present information regarding the occurrence of *T. tricinctus* in the Cerrado region, in the western part of the state of Bahia, near the border of the state of Goiás (Figure 1).

## Description of the locality

The Cerrado is a savanna-like formation, with a very distinctive flora associated with well-drained, deep, strongly acidic latosols, poor in nutrients and rich in aluminum (Eiten, 1972, 1994). The Cerrado vegetation is a xeromorphic intergrading mosaic of pure grassland, called *campo limpo*, to closed woodlands such as gallery and mesophytic forests (Eiten, 1994).

The climate is tropical with a well-defined dry season. Mean annual precipitation is around 1,300mm (Funatura, 1991), most of the rain falling during the wet season (from October/November to March). The dry season is from April to September/October.

From September 1992 through March 1993, while working on a faunal inventory at Fazenda Jatobá, a forestry enterprise of the Shell group, we found some individuals of *Tolypeutes tricinctus* living in native cerrado areas. Later, in July 1995 to January 1996, we returned to the same region, to work on another private farm neighbouring Fazenda Jatobá, the Fazenda Rio Pratudão, where we also found the Brazilian three-banded-armadillo. The Fazenda Jatobá, is located in Correntina, (13° 53'S 45° 42'W) Bahia state, close to the state of Goiás. The Fazenda Rio Pratudão (14° 14'S 45° 56'W) is located in the municipality of Jaborandi, also in the state of Bahia, on the border of the state of Goiás. The area is in the Chapadão Ocidental da Bahia, one of the huge plateaus on the top of the Espigão Mestre, in the heart of the Cerrado distribution.

Both farms have natural open cerrado areas and forest or crop plantations. The Jatobá farm has a total area of 100,000 ha with 30,000 ha covered with reforestation of *Pinus* and *Eucalyptus*. The Pratudão farm has 5,000 ha of its total of 70,000 ha area covered with corn and soy bean fields.

### The Armadillos

A total of 40 specimens were captured, marked and released on the two farms. None of them was recaptured. One individual was captured in a rodent trap (Young trap) baited with a mixture of peanut butter and corn flour. All other captures were made manually after sighting them at a distance while driving on roads and trails in the study area. There was no need for the use of dogs to find the animals. Most (34 individuals; 85%) were found in areas covered with natural open Cerrado physiognomies, but they were also captured close to other habitats, such as: Vereda de Buriti (wet grasslands with palm trees; 1 animal; 2.5%); *Pinus* and *Eucalyptus* reforestation (3 animals; 7.5%); and corn and soy beans crops (2 animals; 5%). The Brazilian three-banded armadillo population we found appears to be large. No marked animals were recaptured despite the intense effort in day and night patrols (Guimarães, 1997).

### Conservation status and prospects for actions

*Tolypeutes tricinctus* was common in Northeastern Brazil, but today its populations are rapidly diminishing, and the species is extinct in a large portion of its original distribution (Santos, 1994; Santos *et al.*, 1994). The Brazilian three-banded armadillo suffers from strong hunting pressure. Rolling up into a ball is its only means of defense, making it easy prey for humans. The situation becomes even worse, considering that the largest part of its distribution in the Caatinga is also occupied by extremely impoverished

human populations. Such strong hunting pressure and its low reproductive rates (females, in general, give birth to only one offspring) make *Tolypeutes tricinctus* very vulnerable to local extinction, as has been already observed (Santos, 1993). Some urgent and necessary measures must be taken (Guimarães, 1997) to counteract the effects of hunting and habitat alteration that threaten natural populations of *T. tricinctus*:

- To develop an *in situ* conservation program on *Tolypeutes tricinctus* populations in the Estação Ecológica do Raso da Catarina, in the Caatinga (Santos, 1993; Santos *et al.*, 1994) and in the region of Posse, Correntina and Jaborandi, where we found the Cerrado population. This will permit further reintroduction of this species in protected areas where it is supposed to have occurred.

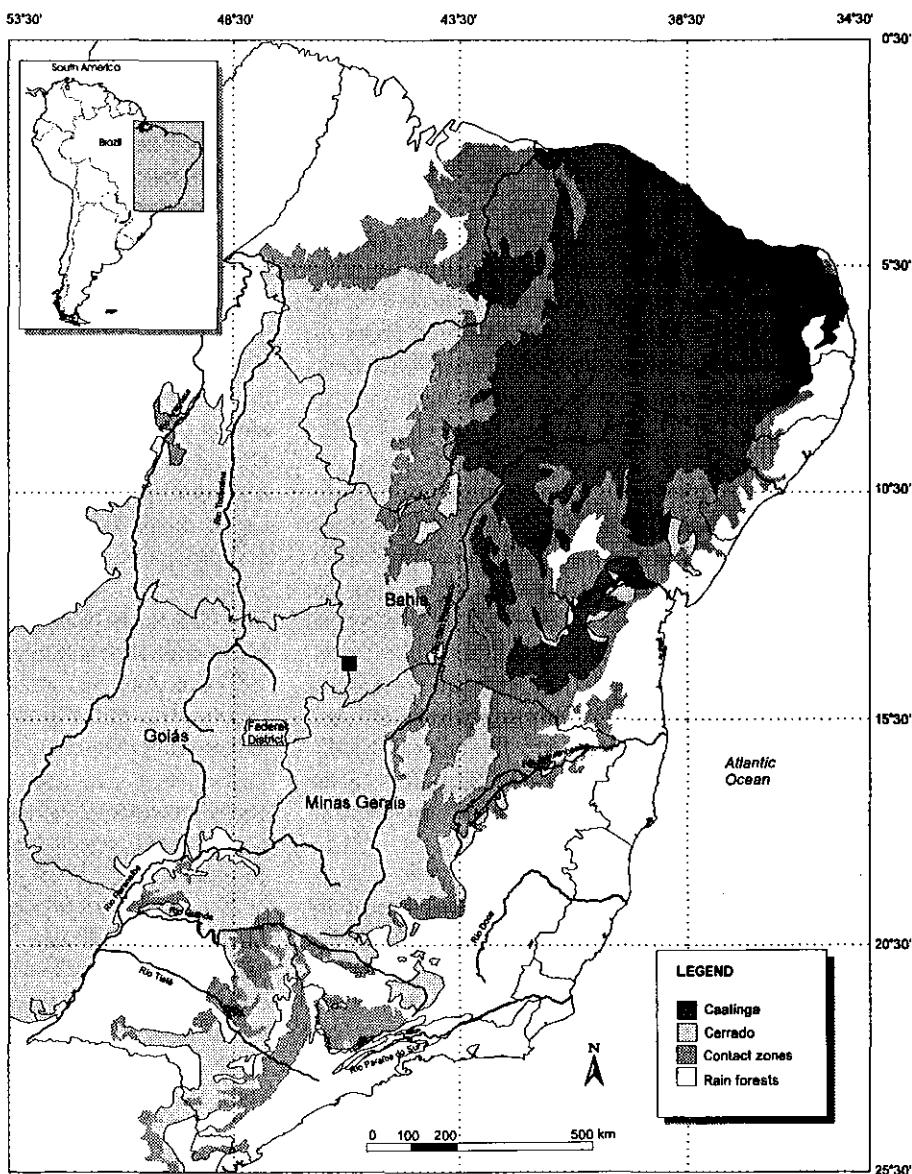


Figure 1. Previously known distribution of *Tolypeutes tricinctus* corresponds to the Caatinga biome. The black square represents the *T. tricinctus* record for the Cerrado. The biome limits are based on IBGE (1993).

- An education program for the people living within the range of *T. tricinctus* in the Cerrado. Consideration should be given to the fact that human populations in this region have better living conditions, and hunting pressure in this area tends to be more associated with sport than subsistence, as it is in the Caatinga. This increases the probability of a successful educational program in the Cerrado.
- To carry out a survey of the conservation units in the Cerrado domain which still have or had natural populations of *T. tricinctus*, evaluating the potential of these areas to receive and effectively protect reintroduced animals.

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## Philip Hershkovitz: O Último que Conheceu Toda Nossa Diversidade de Mamíferos

### Alfredo Langguth

Departamento de Sistemática e Ecologia, CCEN, Universidade Federal da Paraíba, 58059-900 João Pessoa, Paraíba, Brazil. From *Neotropical Primates* 5(3), September 1997.

Philip Hershkovitz nasceu em Pittsburgh, Pennsylvania, EUA em 1909. Casou em 1946 com Anne Marie Pierrette Hershkovitz a quem conheceu na França durante a Segunda Guerra Mundial, enquanto servia na "Office of

Strategic Services" (1943-46). Deixou três filhos, Francine, Michael Dode e Mark Alan.

Como cientista Hershkovitz tinha uma mente aberta,