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Short Communication

Home ranges of translocated lesser anteaters *Tamandua tetradactyla* in the cerrado of Brazil

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Abstract Eight lesser anteaters *Tamandua tetradactyla* rescued from the rising waters of a dam at Serra da Mesa, Minaçu, Goiás, Brazil, were tranlocated to other areas and tracked using radio telemetry for periods of up to 10 months, from December 1996 through February 1998. With the exception of one, or perhaps two, female(s) that left the area while the radio collars were in place, the anteaters stayed within 2.17 km of their release sites and appeared to thrive. The results suggest that it is feasible to translocate small numbers of anteaters into new areas of suitable habitats without adverse effects on resident anteaters.

Keywords Home range, hydroelectric impoundment impact, translocation, tropical savanna, wildlife management.

Introduction

The lesser anteater *Tamandua tetradactyla* Linnaeus, 1758 occurs in South America, from the eastern side of the Andes to northern Argentina and Uruguay, occupying both open and forested areas. Most of the information about this species's ecology and behaviour refers to its diet (Lubin *et al.*, 1977; Montgomery & Lubin, 1977; Lubin & Montgomery, 1981; Montgomery, 1985a, b). Little is known about its home range and movements (Montgomery, 1985b). Here we present results of the first study on this subject, conducted in Brazil. Although lesser anteaters are not seen frequently in the field, they are captured in great numbers during fauna rescue operations in areas where land is flooded as a result of large hydroelectric schemes. Almost 3600 lesser anteaters were captured in Tucuruí (Gribel *et al.*, 1987; Henriques, 1988) and 154 at Serra da Mesa (N. Silva, pers. comm.). What to do with rescued animals is controversial: some people are in favour of releasing them while others are opposed to this action. Those opposing it believe that the carrying capacity of the habitat may be saturated and that the released animals would not only have little success, but could also endanger individuals that already reside in the area (Henriques, 1988). Instead, they suggest using the captured animals for scientific purposes (Gribel *et al.*, 1987; Alho, 1988; Henriques, 1988). Another question is whether or not translocated anteaters would stay in the release area and adapt to their new location.

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Methods

We studied eight adult lesser anteaters captured by the Fauna Rescue Operation at the hydroelectric plant reservoir of Serra da Mesa, Minaçu, Goiás, Brazil (13°49'49"S 48°19'18"W), to discover whether they would stay in good condition after translocation and release. The Bagagem, Tocantinzinho and Maranhão rivers, which are main tributaries of the Tocantins River, form this reservoir (Fig. 1), which reached capacity in late-1998 flooding an area of 178,000 ha. The vegetation of the region is typical of the cerrado, a Neotropical savanna (Eiten, 1972).

The animals were translocated to areas along the edge of the reservoir and tracked using radio telemetry. The radios were attached to pectoral-type collars, which were fitted firmly to the animals in a way that would not interfere with their movements. Fieldwork was conducted from December 1996 through February 1998. After release, the animals were monitored for a period of 2 weeks each month. Although we tried to locate all animals daily, it proved to be very difficult to find them because of the irregularities of the terrain. Each animal was located from one to six times a month ($X = 3.6$;

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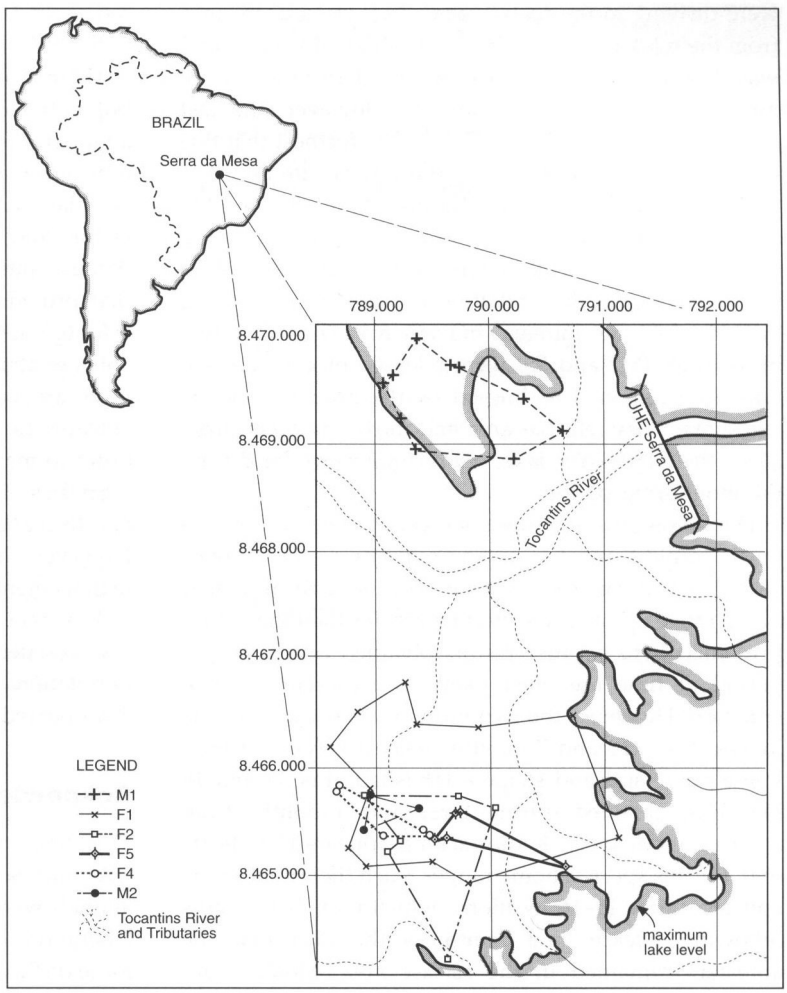

Fig. 1 Location of the study site and the home-range contours of six of the eight lesser anteaters tracked by radio telemetry.

Table 1 Home range and movements of lesser anteaters at Serra da Mesa.

Individual (sex and number)	Period of radio tracking	Number of locations	Home range (sq km)	Greatest distance between extreme points of the home range (km)	Greatest distance achieved by the animal from its release site (km)
M1	17/12/96 to 19/09/97	30	1.0	1.62	1.13
F1	18/12/96 to 26/06/97	28	3.4	2.64	1.52
F2	20/08 to 26/09/97	9	1.8	2.14	1.18
F3	16 to 21/01/97	2	–	0.25	0.25
F4	24 to 28/10/97	6	0.2	0.90	0.52
F5	21/11 to 12/12/97	6	0.2	0.93	0.74
M2	24/10 to 19/11/97	6	0.1	0.53	0.34
M3	28/01 to 21/02/98	3	0.3	2.22	2.17

SD = 1.9). Table 1 presents the number of locations and the period over which the animals were monitored. The anteaters were located by triangulation or by following the radio signal until reaching the animal. The home ranges were calculated by using the Minimum Convex Polygon method, and the distances travelled were calculated using Global Positioning System equipment.

Results

The translocated anteaters stayed around the release area for the duration that they kept their radio collars, the only exception being female F4. We lost contact with this animal and it is possible that it left the release area. Visual inspection of the animals indicated that they

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were thriving in the release sites. The greatest distance from the release site to where an individual was located was 2.17 km (M3), but most recorded distances were much shorter than this (Table 1). However, the last recorded location of female F2 was the furthest that this individual had travelled from the release site and it is possible that she was leaving the area. Males M1 and M3 and females F1 and F3 were released in areas, or during periods, when the lake edges were relatively distant from the release site and thus did not have a strong influence on the animals' movements. The other two individuals (M2 and F5) were released on a peninsula, where movement was limited by the proximity of the lakeshore. They left that area and moved to other areas along the edge of the lake, but did not move far during the monitoring period.

The home ranges of the tracked anteaters are presented in Table 1 and Fig. 1. The majority of the animals were tracked for a short time (1–2 months) and their home ranges probably would be greater than the values presented here because results obtained over a longer period of time are most likely to represent the real situation. However, the two individuals tracked for the longest time (10 and 7 months, respectively), had their home range size and shape established after 11 and 16 locations, obtained during three and 4 months from release, respectively. Radiotracking appears to indicate that, for this species, home ranges reach their final shape and area after 11–16 locations, which took 3–4 months following release, and reinforces the idea that the anteaters remained in the release area. Montgomery (1985b) reported a home range of 3.75 sq km for the lesser anteater in the llanos of Venezuela, a region that is similar in some ways to the cerrado. This figure is not much different from what we found in Central Brazil and so it appears that this home range size is typical for this species in open areas.

The results indicate that lesser anteaters may adapt quite readily to a new environment, thus making translocation and reintroduction appropriate management tools. The same may be true for other species of anteaters. One translocated silky anteater *Cyclopes didactyla*, which was tracked for 8 days on Barro Colorado Island, Panama, moved an average of 43 m each day (range 15–57 m) and 148 m from the release site in total (Sunquist & Montgomery, 1973). Non-translocated individuals in the same area moved 300 m each day on average (Montgomery, 1985b). The translocated individual did not leave the immediate vicinity of its release site, moving less than is usual for the species. In contrast, other animals, such as carnivores, tend not to remain near the release site and travel far soon after release, either in search of better habitat or in attempt to return to the place of origin (Rodrigues & Marinho-Filho, 1999).

There was no estimate for the initial lesser anteater population density, but the fact that the released animals adapted well and remained near the release site indicates that they were not a threat to the local anteater population. According to the literature, the principal factor that limits anteater density is food supply, because ants and termites have behavioural adaptations that provide a strong defence against anteater attacks (Montgomery, 1985a, b; Redford, 1985). Termites and ants are abundant in the cerrado, however, and several nests are usually accessible at one time, allowing an anteater to pass quickly from one nest to another in order to maximize food comsumption.

Studies of translocated animals do not always permit one to make conjectures about the species as a whole. However, they are important as a basis for developing management strategies, and provide an opportunity to collect data on little-known species. Furthermore, animals rescued from flooded areas might provide founder populations to recolonize areas where the species has disappeared or to augment low density populations.

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Biographical sketches

Flávio Rodrigues is a graduate student and his thesis topic is conservation and management of the maned wolf in small reserves. He has published on the natural history, conservation and ecology of Brazilian cerrado mammals. Currently he is leading a research project on the ecology and conservation of mammals at Emas National Park, Central Brazil.

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