

# Cairo spiny mouse (*Acomys cahirinus*)

RICHARD MORRISON

University of Edinburgh, Bioresearch and Veterinary Services

Correspondence: Richard.morrison@ed.ac.uk

## Overview

An overview of the care and welfare of the Cairo spiny mouse, a nocturnal rodent from north Africa. These rodents have been suggested to be an emerging model species for regenerative medicine and reproductive health because they heal from skin wounds and ear punches without scarring and that the females menstruate. Particularly notable features of caring for these animals included the need to ensure they have sufficient social interaction.

## Characteristics

- Gregarious animal which lives in small family groups.
- The Cairo spiny mouse grows to a head and body length of about 3.75 to 5 inches (95 to 127 mm) with a tail of much the same length (Figure 1).
- They have large ears that help them cool off in the hot climate they originate from.
- Their tail is devoid of hairs.
- The spiny mouse is known to have relatively weak skin.



**Figure 1.** Cairo spiny mouse.

## What is a Cairo spiny mouse?

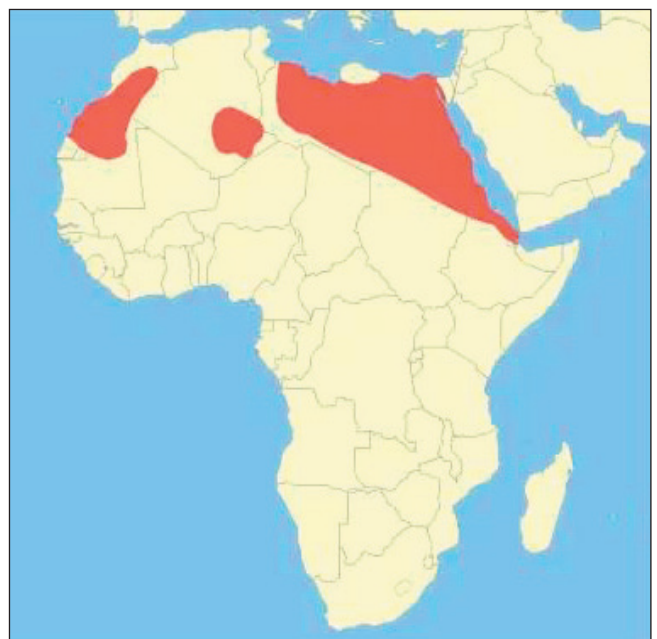
Cairo spiny mice live in burrows or rock crevices, are mostly terrestrial and clamber about in low bushes.

They are nocturnal and omnivorous, eating anything edible they can find. Their diet includes seeds, nuts, fruit, green leaves, insects, spiders, molluscs and carrion.

When they live in the vicinity of humans, they consume crops, grain and stored food. They dislike cold weather.

## Location and habitat

- The Cairo spiny mouse is found in Africa, north of the Sahara Desert where its natural habitats are rocky area and hot deserts (Figure 2).
- From Morocco and Algeria in the west to Sudan, Ethiopia and Egypt in the east.



**Figure 2.** Location.

## Husbandry

They are housed in groups of up to 8 animals in large rat holding cages (Figure 3)



**Figure 3.** Housed in groups up to 8.



**Figure 4.** Bedding substrates.

- Bedding includes wood chip, paper wool and hay (Figure 4).
- Environmental enrichment includes cardboard tunnels, chewsticks, suspended plastic tubes, glass jars and plastic hammocks.
- Diet: Omnivore, animals are fed SDS RM1 maintenance diet as well as scattered hamster food and a weekly treat of dried mealworms.
- Cages are cleaned every 3 weeks or as required.

## Handling

Due to nature of a spiny mouse defence against predators, the skin is very easily ripped during handling. This is especially true when scuffing the animal to restraint it for a procedure.

Like a gerbil the animal's tail can also come away very easily again as part of its defence against predation.

As their name suggests the animal's dorsal sacral area is covered in spiny guard hairs.

Showing the current restraining technique to enable an intraperitoneal injection (IP) to be performed, the spiny mouse once restrained will often act like it is dead (Figure 5).



**Figure 5.** Restraint.

## Breeding

Breeding groups consist of 1 male and 3-4 females in a cage.

The young spiny pups are looked after by all the females in the cage. This type of behaviour is very similar to what we see in gerbil colonies.

- gestation period is around 39  $\pm$  42 days
- litter size is between 1 to 3 pups (although recently we have had litter of 4)

Pups are very well developed when they are born. Animals are usually up and about moving around after 1-2 days. Pups can eat solids around day 5.

Young are weaned at day 25 however they could be weaned as early as day 14 due to how well developed the pups are when they are born.

- The juveniles mature at 2 to 3 months old.
- The lifespan is up to 4 years in captivity.

Figure 6 photo was taken on day 1 of the pups being born, as you can see fully developed and active.



**Figure 6.** 5 day 1 pups.

## Problems

- extended gestational period
- small litters of 1 to 3 pups
- additional environmental enrichment
- food treats/supplements
- weak skin
- tail autotomy
- special handling and restraining techniques

## Benefits

- clean mice (Figure 7)
- drink and eat very little
- super friendly and inquisitive
- adapted to tube handling very well
- long life span compared to other mice
- only rodent to have a menstruation cycle

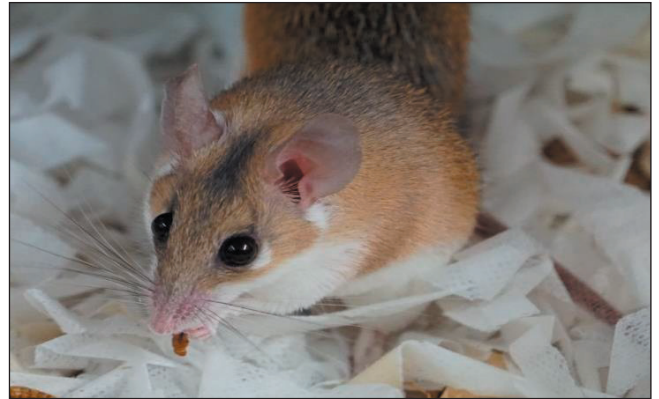


**Figure 7.** Benefits.

## Research uses

The spiny mouse has emerged as an exciting research organism due to its remarkable ability to undergo scarless regeneration of skin wounds and ear punches (Figure 8).

- chronic fibrosis model
- regenerative medicine
- diabetes
- dermal wound healing studies
- small animal model for menstrual research
- female reproductive biology



**Figure 8.** Regeneration.

## History

We have had the mice since the 6<sup>th</sup> of October 2021. We received them from Bayer in Berlin.

- 20 boxes arrived
- 83 Mice arrived
- 22 Males
- 61 Females
- oldest mice 2 years and 3 months
- youngest mice 1 year 10 months

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