

ZOO STANDARDS FOR KEEPING DAMARALAND MOLE-RATS IN CAPTIVITY

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INTRODUCTION

Damaraland mole-rats are small rodents which belong to the family Bathyergidae, the genus *Cryptomys* and finally the species *damarensis*. There are 12 species in 5 genera of bathyergid mole-rats. Scientists consider porcupines, chinchillas and guinea pigs their closest living relatives. The Damaraland mole-rat is a mammal because of its body structure and life cycle. The name blesmol comes from the Dutch *bles*, a blaze, and mole; there is often a white patch on the head. The color varies, whitish, yellowish, clay, fawn, grayish, brown, reddish brown, cinnamon buff and blackish. There may or may not be a white marking on the head. Fur is thick and often velvety. Eyes and external ears are small, but the cornea of the eye is sensitive to air currents. When communicating in burrows the animals may chirp, growl or squeak and will often flatten out their bodies forcing air along the tunnel by moving up and down in an S fashion. When they come to an intersection in a tunnel the mole-rats will often open their eyes and stare into the dark tunnel to receive communications via air pulses. Damaraland mole-rats are highly social and are considered to have evolved as eusocial. Long term research has shown that colonies of Damaraland mole-rats consist of just 2 reproductive individuals and as many as 39 of their offspring. Ninety percent of the offspring remain sterile for life and do not disperse but defend the colony, forage for food and help care for new litters. Damaraland mole-rats can be very aggressive and have large incisor teeth which can inflict serious pain and damage. They range from the red Kalahari sands of South Africa, Namibia, Botswana and Zimbabwe.

Head and body length is 90 to 270 mm and tail length is 10 to 13 mm.

Body weight ranges 86(g) to 202(g)

COMMON NAME

SCIENTIFIC NAME

ORIGIN

Damaraland mole-rat or Blesmol

Cryptomys damarensis

Africa

HUSBANDRY

Housing - Off exhibit containment for these animals can range from a large (100 gallon) fish tank to a series of 3" (7.6cm) clear PVC plastic tubes connected by elbows and Ts, terminating in round or square clear plastic chambers 14" X 14" X 10" (35.5cm X 35.5 cm X 25.4 cm). The chambers should have lids for ease of accessing the animals and for feeding and cleaning. Spears schedule 80 elbows and Ts last the longest in our systems. All tubes are supported on 3" (7.6cm) Clic Clamps (gray in color). This keeps the tubing from sliding in or out of a chamber and keeps all the tubing at the same height. For exhibit purposes the same type of tubes and chambers can be put on display or boxes created of plastic, glass, Hydrostone and wire mesh can be assembled and sculpted to create realistic soil sections. In all cases be aware that the animals are relentless chewers and will eventually chew through anything but glass.

Temperature - Enclosure temperatures may range between 78°- 82°F (22° - 26°C).

Lighting - This species lives a subterranean existence. They have reduced eyes and are not effected by natural, fluorescent or incandescent lighting. The long-term effects of UV light exposure is unknown, precautions should be taken to protect this species from direct sunlight.

Ventilation and humidity - Enclosures should have ventilation provided by 1/4" (6mm) or smaller holes drilled into the top of the chambers and along the tops of their tubes. Fans blowing through the system is not recommended. Tunnel humidity in the wild is 80% or higher. In captivity a humidity range of 40 - 50% appears to be satisfactory. In systems created from Hydrostone a humidity level of 50% or higher is easy to maintain by simply washing the units with water every few days.

Diet - In nature they feed on a variety of tubers. A wide range of tubers, fruit and other plant material should be fed in captivity including but not limited to: raisins, carrots, corn on the cob, pumpkin, cucumber, blanched broccoli, grapes, peas, frozen vegetable mix, peaches, apples, yams, bananas, cauliflower, pears, mangos and blocks of rodent breeder chow. Mole-rats should have access to food at all times. Food chambers should be cleaned daily and fresh food added. Approximately 50g-60g of food is provided per animal every day, although they probably consume only 40g. In Cape Town all food is sterilized prior to cutting by soaking it in a biocide solution for 5 minutes and rinsing under running water for 15 minutes. This is done to prevent the animals from getting gastric problems as a result of contamination of the foodstuffs from E.coli etc. This precaution is not taken in our lab and we have had no problems with contaminated food.

Water - They get all the water they need from their food supply. No other water source need be provided.

Sanitation and Bedding - Enclosures and shelters should be spot cleaned daily, removing feces, soiled substrates, and uneaten food. All bedding materials should be removed and the entire enclosure cleaned and disinfected weekly. Damaraland mole-rats will defecate in their tunnels creating quiet muddy, smelly systems. We provide them with 2" (5cm) holes which are covered with 3/8" welded wire folded over for strength at each bend in the system. This is easy to do by drilling the holes at the bottoms of your elbows and Ts. Under the hole you should locate a dish containing clay or Kitty litter. We prime the dish with a bit of feces to get the mole-rats to use the units. Once a system is primed the mole-rats will stop over the dishes to urinate and defecate. This greatly reduces cleaning time and smell. Midden chambers are usually established in a dead end chamber and should be spared cleaning for several days at a time. Bedding material should be made available. Pine shavings, cornhusk, paper towel and grasses can all be used. Cedar shavings are generally not used due to its strong odor which may interfere with olfactory communication.

Social - This animal is a truly social species and should be kept in a colonial setting. Individuals separated for extended periods from the colony for any reason including escape may not be accepted back and may be killed. Attempts can be made to reestablish individuals back into the colony by placing them along with the entire colony in a bucket or other neutral container with the contents of their midden chamber. The colony should remain in this container for at least one hour before being placed back into their habitat. Success with this method is varied and is dependent on the length of separation time and the colonies demeanor.

Veterinary - No vaccinations are currently recommended for rodents. Routine fecal checks should be performed twice yearly. With appropriate dietary components and this species tendency to chew on whatever is available no tooth clipping should be required. If opposing teeth are damaged or missing causing elongation of teeth, clipping can easily be accomplished with the use of toenail scissors. This procedure should be done quickly and the individual placed back with the colony immediately. Because of rapid tooth growth in this species clipping may only be required for a few weeks until missing teeth grow back.

Enrichment - Being a social species and active animals they should be provided with a variety of activities which encourage group participation. This includes the feeding of large tubers, cornhusk, celery and opportunities for them to move small rocks, tear apart clumps of roots and the provisioning of grasses. Bundle the grasses so the animals have to open them up in order to create nests. For off-exhibit animals paper towels and cardboard paper towel tubes are recommend as activity items. For both on and off exhibit animals, freshly cut grass, celery, grass roots and cornhusk are recommended. These items help create a naturalistic looking exhibit. We recommend you dry and microwave all fresh grass.

Breeding - In captivity individuals from the same colony will not breed. We had a litter of three (1 female, 2 males) born to a pair in which the female died after giving birth. The

offspring were fed balls made from milk, breeder rodent chow and Gerber's mixed vegetable cereal. All of the young survived but after 5 years of living with the sire no breeding took place. This colony of 4 was separated and introduced to unrelated individuals of the opposite sex. All established breeding colonies including the founding male who was over 10 years old. If a founder dies in the wild, a wandering partner may be accepted into the colony. However, this often leads to internal fighting and the deaths of non-mating individuals in the colony. (J.Jarvis, personal corr.)

Babies are born after an approximate gestation of 70-80 days. Two to five pups can be born but normally two young are produced. They are weaned after 28 days and join the natal colony. After 6 weeks, pups become pot-bellied, this we suspect is the result of them acquiring the necessary gut fauna from their colony mates by coprophagy. Do not be alarmed by this condition, it should disappear after two-three weeks. Most colonies will regulate their numbers depending on the space provided. A huge colony could house over 40 animals (the largest colony found in the wild) but this would require an enormous system of tunnels and chambers. It is advised that the colony be allowed to grow to a self-regulating population.

Handling – Damaraland mole-rats can be very aggressive and are capable of inflicting a serious painful bite. Heavy animal handling gloves should be worn whenever handling this species.

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