

Native Range Map



Naked Mole-Rat

Kingdom: Animalia
Phylum: Chordata
Subphylum: Vertebrata
Class: Mammalia
Order: Rodentia
Family: Bathyergidae
Genus: *Heterocephalus*
Species: *glaber*



Photo courtesy of Tony Wisneski

Habitat

- **In the Wild:** *Heterocephalus glaber* is found in the African nations of Kenya, Ethiopia and Somalia. It lives underground in the hard, arid soils of savannahs and grasslands near the equator.
- **Exhibit Location:** Adaptation of Animals

Characteristics

- The average body length of the naked mole-rat is 3 inches and about 30 – 70 grams (1 – 2.4 ounces). The queen is usually the longest individual within a colony.
- It has pinkish-gray wrinkled skin. Not completely hairless, it has sensory whiskers on its face and on its tail because it moves both forwards and backwards throughout its tunnel system. There are hairs between its toes to allow its feet to be used as brooms to sweep soil.
- The naked mole rat has 4 long, front teeth (2 top, 2 bottom) that are located outside the mouth. To keep from ingesting soil, hairy lips are located closely behind the teeth, and there are hairy skin folds at the sides of the mouth. It has small eyes and can barely see. It also has acute hearing, a well-developed sense of smell, and is very sensitive to vibrations in the ground and moving air currents.
- **Lifespan: In the Wild** 2-3 years; **In Captivity** 20 years

Behaviors

- *Heterocephalus glaber* is the only known mammal to be eusocial (lives in a colony in which only one female breeds and the majority of others are workers), similar to social insects.
- A naked mole-rat colony consists of 20-300 individuals (usually 70-80). The colony is led by the reigning queen and 1-3 males responsible for reproduction. The remaining colony members raise the young, defend the group from predators, dig and maintain tunnels, find tubers, roots and bulbs for food, and feed the queen and her babies.
- If a queen dies or is removed from the colony, a few females may fight to their death to become the new queen. When the new female begins her reign, she actually grows longer, even though she is already an adult. This growth spurt increases the distance between the vertebrae, enabling her to carry large litters and still fit through the tunnels. The queen rules with physical force, if necessary. She shoves workers around if she discovers that more food is needed, a tunnel needs repair, or danger is near.
- Naked mole-rats spend their lives in a totally dark, complex underground burrow system, constantly building new tunnels in search of food and avoiding predators. Working as a team, they are very efficient when excavating their tunnels. The workers line up nose-to-tail and operate like an assembly line. At the front, a “digger” mole-rat uses its teeth to break through the soil. The “sweepers” then use their feet and the fine hairs between their toes to sweep the soil backwards. At the rear, the “volcanoer” kicks the soil up onto the ground’s surface, creating a volcanic-shaped mole hill.
- Naked mole-rats communicate with at least 18 different vocalizations (grunts, squeaks, squeals, trills, hisses, chirps). These are used to tell of danger, threats, anger, food, and the desire to mate.
- **Enrichments at the Zoo:** tunnel obstructions

Reproduction

- Only one female, the queen, produces off-spring. She mates with 1-3 of the colony’s males. Her relationship with these males can remain stable for many years.

- The gestation period is approximately 70 days. The number of pups per litter is quite variable, but usually averages 12. The maximum number of pups per litter is 27. The queen can produce a new litter every 80 days, which means up to 5 litters per year.
- At birth, a pup weighs less than 2 grams (.06 ounces). Even though a pup may begin to eat solid food at 2 weeks of age, the queen continues to nurse each pup for 4 weeks. The pup will also eat feces that are provided by the workers. This contains tiny organisms that help break down tough plant material when the pup begins eating solid food.

Diet

- **In the Wild:** roots, bulbs, tubers
- **At the Zoo:** sweet potatoes, potatoes, grapes, apples, romaine

Conservation Status

- **IUCN status:** not listed; **CITES:** not listed
- Discovered by Western biologists in the mid 1800's, naked mole-rats captured serious interest of Western scientists in the mid 1970's.
- Predators: snakes

Did You Know?/Fun Facts

- The naked mole-rat is a rodent; its closest relatives are guinea pigs, porcupines, and chinchillas.
- Naked mole-rats urinate and defecate only in the toilet chamber. When it becomes full, they dig a new one. If wastes are not kept in one area, disease might spread through the colony.
- A naked mole-rat can run backward as fast as it goes forward.
- A typical colony of about 80 animals can cover the area of about 20 football fields!
- Naked mole-rat colonies are highly inbred. Their DNA markers are virtually identical.
- Since naked mole-rats have thin skin, no sweat glands, no fat layer, and don't seem to shiver, their body temperature changes with the temperature of their surroundings. Their burrow habitat stays between 82-89 degrees F all the time, so it is easy for them to stay at a comfortable body temperature.

Sources:

- Cizek, D. 1999. "Heterocephalus glaber" (On-line), Animal Diversity Web. Accessed April 20, 2006 at http://animaldiversity.ummz.umich.edu/site/accounts/information/Heterocephalus_glaber.html.
- Smithsonian National Zoological Park, (n.d.). Naked mole-rats—enigmatic burrowers from the horn of Africa . Retrieved Apr. 20, 2006, from Smithsonian National Zoological Park - Friends of the National Zoo Web site: <http://nationalzoo.si.edu/support/adoptspecies/animalinfo/nakedmolerat/default.cfm>.