# *Cryptomys* spp. – Common Mole-rats

*C. h. hottentotus* Elizabeth Archer

| **Regional Red List status (2016)** | |
|---|---|
| ***Cryptomys hottentotus*** | **Least Concern** |
| ***Cryptomys mahali*** | **Data Deficient*** |
| ***Cryptomys natalensis*** | **Least Concern** |
| ***Cryptomys pretoriae*** | **Least Concern** |
| National Red List status (2004) | |
| *Cryptomys hottentotus* | Least Concern |
| *Cryptomys mahali* | Not Evaluated |
| *Cryptomys natalensis* | Not Evaluated |
| *Cryptomys pretoriae* | Not Evaluated |
| Reasons for change | |
| *Cryptomys hottentotus* | No change |
| *Cryptomys mahali* | Species split |
| *Cryptomys natalensis* | Species split |
| *Cryptomys pretoriae* | Species split |
| Global Red List status (2008) | |
| *Cryptomys hottentotus* | Least Concern |
| *Cryptomys mahali* | Not Evaluated |
| *Cryptomys natalensis* | Not Evaluated |
| *Cryptomys pretoriae* | Not Evaluated |
| TOPS listing (NEMBA) | None |
| CITES listing | None |
| Endemic | |
| *Cryptomys hottentotus* | Yes |
| *Cryptomys mahali* | Yes |
| *Cryptomys natalensis* | Near endemic |
| *Cryptomys pretoriae* | Yes |

*Watch-list Data

The genus *Cryptomys* shows the broadest geographical distribution of all African Mole-rats, and the various patterns of speciation within this genus are expected to have resulted from environmental changes during the Miocene (Faulkes et al. 2004).

## Taxonomy

*Cryptomys hottentotus* (Lesson, 1826)

*Cryptomys mahali* (Roberts, 1931)

*Cryptomys natalensis* (Roberts, 1931)

*Cryptomys pretoriae* (Roberts, 1913)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - BATHYERGIDAE - *Cryptomys*

**Synonyms:** *Cryptomys hottentotus*: *abberans, albus, bigalkei, caecutiens, cradockensis, exenticus, holosericius, jamesoni, jolangi, kopmotiensis, langi, lugwigii, melanoticus, montanus, nemo, orangiae, rufulus, stellatus, talpoides, transvaalensis, valschensis, vandami, vrybergensis, zimibitiensis*; *Cryptomys mahali*: *amatus*; *Cryptomys natalensis*: *zuluensis*

**Common names:** All species: Common Mole-rat, African Mole-rat, Common Blesmol, Mole-rat (English), Vaalmol, Grysmol (Afrikaans); *Cryptomys hottentotus*: Hottentot Mole-rat (English); *Cryptomys mahali*: Mahali's Mole-rat (English); *Cryptomys natalensis*: Natal Mole-rat; *Cryptomys pretoriae*: Highveld Mole-rat (English)

**Taxonomic status:** Species

**Taxonomic notes:** The genus *Cryptomys* previously included all species now listed under the genus *Fukomys* (Monadjem et al. 2015). These two genera cannot be distinguished morphologically from one another, but are considered highly divergent from one another on a molecular level (Faulkes et al. 2004). Monadjem et al. (2015) lists five species belonging to the *Cryptomys* genus, with four of these considered endemic to the assessment region (Bennett 2013):

1. Common Mole-rat, *C. hottentotus* (tentatively Northern Cape, Western Cape, Eastern Cape and Free State provinces).
2. Natal Mole-rat, *C. natalensis* (tentatively KwaZulu-Natal, Eastern Cape, Mpumalanga and Limpopo provinces; Swaziland and Lesotho).
3. Mahali's Mole-rat, *C. mahali* (tentatively Gauteng with recent reports suggesting its extension into the Northern Cape and North-West provinces).
4. Highveld Mole-rat, *C. pretoriae* (tentatively Gauteng, North West Province, possibly extending to the Limpopo River).

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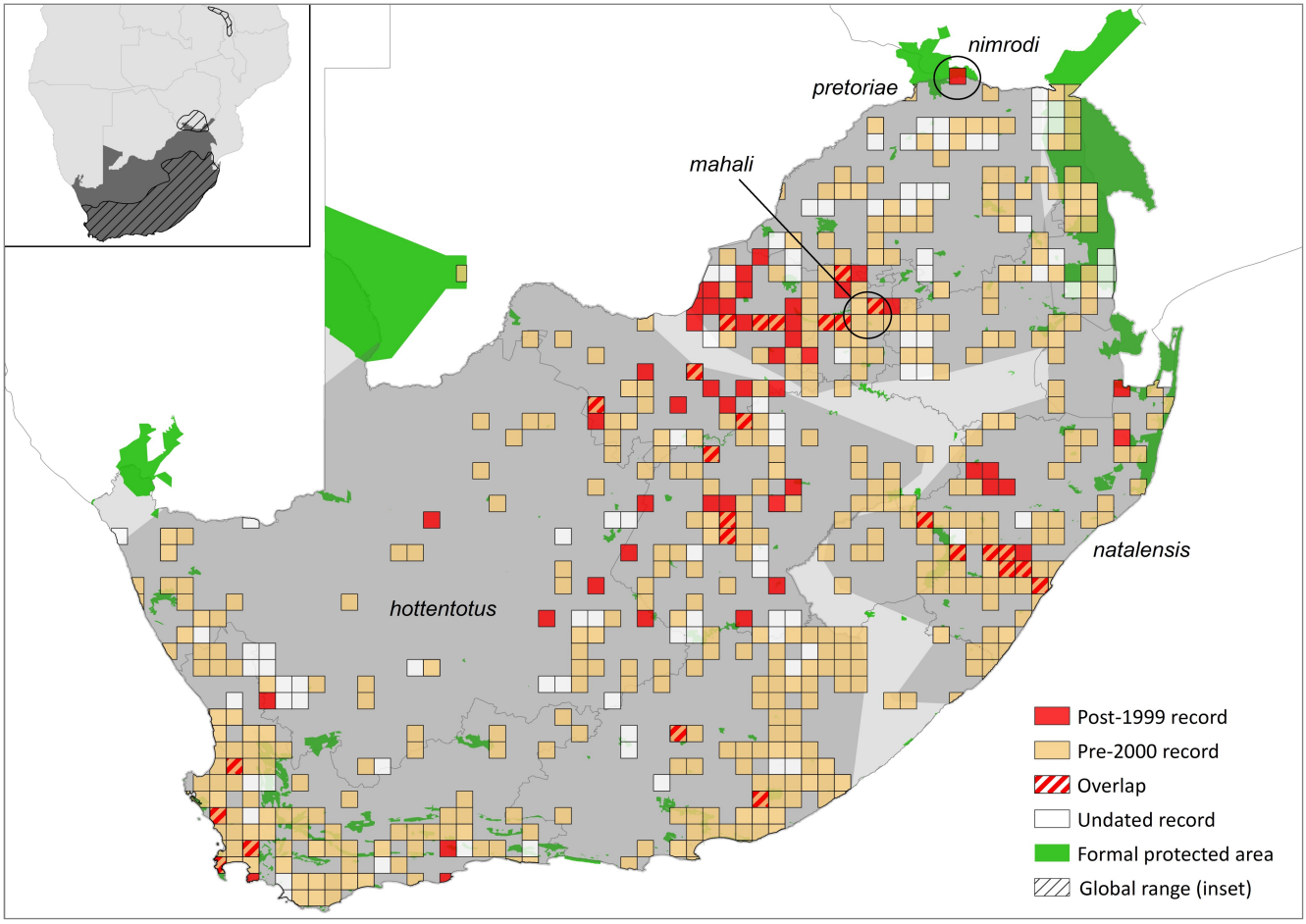


**Figure 1. Distribution records for *Cryptomys* spp. within the assessment region**

5. The Matabeleland Mole-rat, *C. nimrodi* is not included in this assessment because it is considered a vagrant in South Africa. The southern limit of the species range is the Limpopo River and extends northwards to Bulawayo, Zimbabwe, but the eastern limit of its range is yet to be determined.

These five species were previously grouped under a single species *C. hottentotus*, but were found to reveal significant molecular differences worthy of reclassification (Faulkes et al. 2004). In general, they are considered allopatric, however the specific limits of each range are yet to be defined (Monadjem et al. 2015). These species can currently only be distinguished from each other through molecular evidence.

# Assessment Rationale

The Common Mole-rat, *C. hottentotus*, Natal Mole-rat, *C. natalensis*, and the Highveld Mole-rat, *C. pretoriae*, are listed as Least Concern because they are widely distributed throughout the assessment region, are reasonably common and adapt well to habitats modified by humans, such as agricultural areas and rural gardens. Currently, there are no major recognised threats that could result in significant population decline. Mahali's Mole-rat, *Cryptomys mahali*, is listed as Data Deficient, as the extent of its range is extremely vague, with confirmed records in Pretoria (northern Gauteng), and recent records in the Northern Cape and the North-West Province. For all species, ongoing molecular research and vetting of museum specimens is needed to delimit distribution ranges more accurately.

**Regional population effects**: Due to disjunctions in the distribution, dispersal is impossible for *C. hottentotus* and *C. pretoriae*, and dispersal of *C. mahali* and *C. natalensis* is currently unknown.

# Distribution

The Common Mole-rat, *C. hottentotus*, occurs throughout the Western Cape from the south-western limits of Cape Town to the Gariep River, extending eastwards beyond Port Elizabeth in the Eastern Cape, and northwards into the Free State and the Northern Cape (Figure 1). It is expected to be the only *Cryptomys* species within its range; however, the exact northern and eastern limits of its distribution remain undefined, due to confusion with other species in this genus (Monadjem et al. 2015).

Mahali's Mole-rat, *C. mahali*, is known from Patryshoek, Gauteng (Monadjem et al. 2015) (Figure 1), but this species has also been recently identified in Van Zyls Rus (Northern Cape) and Bloemhof (North West Province) (N.C. Bennett unpubl. data). Further research is required in order to establish the precise limits of the species' range.

The Natal Mole-rat, *C. natalensis*, is present throughout KwaZulu-Natal, Mpumalanga, Lesotho and Swaziland. Its range extends into the Kruger National Park and extreme southern regions of Mozambique. *Cryptomys natalensis* may overlap in its range with *C. pretoriae* in Swaziland. The precise boundaries of its range are unresolved, and it is possible the point localities (Figure 1) in the northeastern regions of South Africa (northern Kruger

**Table 1. Countries of occurrence within southern Africa**

| Country | Presence | Origin |
|---|---|---|
| Botswana | | |
| *C. hottentotus* | Absent | - |
| *C. mahali* | Absent | - |
| *C. natalensis* | Absent | - |
| *C. pretoriae* | Absent | - |
| Lesotho | | |
| *C. hottentotus* | Absent | - |
| *C. mahali* | Absent | - |
| *C. natalensis* | Extant | Native |
| *C. pretoriae* | Absent | - |
| Mozambique | | |
| *C. hottentotus* | Absent | - |
| *C. mahali* | Absent | - |
| *C. natalensis* | Extant | Native |
| *C. pretoriae* | Absent | - |
| Namibia | | |
| *C. hottentotus* | Absent | - |
| *C. mahali* | Absent | - |
| *C. natalensis* | Absent | - |
| *C. pretoriae* | Absent | - |
| South Africa | | |
| *C. hottentotus* | Extant | Native |
| *C. mahali* | Extant | Native |
| *C. natalensis* | Extant | Native |
| *C. pretoriae* | Extant | Native |
| Swaziland | | |
| *C. hottentotus* | Absent | - |
| *C. mahali* | Absent | - |
| *C. natalensis* | Extant | Native |
| *C. pretoriae* | Presence uncertain | Native |
| Zimbabwe | | |
| *C. hottentotus* | Absent | - |
| *C. mahali* | Absent | - |
| *C. natalensis* | Extant | Native |
| *C. pretoriae* | Absent | - |

National Park) may belong to C. nimrodi rather than *C. natalensis* (Monadjem et al. 2015).

The Highveld Mole-rat, *C. pretoriae*, occurs in Gauteng and North West provinces (Bennett 2013; Monadjem et al. 2015), and it is likely that its range extends northwards to the Limpopo River; where there are numerous records previously identified as *C. hottentotus* (Rautenbach 1982). Its eastern limit is likely to be the Mpumalanga Drakensberg escarpment, which is the western limit of *C. natalensis* (Faulkes et al. 2004).

For all species, further molecular research and vetting of museum records is required to more accurately delineate range distributions.

# Population

The population size of this genus is largely unknown. However, it is widespread and abundant across the assessment region. Presumably the population is limited by soil requirements. In prime habitats the population density of *C. hottentotus* is known to surpass 150 individuals / km² (A.C. Spinks, J.U.M. Jarvis & N.C. Bennett unpubl. data).

On a species level, information regarding the population status is limited and no density estimates are currently available for *C. mahali*, *C. natalensis* and *C. pretoriae*. The populations are not predicted to be declining, due to their broad distribution and their ability to survive successfully within transformed habitats.

**Current population trend:** Stable

**Continuing decline in mature individuals:** Unknown

**Number of mature individuals in population:** Unknown

**Number of mature individuals in largest subpopulation:** Unknown

**Number of subpopulations:** Unknownn

**Severely fragmented:** No

# Habitats and Ecology

Generally, the subterranean *Cryptomys* spp. occur across a wide range of soil types from fine to medium grained clays and loams. They are often located within human-modified environments, such as lawns, golf courses and gardens (particularly in the presence of vegetable gardens). They specialise on bulbs, corms and tubers, especially those of *Albuca, Lachenalia, Ornithogalum* (Hyacinthaceae), *Romulea, Micranthus, Homeria* (Iridaceae) and *Oxalis* (Oxalidaceae) (Bennett 2013).

The Common Mole-rat, *Cryptomys hottentotus*, is social and forms colonies of approximately five individuals, but a maximum of fourteen individuals have been identified. Colonies consist of a single breeding pair, which produces litters of between two and six young, with a generation time of roughly three years. Captured specimens reveal significant colour variations, including: dark sable-brown, light fawny-rufous, and smokey-grey (Power 2014). As yet, there is no evidence of sympatry with the *F. damarensis*, though it is possible (Power 2014).

Mahali's Mole-rat, *C. mahali*, is found in more arid habitats when compared to *C. pretoriae*, and is typically located in clays and sandy soils in scrubland habitats.

*C. h. natalensis* H. Lutermann

**Table 2 . Use and trade summary for the *Cryptomys* spp.**

| Category | Applicable? | Rationale | Proportion of total harvest | Trend |
|---|---|---|---|---|
| Subsistence use | Yes | Bushmeat | Unknown | Stable |
| Commercial use | No | - | - | - |
| Harvest from wild population | Yes | Bushmeat | Unknown | Stable |
| Harvest from ranched population | No | - | - | - |
| Harvest from captive population | No | - | - | - |

The Natal Mole-rat, *C. natalensis* is found in clay and loam soil where it feeds upon corms, bulbs and rhizomes of grasses. It is found predominantly in grasslands (occasionally including montane grasslands), and occurs sympatrically with the Hottentot Golden Mole, *Amblysomus hottentotus*, which can frequently be found sharing the same tunnel. This species is colonial, with up to 20 individuals in a single colony.

The Highveld Mole-rat, *C. pretoriae*, is found in an array of soils from clay and sandy through to loams. In contrast to *C. hottentotus* (which tends to avoid stony soils), this species will venture into stony soils. They are predominantly a grassland species, feeding on grass rhizomes and any associated geophytes in the area. Again, this species is colonial, consisting of group sizes up to 15 individuals (Moolman et al. 1998). This species thrives in Highveld grasslands, but is also located within Burkhia scrubland. Similar to other *Cryptomys* species, they are able to survive in modified habitats and in particular gardens and golf courses, but are also found on vacant plots and cultivated lands.

**Ecosystem and cultural services:** Generally Mole-rats are good ecosystem engineers, as they enrich the humus content of the soil, aerate the soil, assist with drainage systems and enhance plant species diversity (Hagenah & Bennett 2013). Additionally, they create refuges for other species to use to escape fire. Common Mole-rats also eat geophytes that contain cardiac glycosides (for example, Ornithogalum spp., *Homeria* spp., *Morea* spp.), which are toxic to livestock (Bennett 2013). They are eaten by a wide range of predators (Bennett 2013).

# Use and Trade

Generally, *Cryptomys* spp. are not utilised. However, *C. natalensis* is abundant in Lesotho and is often utilised as bushmeat (N. Avenant pers. comm. 2015). This is not expected to negatively impact the population within this region.

# Threats

No major threats have been identified for these species. However, they are occasionally persecuted as an agricultural pest, and homeowners complain that *C. hottentotus* and *C. pretoriae* can become nuisances in their gardens (Power 2014), and they are occasionally exterminated on golf courses.

**Current habitat trend:** Stable

# Conservation

*Cryptomys* spp. are located in numerous protected areas throughout the assessment region. For example, Bloemhof Nature Reserve, Kruger National Park and Nylesvley Nature Reserve, which are key protected areas for *C. mahali*, *C. natalensis* and *C. pretoriae* respectively. As a result, no specific interventions are necessary for these species. However, further research is necessary to delineate the population distribution, trends and abundance of these species.

**Recommendations for land managers and practitioners:**

- Systematic surveys needed to gather information on population size, trends and distribution.

**Research priorities:**

- Accurate species distribution mapping is necessary through molecular research museum record vetting.

**Encouraged citizen actions:**

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.


*C. h. pretoriae* H. Lutermann

**Table 3. Threats to *Cryptomys* spp. ranked in order of severity with corresponding evidence (based on IUCN threat categories, with regional context)**

| Rank | Threat description | Evidence in the scientific literature | Data quality | Scale of study | Current trend |
|---|---|---|---|---|---|
| 1 | *5.1.3 Hunting & Collecting Terrestrial Animals:* persecution as a pest. | - | Anecdotal | - | Stable |

# References


Bennett NC. 2013. *Cryptomys hottentotus* Common Mole-rat (Hottentot Mole-rat). Pages 655–658 in Happold DCD, editor. Mammals of Africa. Volume III: Rodents, Hares and Rabbits. Bloomsbury Publishing, London, UK.

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Power RJ. 2014. The Distribution and Status of Mammals in the North West Province. Department of Economic Development, Environment, Conservation & Tourism, North West Provincial Government, Mahikeng.

Rautenbach IL. 1982. Mammals of the Transvaal. No. 1, Ecoplan Monograph. Pretoria, South Africa.


# Data Sources and Quality

**Table 4 Information and interpretation qualifiers for the *Cryptomys* spp. assessment**

| | |
|---|---|
| Data sources | Museum records, field study (unpublished), indirect information (literature) |
| Data quality (max) | Inferred |
| Data quality (min) | Suspected |
| Uncertainty resolution | Expert consensus |
| Risk tolerance | Evidentiary |

# Assessors and Reviewers


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# Contributors


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Details of the methods used to make this assessment can be found in *Mammal Red List 2016: Introduction and Methodology.*