# *Chlorotalpa duthieae* – Duthie's Golden Mole


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|---|---|
| **Regional Red List status (2016)** | **Vulnerable B1ab(iii)+2ab(iii)** |
| National Red List status (2004) | Least Concern |
| Reasons for change | Non-genuine change: Change in risk tolerance |
| Global Red List status (2015) | Vulnerable B1ab(iii)+2ab(iii) |
| TOPS listing (NEMBA) | None |
| CITES listing | None |
| Endemic | Yes |

This species was described by Dr Robert Broom, who was a medical practitioner fascinated by vertebrate palaeontology, and who later became famous for his discovery of the hominin fossil named "Mrs. Ples" (*Australopithecis africanus*).

## Taxonomy

*Chlorotalpa duthieae* (Broom 1907)

ANIMALIA - CHORDATA - MAMMALIA - AFROSORICIDA - CHRYSOCHLORIDAE - *Chlorotalpa* - *duthieae*

**Common names:** Duthie's Golden Mole (English), Duthie se Gouemol, Duthie se Kruipmol (Afrikaans)

**Taxonomic status:** Species

**Taxonomic notes:** Some authors (Ellerman et al. 1953; Simonetta 1968) treated this taxon as only a subspecies of *C. sclateri*, but consistent differences in fur colour and chromosomal properties, and their preference for quite dissimilar ecotypes, indicate that they are distinct species (Bronner 1995). A recent phylogenetic analysis supports distinction between these species based on subtle morphological differences (the position of foramen ovale relative to the sphenorbital fissure) and nuclear gene sequences (Asher et al. 2010). Geographic variation is not sufficiently marked to warrant recognition of subspecies (Bronner 2013).

## Assessment Rationale

The species is known from only nine locations in southern Cape Afrotemperate Forests, clustered in two subpopulations: an eastern subpopulation in the suburban parts of Port Elizabeth (three locations), and a western subpopulation in the indigenous coastal forest belt from Wilderness to Tsitsikamma (six locations). Gene flow between these two subpopulations seems unlikely owing to intervening drier strandveld habitats. Although the observed area of occupancy (AOO) is 144 km$^2$ (assuming a grid cell area of 16 km$^2$), satisfying one of the criteria for Endangered status, the estimated extent of occurrence is nearly 14,000 km$^2$. Given that this species tolerates mild habitat alteration, is common in suburban gardens and pasturelands adjoining natural forests, and is likely to occur more widely than current records indicate, the extent of occurrence is the preferred range proxy for this assessment.

This taxon is not deemed severely fragmented as the (presumably isolated) eastern subpopulation occupies less than 50% of the observed or inferred AOO. About 60% of the forests in which the western subpopulation occurs are conserved within nature reserves. However, the extent and quality of their preferred forest habitats at some locations outside protected areas are clearly being impacted by housing and tourism developments that are expanding along the entire coastline of this subpopulation. None of the eastern subpopulation locations are currently formally protected, and both the number of locations and the quality and extent of habitat are likely to decline as the city of Port Elizabeth continues to expand rapidly. Given the restricted EOO and AOO of this species, its occurrence in only two subpopulations, and the threats that could lead to habitat alteration in both, the Vulnerable status is confirmed under criteria B1ab(iii) and B2ab(iii).

## Distribution

Endemic to South Africa, this species occurs in a narrow coastal band 275 km long from Wilderness through Kynsna, Nature's Valley and Plettenberg Bay (Western Cape), northwards through the Tsitsikamma forests perhaps as far of the Storm River mouth, and to the Walmer and Baakens Vlei districts of Port Elizabeth (Eastern Cape) (Figure 1).

## Population

The species is locally common in coastal and scarp southern Cape Afrotemperate forest habitats, and adjacent pasturelands, cultivated lands and gardens, but no quantitative data are available.

**Current population trend:** Unknown

**Continuing decline in mature individuals:** Unknown

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

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

**Recommended citation:** Bronner GN, Bennett NC. 2016. A conservation assessment of *Chlorotalpa duthieae*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

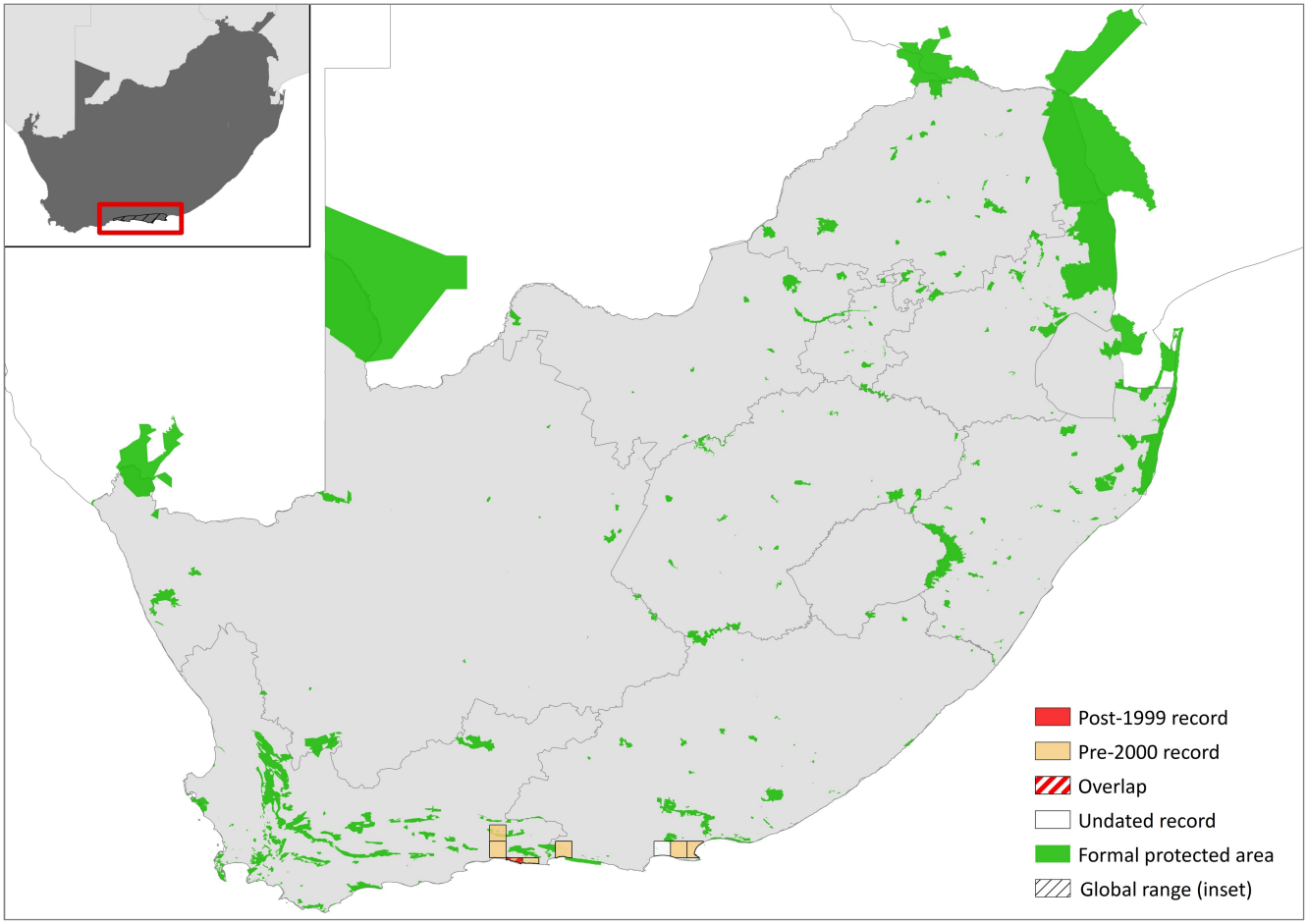


**Figure 1. Distribution records for Duthie's Golden Mole (*Chlorotalpa duthieae*) within the assessment region**

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

| Country | Presence | Origin |
|---|---|---|
| Botswana | Absent | - |
| Lesotho | Absent | - |
| Mozambique | Absent | - |
| Namibia | Absent | - |
| South Africa | Extant | Native |
| Swaziland | Absent | - |
| Zimbabwe | Absent | - |

**Number of subpopulations:** Two (one eastern and one western).

**Severely fragmented:** No

# Habitats and Ecology

Duthie's Golden Mole is restricted to alluvial sands and sandy loams in the southern Cape Afrotemperate forests (especially coastal platform and scarp forest patches) in the Fynbos and Moist Savannah biomes. It coexists with *Amblysomus corriae* in parts of their range, but trapping data suggest that *A. corriae* prefers fynbos and forest fringes, while *C. duthieae* favours deeper forest. This species thrives in cultivated areas and gardens and up to 4 individuals / hectare have been trapped on the same night, suggesting that population densities are relatively high in areas of suitable habitat. They construct shallow subsurface foraging tunnels that radiate outwards from under the roots of trees, and are predominantly active at night (Bronner 2013). Adults are solitary, and very little is known about the reproduction of this species, but it is thought to take place predominantly during the wet summer season (G.N. Bronner unpubl. data).

# Use and Trade

This species is not known to be traded or utilised in any way.

# Threats

The most important threats to this species are habitat alteration and fragmentation owing to extensive (and intensive) development of coastal tourism resorts that could degrade habitats and lead to population fragmentation, and increased urbanisation in the vicinity of cities (especially Port Elizabeth and Knysna). Currently, this taxon is not deemed severely fragmented as the (presumably isolated) eastern subpopulation occupies less than 50% of the observed or inferred AOO. About 60% of the forests in which the western subpopulation occurs are conserved within nature reserves (notably *c.* 40,000 ha controlled by South African National Parks) and areas managed for sustainable exploitation (Envirotek 2003), and are thus buffered from habitat alteration, which is inferred to be the main threat to this species. Localised minor threats include the replacement of indigenous forest by plantations, timber harvesting (even in protected natural forests), predation by domestic pets in vicinity of human habitations, and persecution by gardeners.

**Table 2. Threats to the Duthie's Golden Mole (*Chlorotalpa duthieae*) 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 | *1.1 Housing & Urban Areas*: habitat loss from urban expansion and development. | GeoTerraImage 2015 | Indirect (land cover change from remote sensing) | Regional | Increasing |
| 2 | *2.2 Wood & Pulp Plantations*: habitat loss and degradation from forestry plantations, including localized logging and wood harvesting. | Berliner & Desmet 2007 | Indirect (land cover change from remote sensing) | Regional | Increasing |
| 3 | *5.3 Logging & Wood Harvesting*: small-scale logging of forests. Current stresses *1.2 Ecosystem Degradation* and *2.2 Species Disturbance*: habitat degradation and disturbance. | - | Anecdotal | - | - |
| 4 | *8.1 Invasive Non-Native/Alien Species/Diseases*: predation by domestic pets. | - | Anecdotal | - | - |

**Current habitat trend:** Declining in area and quality. Urban settlements have expanded by 6% between 2000 and 2013 in the Eastern Cape (GeoTerraImage 2015). Overall, 2% of the natural area of the Eastern Cape Province was lost between 2007 and 2015 at the rate of 0.24% per year (Berliner & Desmet 2007). Based on the analysis of the proposals, mining applications and municipal development, it is estimated that over 2 million hectares may be lost between 2015 and 2045. The proposals include Strategic Infrastructure Projects, wild coast N2 toll highway, mining, dam constructions and also future developments around rural and urban areas. Thus, there is a continuing decline in habitat across the province.

# Conservation

Duthie's Golden Mole is protected within the Garden Route National Park (including Tsitsikamma National Park, Wilderness National Park and Keurboomsriver Nature Reserve), as well as numerous forest reserves managed by either the Department of Agriculture, Water Affairs and Forestry, or local authorities. It also thrives in cultivated areas and gardens (particularly in the Walmer district of Port Elizabeth), suggesting that it is not at risk if human activities result in only mild habitat transformation. Protected area expansion through land-acquisition and stewardship are mechanisms that are employed to protect threatened ecosystems in the Eastern Cape and these mechanisms will be used to minimise habitat loss in the future. Plans are in place to double the protected area to over 1 million hectares over the next decade or so (Skowno et al. 2012).

**Recommendations for land managers and practitioners:**

- Field surveys to discover other subpopulations, especially within current conservation areas.

**Research priorities:**

- Studies assessing subpopulation trends and the severity of threats, particularly the quantified impact of urban expansion.
- Potential for protected area expansion and biodiversity stewardship schemes to connect habitat patches.
- Field studies to determine life history traits and ecological tolerances.
- Surveys needed to determine subpopulation size, trend and distribution.

**Encouraged citizen actions:**

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.
- Deposit any dead specimens found in a state or provincial museum, together with information on the date and site where found.
- Create native vegetation gardens.

# Data Sources and Quality

**Table 4. Information and interpretation qualifiers for the Duthie's Golden Mole (*Chlorotalpa duthieae*) assessment**

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

**Table 3. Conservation interventions for the Duthie's Golden Mole (*Chlorotalpa duthieae*) ranked in order of effectiveness with corresponding evidence (based on IUCN action categories, with regional context)**

| Rank | Intervention description | Evidence in the scientific literature | Data quality | Scale of evidence | Demonstrated impact | Current conservation projects |
|---|---|---|---|---|---|---|
| 1 | *1.1 Site/Area Protection*: protected area expansion. | Skowno et al. 2012 | Anecdotal | Regional | Future potential | Eastern Cape Parks and Tourism Agency |
| 2 | *1.2 Resource & Habitat Protection*: biodiversity stewardship schemes. | Skowno et al. 2012 | Anecdotal | Regional | Future potential | Eastern Cape Parks and Tourism Agency |

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