# *Atilax paludinosus* – Water Mongoose


Niall Perrins

| Regional Red List status (2016) | Least Concern |
|---|---|
| National Red List status (2004) | Least Concern |
| Reasons for change | No change |
| Global Red List status (2015) | Least Concern |
| TOPS listing (NEMBA) (2007) | None |
| CITES listing | None |
| Endemic | No |

Water Mongooses possess long, unwebbed digits, which increase the ability to feel into small crevices for food items as they forage along stream edges (Baker 1989).

## Taxonomy

*Atilax paludinosus* (G. [Baron ] Cuvier 1829)

ANIMALIA - CHORDATA - MAMMALIA - CARNIVORA - HERPESTIDAE - *Atilax* - *paludinosus*

**Common names:** Water Mongoose, Marsh Mongoose (English), Kommetjiegatmuishond (Afrikaans), Imvuzi (Ndebele), Chidzvororo (Shona), Motswiswi (Sotho), Liduha (Swati), Tshaagane (Tswana), Umhlangala (Xhosa), Umvuzi (Zulu)

**Taxonomic status:** Species

**Taxonomic notes:** Recent molecular studies have revealed that the Water Mongoose is a sister-species to the Long-nosed Mongoose (*Xenogale naso*) (Veron et al. *in press*).

## Assessment Rationale

The Water Mongoose is listed as Least Concern since it has a wide distribution range within the assessment region, occurs in many protected areas, and is generally common in suitable habitat. It is relatively tolerant of modified or disturbed habitats, and there is no reason to believe that it is declining at a rate fast enough to warrant listing in a higher category of threat. However, we advise that monitoring is necessary, especially in areas where development may be affecting water supply and quality, to determine any potential negative impacts. Climate change could also threaten this species in the future, especially local subpopulations, as water sources and systems are affected.

**Regional population effects**: The distribution of this species in the assessment region is continuous with the rest of the African range, so rescue effects are possible. However, dispersal and movements in general are likely to be dependent upon the presence of water corridors (permanent and seasonal rivers and streams, dam networks, wetlands).

## Distribution

The Water Mongoose is widely distributed from Senegal, Guinea-Bissau and Sierra Leone, eastward to southern Sudan and Ethiopia, and south to southern Africa, where it is absent from most of Namibia, Botswana and large parts of central South Africa, wherever adequate water and cover are unavailable (Baker & Ray 2013). It has been recorded from sea level to altitudes of 3,950 m asl in the Bale Mountains National Park, Ethiopia (Yalden et al. 1996).

Within the assessment region, it occurs in all provinces of South Africa, along most rivers (including seasonal rivers) and along most of the coastline (except the north of the Northern Cape) in areas where there is running water. It also occurs widely in Swaziland and Lesotho (Lynch 1994, Monadjem 1998).

## Population

Water Mongooses are generally common in suitable habitat. For example, they were the second most photographed species in a camera-trapping study in the Udzungwa Mountains, Tanzania (De Luca & Mpunga 2005). Within a restricted area (Vernon Crookes Nature Reserve), in KwaZulu-Natal, the density was recorded at 1.8 individuals / km$^2$ (Maddock 1988). We suspect that the population is stable due to its wide distribution. There is currently no evidence to indicate that deteriorating water quantity and quality across the region has impacted significantly on overall density and distribution of this species, although local declines are possible. Thus, deteriorating water quality is not a reliable index for Water Mongoose abundance. There is no doubt that declining water resources will have an impact but this species is very versatile and can exist without permanent water sources for extended periods. On the other hand, water systems may increase through artificial wetland creation.

**Current population trend:** Unknown, but probably stable.

**Continuing decline in mature individuals**: Probably not, although local declines cannot be excluded.

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

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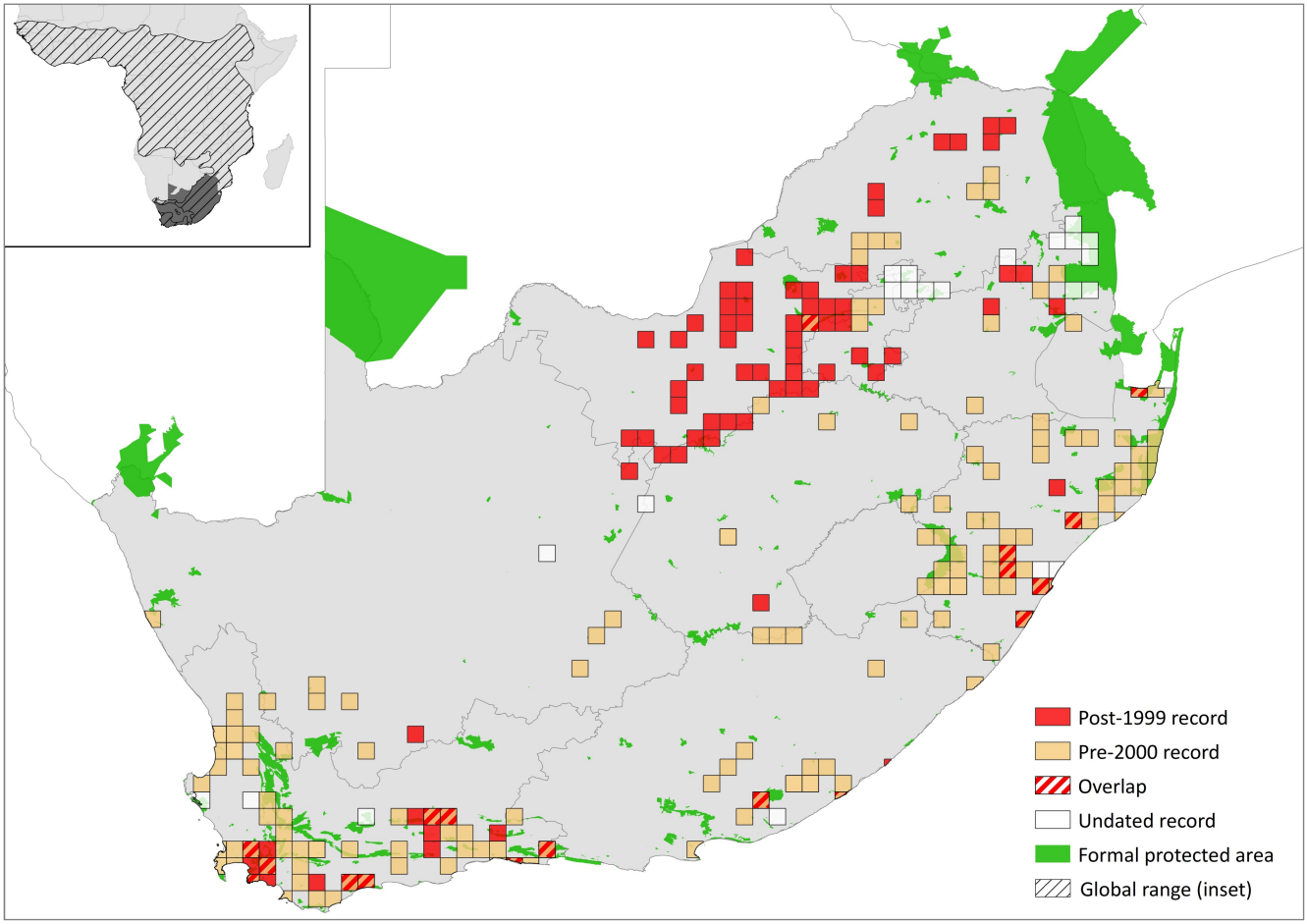


**Figure 1. Distribution records for Water Mongoose (*Atilax paludinosus*) within the assessment region**

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

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

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

**Number of subpopulations**: It is not currently possible to determine the extent or number of subpopulations.

**Severely fragmented:** No, although the Water Mongoose's dependency on the presence of water and cover means that its distribution is certainly patchy at the landscape scale.

# Habitats and Ecology

The Water Mongoose is mainly restricted to riparian habitats (rivers, streams, swamps, marshes and dams), wherever there is suitable vegetation cover and water in close proximity. It is fairly tolerant of altered flow regimes and pollutants. The species is also found along estuaries and in coastal areas. It is also able to live and survive comfortably some distance from water, but there is a clear preference for riparian habitats (Baker & Ray 2013).

This semi-aquatic mongoose is not suspected to compete significantly with the Cape Clawless Otter (*Aonyx capensis*) and the Spotted-necked Otter (*Hydrictis maculicollis*) as it does not forage in the water bodies as such. Since it is a shoreline forager, access via sandy and easily accessible rocky shorelines is desirable. Its diet comprises mostly aquatic prey with crabs and frogs usually dominating (Rowe-Rowe 1978; Whitfield & Blaber 1980; Louw & Nel 1986; MacDonald & Nel 1986; Purves et al. 1994), which is unusual among herpestids. However, in some areas, small mammals, terrestrial arthropods, fish and/or birds are also important food sources and may even dominate the diet (du Toit 1980; Maddock 1988; Baker 1989; Somers & Purves 1996; Avenant & Nel 1997; Stuart & Stuart 2003; Nqinana 2009). In the North West Province, Power (2014) observed the species scavenging on carcasses.

The Water Mongoose is a nocturnal species with peaks of activity in both the early and later hours of the night (Maddock 1988; Ray 1997), but occasionally it is already active in the late afternoon and/or extends its activity until early morning (Rowe-Rowe 1978). During the day, individuals sleep in burrows or in high grass or dense reed patches (Ray 1997; E. Do Linh San & M.J. Somers unpubl. data). The day-beds themselves are often located in dry areas on relatively high ground, surrounded by deep mud or water (Ray 1997). In parts of the Karoo Plateau, this mongoose dens up in rock crevices, overhangs and piles (C. Stuart & M. Stuart pers. obs. 1995–2016).

**Photo 1. Water Mongoose (*Atilax paludinosus*) female traveling with her two cubs around Hartbeespoort Dam, North West Province, South Africa (Gary Bennetts)**

**Photo 2. Water Mongoose (*Atilax paludinosus*) day-resting among dense reeds in Marievale Bird Sanctuary, Gauteng, South Africa (Lia Steen)**

This species is predominantly solitary, although during the breeding season it is not uncommon to observe groups of two or three individuals (mother and offspring) (Photo 1). Adult males and females only meet to mate. The spatial ecology of this species has not been studied thoroughly. In KwaZulu-Natal, Maddock (1988) found home range sizes of 2.04 km$^2$ for a male and 1.31 km$^2$ for a female, respectively. Often home ranges are rather linear in shape, with individuals sometimes travelling up and down streams up to 5 km in length (Ray 1997). Baker and Ray (2013) suggested that females likely hold territories, while males are more mobile, but further research is needed to confirm this hypothesis.

Water Mongooses communicate with both vocalisations and behavioural displays (Baker 1988), cheek marking and anal gland marking during defecation (Baker 1998). Scats are deposited in middens, which are located in marshy clearings, sandy beaches near streams, on banks around dams or on rocks above the high water mark in coastal areas (Louw & Nel 1986; Macdonald & Nel 1986; Purves et al. 1994; Ray & Sunquist 2001; E. Do Linh San pers. obs. 2006–2009). This species is reputed to be very fierce and capable of successfully confronting domestic dogs when cornered. The expulsion of anal sac constituents when under stress is well documented.

In the assessment region, mating takes place between August and February (Rowe-Rowe 1978; Stuart 1981). Females give birth to 2–3 young (Baker & Meester 1986) after a gestation period of 73–74 days (Baker 1987). Postnatal physical and behavioural development has been studied thoroughly (Baker & Meester 1986; Baker 1992). This species can live up to 19 years in captivity (Nowak 1999).

**Ecosystem and cultural services:** None known. In the assessment region, its main predators are likely Black-backed Jackals (*Canis mesomelas*), Caracals (*Caracal caracal*) and Leopards (*Panthera pardus*).

# Use and Trade

The Water Mongoose is commonly found in bushmeat markets in several West African countries. For example, it was the most common carnivore appearing in bushmeat markets in southeastern Nigeria (Angelici et al. 1999) and in village offtakes in Gabon (Bahaa-el-din et al. 2013). It was also commonly recorded in bushmeat surveys in the Classified Forest of Diecke, Guinea (Colyn et al. 2004). This species is not known to be used as bushmeat within the assessment region, but fat and glands are said to be used in some traditional medicine applications (this probably only occurs in the east of South Africa). Pelts have no commercial value.

# Threats

No major threats to the species are currently known. However, since it is dependent on riverine vegetation for shelter in some parts of the assessment region (but not all; for example, in the Karoo), the loss of this habitat may result in some localised declines where habitat loss is taking place (Baker & Ray 2013). For example, the drainage of swamplands for conversion to arable land has been identified as a threat to Water Mongooses in eastern Africa (Andama 2000).

**Table 2. Use and trade summary for the Water Mongoose (*Atilax paludinosus*)**

| Category | Applicable? | Rationale | Proportion of total harvest | Trend |
|---|---|---|---|---|
| Subsistence use | Yes | Used in traditional medicine. | All, but harvest likely very limited. | Unknown, probably stable. |
| Commercial use | No | - | - | - |
| Harvest from wild population | - | - | - | - |
| Harvest from ranched population | - | - | - | - |
| Harvest from captive population | - | - | - | - |

**Table 3. Threats to the Water Mongoose (*Atilax paludinosus*) 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 | *2.1.3 Annual & Perennial Non-timber Crops*: habitat loss from agricultural expansion. Current stresses *1.1 Ecosystem Conversion* and *1.2 Ecosystem Degradation*: drainage of wetlands and deteriorating ecological integrity of river systems. | Nel et al. 2007; Driver et al. 2012 | Indirect (land cover change from remote sensing) | National | Increasing |
| 2 | *7.2.3 Dams & Water Management/Use*: water abstraction through human settlement and agriculture. Current stresses *1.1 Ecosystem Conversion* and *1.2 Ecosystem Degradation*: drainage of wetlands and deteriorating ecological integrity of river systems. | Nel et al. 2007; Driver et al. 2012 | Indirect (land cover change from remote sensing) | National | Increasing |
| 3 | *11.2 Droughts*: climate change causing habitat deterioration. | - | Anecdotal | - | Increasing |
| 4 | *3.2 Mining & Quarrying*: substantial water use through fracking. | - | Anecdotal | - | Increasing |
| 5 | *4.1 Roads & Railroads:* road collisions. | - | Anecdotal | - | Probably minimal and stable. |

However, within the assessment region, a number of threats may synergise together to cause local population declines. These include human development (for example, fracking in the Karoo), agricultural intensification, and climate change causing declining water quality in small streams and watercourses. Poor farming practices also impact on buffer zones along watercourses. These factors are likely to negatively impact the abundance and viability of aquatic food resources for Water Mongooses and other water-dependent species. Already 84% of South African river ecosystem types are threatened, and 54% are Critically Endangered (Nel et al. 2007).

Water Mongooses are not persecuted directly except as bycatch in predator control programmes. In view of their secretive and nocturnal nature, they are less “visible” and thus less subject to direct actions. They are occasionally (and locally) victims of road traffic collisions.

**Current habitat trend:** Declining. Freshwater systems are the most threatened ecosystems within the assessment region (Driver et al. 2012). While the severity of habitat loss on this species within the assessment region is unknown it is not suspected to (yet) be causing widespread decline due this species’ ability to utilise suboptimal habitats.

# Conservation

The Water Mongoose is present in many protected areas across its range within the assessment region. However, water management practices, especially outside protected areas, should be carefully planned to avoid negatively impacting riverine ecosystems and wetlands. The most important interventions for this species are those that conserve watersheds and riparian valleys and those which improve stream flow and water quality (such as through alien invasive species removal). There is a need to enforce the National Water Act (No. 36 of 1998) and to ensure that the tools provided for in this act – for example, ecological reserve determination and resource quality objectives – are applied to protect our freshwater ecosystems.

Although the Water Mongoose is a potential candidate as an indicator species for evaluating the effectiveness of the Working for Water programme, its versatile habitat preference and diet makes it unlikely to be sensitive enough to changing conditions.

**Recommendations for land managers and practitioners:**

- Maintain and improve the ecological integrity of river systems by conserving buffer strips of vegetation around water courses and removing alien invasive

**Table 4. Conservation interventions for the Water Mongoose (*Atilax paludinosus*) 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 of riverine and wetland habitats. | - | Anecdotal | - | - | - |
| 2 | *1.2 Resource & Habitat Protection*: stewardship initiatives to protect riverine and wetland habitats. | - | Anecdotal | - | - | - |
| 3 | *2.3 Habitat & Natural Process Restoration*: sustain buffer strips of vegetation around watercourses and remove alien vegetation. | - | Anecdotal | - | - | - |

vegetation. For example, the Working for Water programme should be used to remove alien vegetation and improve water flow.

**Research priorities:**

- Monitoring Water Mongoose subpopulation trends and measuring the impact of water quality and quantity deterioration.
- Monitoring of river system health status linked to population abundance indices.

**Encouraged citizen actions:**

- Report sightings or presence of diagnostic spoor (with picture) on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas, to improve this species' distribution map.
- Employ the Working for Water programme to reduce alien vegetation and improve water flow on your land.
- Report illegal land- and water-use practices to the authorities.
- Protect sensitive riparian areas.

# Data Sources and Quality

**Table 5. Information and interpretation qualifiers for the Water Mongoose (*Atilax paludinosus*) assessment**

| | |
|---|---|
| Data sources | Field study (literature, unpublished), indirect information (literature, expert knowledge) |
| Data quality (max) | Inferred |
| Data quality (min) | Inferred |
| Uncertainty resolution | Best estimate |
| Risk tolerance | Evidentiary |

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