Paraxerus cepapi – Tree Squirrel


Shem Compion

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

Mopane Trees (*Colophospermum mopane*) are favoured nesting sites, as their branches are often hollow, which gives rise to this species' alternative common name, the Mopane Squirrel (Skinner & Chimimba 2005).

Taxonomy

Paraxerus cepapi (A. Smith 1836)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - SCIURIDAE - *Paraxerus* - *cepapi*

Common names: Tree Squirrel, Mopane Squirrel, Smith's Bush Squirrel, Yellow-footed Squirrel (English), Boomeekhoring (Afrikaans), uBusinti, uBuhlula, isiKhale (Ndebele), Sehlora (Sepedi), Setlhora, Sepêpê (Setswana), Tsindi (Shona), Xindzi, Maxidyani, Sindyane (Tsonga), Tshithura (Venda), Unomatse (Xhosa), Intshidane, Ingwejeje, Yasezihlahleni (Zulu)

Taxonomic status: Species complex

Taxonomic notes: Nine subspecies are currently recognised (Meester et al. 1986), differentiated on body size and pelage colour, but their phylogenetic relationships are poorly understood (Monadjem et al. 2015). Only the nominate *P. c. cepapi* occurs within the assessment region and it further occurs also in southern Mozambique, Zimbabwe and southeastern Botswana. Molecular research is needed to resolve the taxonomy.

Assessment Rationale

This species remains Least Concern in view of its wide distribution within the northern savannah regions of South Africa, its local abundance in certain areas, its occurrence in a number of protected areas (including Kruger National Park), and because there is no evidence for its decline. Although local declines may be caused by ongoing woodland loss from fuel-wood extraction (for example, in the Soutpansberg and Bushbuckridge regions in Limpopo and Mpumalanga provinces respectively), overall the Savannah Biome is not threatened and projected to increase in extent with climate change. This is corroborated by a range expansion in North West Province since 1983. (Power 2014) The primary intervention is to incentivise or regulate sustainable fuel-wood extraction.

Regional population effects: The habitat is connected across regions and this species is similarly common in Zimbabwe, Botswana, Namibia and Mozambique. Thus, dispersal across countries is an almost certainty.

Distribution

This species is widely distributed in the savannahs of southern Africa, extending north into Central and East Africa (Monadjem et al. 2015). It ranges from Tanzania to southern Mozambique and westwards to southeastern Angola, southern Democratic Republic of the Congo, northeastern Namibia, northeastern Botswana and northeastern South Africa. Within the assessment region, it occurs commonly in the savannah woodlands in Limpopo, Mpumalanga and North West provinces. It is absent from the Nama-Karoo, Succulent Karoo and forest biomes (Skinner & Chimimba 2005). It does not occur in either Lesotho or the highlands of Swaziland (Lynch 1994; Monadjem 1998), but may marginally occur in the lowlands of Swaziland. In North West Province there has been a range expansion (49% increase in extent since 1983), which seems to be correlated with the advancement of bush and woodland onto the highveld grassland regions (Power 2014). Wondergat, north of Mafikeng, is the most southerly location in the North West Province, and probably designates the southerly edge of the species' range (Power 2014). Extra-limital occurrence is possible as it is sometimes kept as a pet and escapees can establish local subpopulations.

Population

It is a common species in suitable habitat. For example, it occurs at densities of 280–258 squirrels / km^2 in sandveld woodlands to 498 / km^2 in termitaria thicket habitat, which equates to a biomass of 45–111 kg / km^2 (Viljoen 1986). Its abundance in termitaria-dominated woodlands or thickets is confirmed by Fleming and Loveridge (2003).

Current population trend: Stable and possibly increasing with the advancement of savannah habitat.

Continuing decline in mature individuals: Unknown

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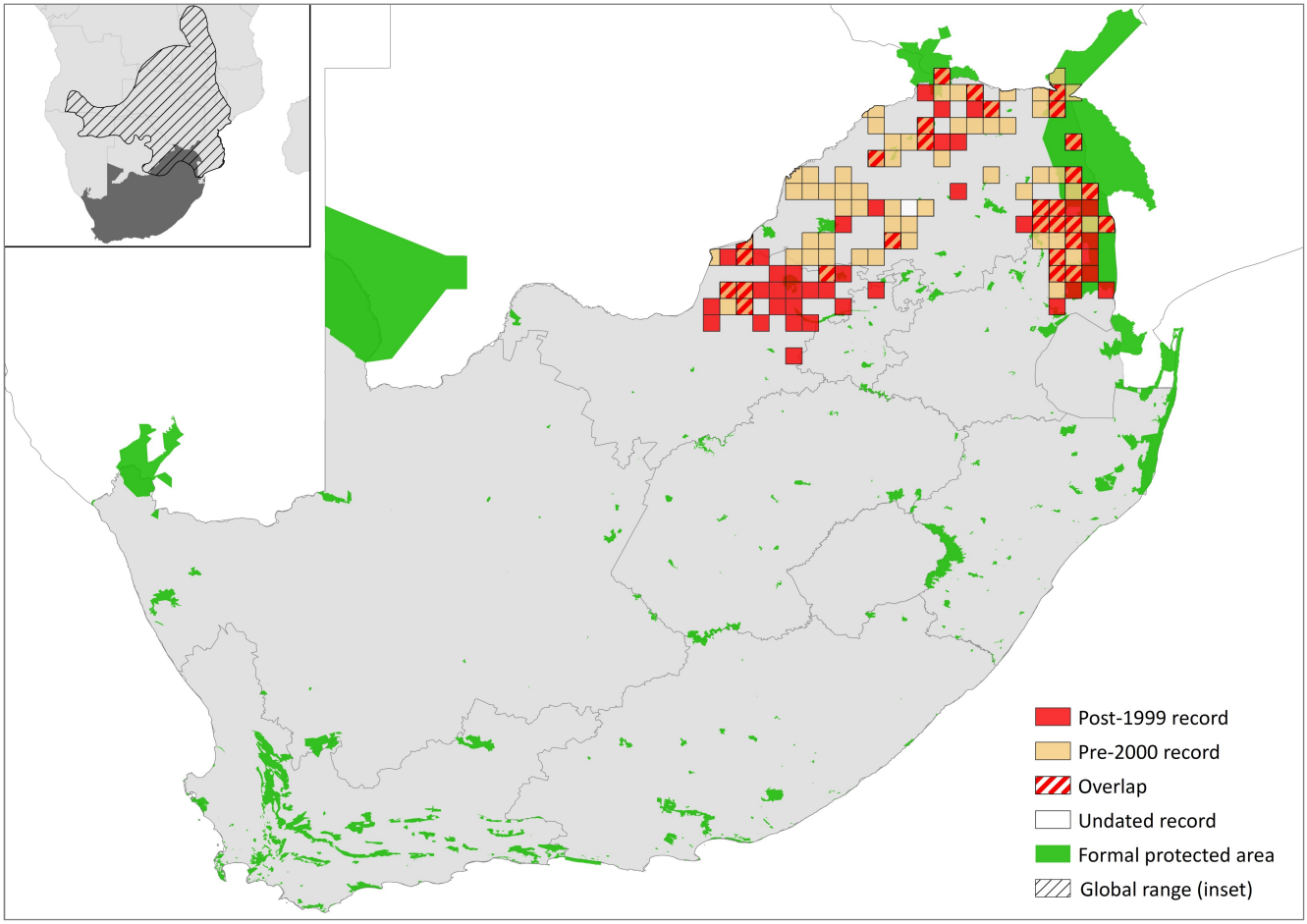

Figure 1. Distribution records for Tree Squirrel (*Paraxerus cepapi*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

Number of mature individuals in population: Unknown

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Unknown

Severely fragmented: No

Habitats and Ecology

This is a savannah woodland species that does not depend on any particular type of woodland and occurs in a broad variety of habitats, particularly in Mopane woodland, *Acacia* woodland and mixed associations such as *Acacia*/*Terminalia* and *Acacia*/*Combretum* (Skinner & Chimimba 2005). Beyond South Africa, it is less common in *Brachystegia*/*Julbernardia* and *Baikiaea* woodland probably because these do not provide tree holes necessary for resting and breeding sites. Older Mopane Trees are especially favoured as nesting sites as the branches are often hollow and thus full of cavities (Skinner & Chimimba 2005). It avoids forests, where it is replaced by the Red Squirrel (*Paraxerus palliatus*) and cannot exist in arid or grassland areas as there are no trees for shelter or food. It has been encountered on rocky outcrops and mountain faces with woodland cover (Rautenbach 1982), and prefers ground cover that is not too dense (Viljoen 1977). It is common throughout the northern bushveld vegetation types of South Africa (Skinner & Chimimba 2005; Power 2014), and it appears not to be a habitat specialist.

It is occasionally solitary but lives mainly in groups. Pairs or small family groups comprising a female with two or three young are often seen or else one or two adult males or females with subadults (Skinner & Chimimba 2005). It is territorial with the average size of a territory being 0.43 ha (Viljoen 1975) It is arboreal and diurnal, often basking in the sun before descending the trees to forage. When it is alarmed by a predator, the whole group may join in mobbing it. The Tree Squirrel is both herbivorous (flowers, leaves, seeds, berries, fruits and bark) and insectivorous, feeding both on the ground and in trees (Viljoen 1977).

Ecosystem and cultural services: Presumably this species plays a role in seed dispersal. However, a recent study suggests that Tree Squirrels do not possess jaws strong enough to loosen the opercula of Marula Tree (*Sclerocarya birrea*) fruits and that only African Elephants (*Loxodonta africana*) are effective dispersers of Marula seeds (Midgley et al. 2012). Further research is needed.

Table 2. Threats to the Tree Squirrel (*Paraxerus cepapi*) 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*: woodland habitat lost to fuelwood extraction from increased residential and commercial expansion. Current stress 1.2 *Ecosystem Degradation*.	Munyati & Kaband 2009	Indirect (land-cover analysis)	Regional	20% of woodland cover was lost from 1990–2006 in the Soutpansberg.
		Wessels et al. 2013	Simulation	Regional	Biomass will be depleted within 13 years at current rates of fuelwood extraction.
		GeoTerraImage 2015	Indirect (land cover change from remote sensing)	National	Rural and urban expansion has continued between 2000 and 2013.

Use and Trade

This species is not utilised extensively. It is sometimes removed from the wild to be kept as a pet, but this is not on any widespread commercial scale.

Threats

There are no major threats to the species. The only local threat is woodland cover loss from fuelwood harvesting by local communities.

Current habitat trend: Stable. As this is a savannah species, it does not suffer as much from habitat loss as grassland or forest specialist species, as savannah remains relatively intact within the assessment region (Driver et al. 2012). Similarly, climate change is not predicted to become a major threat for this species as savannahs are projected to expand (for example, Kgope et al. 2010). The expansion of wildlife ranches across the country has probably provided more habitat protection for this species. However, local declines are expected where human settlement expansion puts pressure on natural resources: there has been a 10.5–14.9% and 6.5–8.8% urban and rural settlement expansion in Limpopo, Mpumalanga and North West provinces between 2000 and 2013 (GeoTerraImage 2015). Similarly, a recent land-cover analysis demonstrated that 20% of forest and woodland cover was lost from 1990 to 2006 in the Soutpansberg region due to residential expansion and pine/eucalyptus plantations (Munyati & Kabanda 2009). Wessels et al. (2013) show that there is an unsustainable rate of fuelwood consumption in the Bushbuckridge Municipality of Mpumalanga Province.

Conservation

Occurs in a number of large and well managed protected areas throughout the assessment region, the most notable being the Kruger National Park. While no specific interventions are necessary at present, protection of suitable woodland habitat through conservancy formation and the management or regulation of fuelwood harvesting would benefit this species. Both interventions should aim to protect large, old trees necessary for nesting, such as Mopane or *Acacia* trees. Protecting clusters of termitaria woodlands will also benefit this species.

Recommendations for land managers and practitioners:

- Protect large trees from being harvested.

Research priorities:

- Molecular research is necessary to resolve the taxonomy of this potential species complex.
- Research to gather evidence on the effects of different land uses on the distribution and abundance of the species.

Encouraged citizen actions:

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

Data Sources and Quality

Table 3 Information and interpretation qualifiers for the Tree Squirrel (*Paraxerus cepapi*) assessment

Data sources	Field study (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.*