Poecilogale albinucha – African Striped Weasel

Regional Red List status (2016)	**Near Threatened C1***
National Red List status (2004)	Data Deficient
Reasons for change	Genuine change
Global Red List status (2015)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

*Watch-list Data

While data are scarce, declines in reporting rates from most areas of the country, combined with intensifying threats, suggest that the population is declining.

Taxonomy

Poecilogale albinucha (Gray 1864)

ANIMALIA - CHORDATA - MAMMALIA - CARNIVORA - MUSTELIDAE - *Poecilogale* - *albinucha*

Synonyms: *africana, bechuanae, doggetti, flavistriata, lebombo, transvaalensis*

Common names: African Striped Weasel, African Weasel, Snake Weasel, Striped Weasel, White-naped Weasel (English), Slangmuishond (Afrikaans), Nakêdi (Setswana), Inyengelezi (Zulu)

Taxonomic status: Species

Taxonomic notes: Six subspecies have been proposed (Meester et al. 1986), but their validity is dubious as they are based on appearance only (Stuart & Stuart 2013).

Assessment Rationale

This enigmatic species occurs at naturally low densities but is also severely threatened by loss of productive habitats and hunting for the traditional medicine trade. Although this species has a wide range, it is not abundant. It is a specialist predator of small mammals and has a high metabolic rate, which means it can only exist in habitats containing adequate numbers of prey. Such habitats are being lost or drastically transformed to grow food, cash crops or commercial forestry plantations. This is compounded by overgrazing that reduces the cover on which the African Striped Weasel's prey species rely. Human population expansion has increased the number of dogs that often kill African Striped Weasels or compete for food. Similarly, Black-backed Jackal (*Canis mesomelas*) densities have increased markedly in these areas, which may also have a significant impact.

We estimated that only 7,138 km^2 of the species' area of occupancy is within natural habitat outside of potential harvesting pressure (see **Distribution**) which, combined with it being a naturally low-density species, may mean there are fewer than 10,000 mature individuals. The average rate of rural expansion in all core provinces (every province besides the Northern Cape) since 2000 is 10 ± 13%. The estimated three-generation period for this species is 9 years. If we assume that rural settlement expansion is a proxy for harvesting pressure, then the African Weasel satisfies Near Threatened C1, as a 10% decline over a 10-year period is likely. Corroborating this, by combining multiple datasets, reporting frequency has declined by 55% from 1991–2001 and 2002–2013. However, this may not be an accurate measure of population decline as reporting frequency is confounded by inconsistent search effort and observer bias. Confounding this are regional differences: for example, the Western Cape Province shows the opposite trend as the majority of data have been collected post-2000, which suggests a subpopulation increase in the province. However, we suspect that this difference may be due to varying harvesting pressures between the provinces, with Western Cape having the lowest rate of rural settlement expansion since 1990. Further field studies and surveys to determine current area of occupancy, density estimates, home range size and habitat preference, and severity of traditional medicine trade on this species are desperately needed. This species should be reassessed as soon as new data become available.

Regional population effects: There is suspected to be little dispersal of individuals from neighbouring countries or not on the scale to impart a significant rescue effect.

Distribution

This species ranges from southwestern Uganda and Kenya to the Western Cape in South Africa (Stuart & Stuart 1998, 2013; Skinner & Chimimba 2005). It has been recorded from nearly sea level to 2,300 m asl in Malawi (Medland & Dudley 1995). Most of the available records come from southeast South Africa, as this is where most research has been conducted (Stuart & Stuart 2013). A range expansion may have occurred in southwest South Africa, based on documented road kills (Stuart & Stuart 1998). Because of its secretive nature it has probably been overlooked in many areas, especially in light of records from sites that were previously considered

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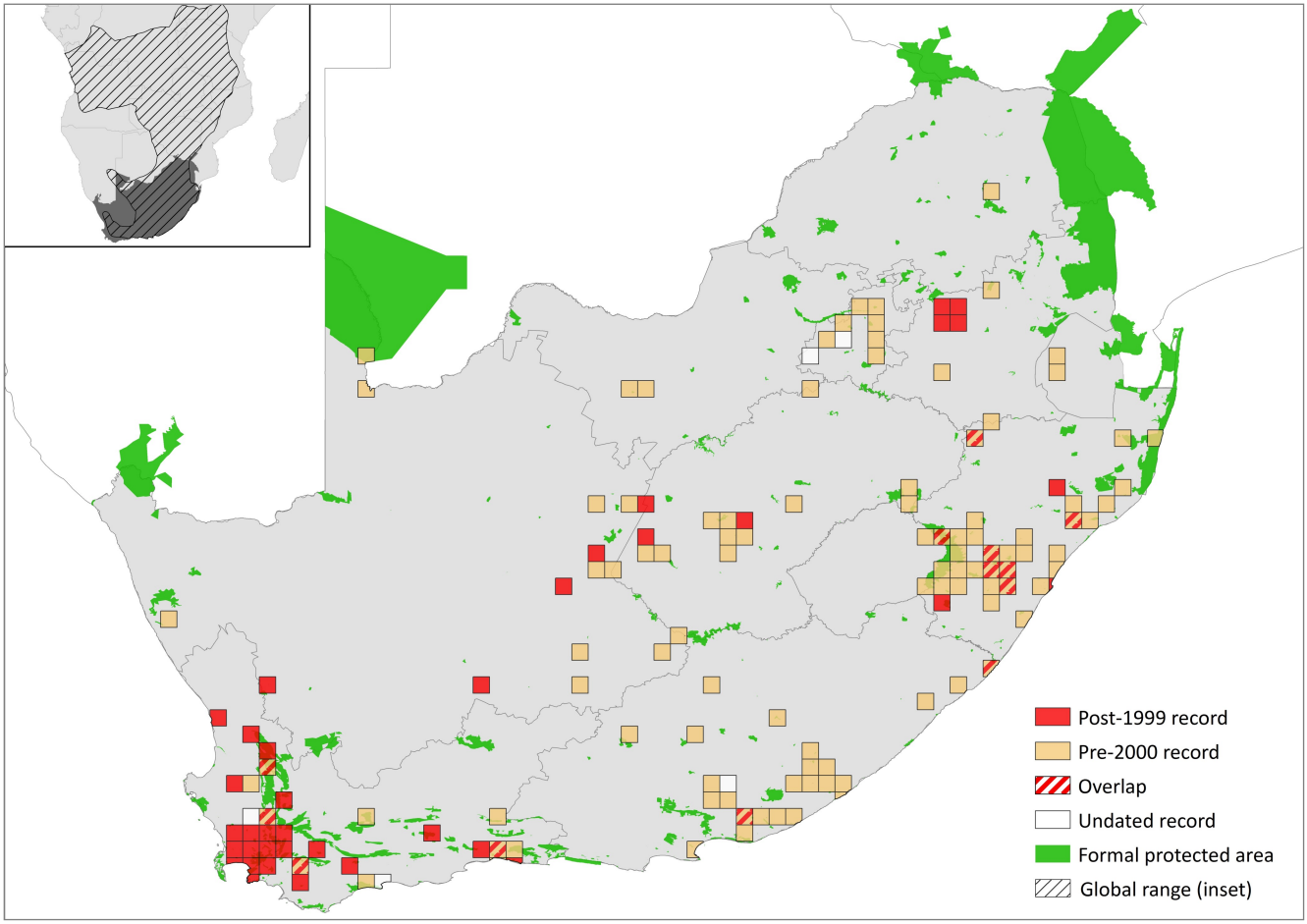

Figure 1. Distribution records for African Striped Weasel (*Poecilogale albinucha*) within the assessment region

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

unsuitable (Stuart and Stuart 2013). It is also often confused with the Striped Polecat (*Ictonyx striatus*), which may lead to overestimation of its distribution in some cases.

Within the assessment region, it occurs along the west coast from Garies southward to the top of the escarpment into the western and southern Cape coastal belt, east and northeast Northern Cape, and all other provinces. It occurs predominantly in moist eastern grasslands (Skinner & Chimimba 2005), and parts of the Western Cape where incidental sightings and road kill specimens indicate a currently widespread distribution in the Southwest Fynbos bioregion within the Kogelberg and Boland Mountain regions, the Swartland Shale Renosterveld and Cederberg Sandstone Fynbos bioregions within the Cederberg Mountain regions, the Cape Flats Sand Fynbos and Cape Flats Dune Sandveld bioregions, the De Hoop Limestone Fynbos and South Outeniqua Sandstone Fynbos bioregions, extending to the Lamberts Bay Strandveld bioregion (C. Birss unpubl. data). They have been observed in southeast Namibia (C. Stuart & M. Stuart pers. obs.) and Stuart and Stuart (1990) reported a sighting from the South African side of Kgalagadi Transfrontier Park in 1989, which may indicate a wider distribution in Botswana and eastern Namibia, but it has not been recorded from the area since. Similarly, it has never been recorded in the Kruger National Park. Many other areas of the country have not reported sightings for many years. For example, it was not recorded at all during a province-wide survey in the North West in 2010 (Power 2014), where available records are mostly museum specimens or anecdotal sightings (Stuart 1981; Rautenbach 1982); and it has not been recorded recently from Mkhuze Game Reserve in northern KwaZulu-Natal (T. Bodasing pers comm. 2014). The lack of current records, however, may be due to lack of search effort. Further field surveys are needed to determine its occurrence.

In the dry, western-most range of the species, it appears to lead an increasingly subterranean existence. This may be a behavioural response to avoid extreme temperatures and reduce water requirements. Almost without exception, the few records that have been reported from this region indicate the presence of mole-rats (B. Wilson unpubl. data). It should be considered that the species may well have an inquilistic relationship with mole-rats and that, in the arid areas of their range, they thus have a sympatric distribution. It is therefore conceivable that the distribution of the species is slightly more widespread than reported, but remains nevertheless extremely fragmented and the population densities extremely low. In these areas, the

loss of any habitat for mole-rats is thus likely to result in the loss of habitat and available prey base for the weasels too.

We calculated the proportion of the estimated area of occupancy affected by harvesting. As home range size for the weasel is unknown, we buffered both weasel distribution points and "huts" (as a proxy of rural development measured using Eskom Spot Building Count from 2011) by a radius of 10 km. We then summed the buffered weasel points to "sample" area of occupancy (AOO), which we estimated as 50,518 km^2. We then used 2013 land cover data (GeoTerraImage 2015) to estimate the amount of natural land currently contained within the AOO, which we estimated at 36,506 km^2. Finally, we subtracted the area of the natural AOO that intersects the buffered rural villages, and thus within harvesting distance, which equated to only 7,138 km^2 natural AOO not within 10 km of a village. This represents an 86% reduction in effective AOO. However, this is a snapshot sample and has no time period over which to measure the rate of change.

Population

It is rare to uncommon. For example, in the Free State, the lack of observation records (from multiple sources) suggests it is the scarcest of mammal species (N.L. Avenant unpubl. data). In the Northern Cape, there are two historical records (from the Kalahari and from Schmidtsdrif) and only three other records added in the last eight years (B. Wilson unpubl. data). However, this may be an artefact of increased research effort as well as increased awareness around the species in the farming communities. As such, the status of the species in the Northern Cape remains unclear. Similarly, the Eastern Cape Parks and Tourism Agency has only one record (in 2006) in the period 2006–2013 (D. Peinke unpubl. data).

Highest densities are reached in moist higher rainfall grasslands (Stuart & Stuart 2013), such as the grasslands of KwaZulu-Natal (Rowe-Rowe 1992). It is probably only common in areas where there are perennially dense rodent populations (Stuart & Stuart 2013). It is currently not possible to estimate population size because, although widespread, they are difficult to observe and there are no density estimates. However, as all available data sources indicate a sparsely distributed and scarce population, indicating a small overall population size, it is conceivable that there are fewer than 10,000 mature individuals within the assessment region. Field studies are needed to determine area requirements, population composition, numbers, and trends. At present, we infer the population to be declining for the following reasons:

1. Between 1972 and 1977, surveys of small carnivores were performed in KwaZulu-Natal (Rowe-Rowe 1978a). In a second survey, conducted 20 years later (Rowe-Rowe 1992), declines in both numbers and occupancy were reported. This was inferred to be caused by loss of habitat to food crops and commercial forestry, and declines in habitat quality from overgrazing and erosion. Considering the ongoing trend in habitat loss (Jewitt et al. 2015), a declining population is likely to be ongoing too.
2. A useful index of abundance was given by Cunningham and Zondi (1991). In their comprehensive survey of wildlife use in traditional medicines in KwaZulu-Natal, they concluded that the African Striped Weasel was the province's most threatened species. Dealers reported that the species, which is highly prized in traditional medicine (Rowe-Rowe 1990, 1992; N.L. Avenant unpubl. data), was becoming scarcer as there were fewer animals in the wild. Thus, population decline is inferred by data presented in Cunningham and Zondi (1991) and others (see **Use and Trade**). The average rate of rural expansion in all core provinces (every province besides the Northern Cape), between 2000 and 2013 is 10 ± 13% (GeoTerraImage 2015). Generation length is estimated as 3 years (Stuart et al. 2015), which yields a 9-year three-generation period. Thus, if we construe rural settlement expansion as a proxy for harvesting pressure and subsequent population decline, we can infer a > 10% population decline over a 10-year period.
3. Corroborating this, reporting rate has declined from 89 in total from 1991–2001, to 49 in total from 2002–2013. These data are a composite of museum records, provincial and SANParks recordings and individual camera trap data. However, the Western Cape data show the opposite trend, where most of the data were collected post-2000.
4. An intensive survey in North West Province in 2010 revealed no records (Power 2014), compared to the 1970s when there were records obtained for the same regions (Rautenbach 1982).

Although inferring exact decline from the data described above is unreliable because observer effort is unequal in time and space, we feel the data are robust enough to indicate some form of decline taking place. However, contrary to the overall trend, limited data from the Western Cape may suggest a stable subpopulation. Relatively large numbers are collected dead on the roads, picked up on camera traps and reports from suburbia are also not infrequent (for example, Somerset West, West Stellenbosch and Durbanville) (C. Birss unpubl. data). The transformation from fynbos to grassland habitat and the removal of larger predators may have facilitated this trend. However, this may also be a "western anomaly", perhaps caused by climate change, which only applies to a relatively small area of the total distribution. The anomaly between the Western Cape increase in reporting rate and the rest of country may also be explained by the relative lack of rural settlements in the Western Cape (and thus potentially lower harvesting rates) compared to the rest of the country. More research is needed to provide evidence for these hypotheses.

Current population trend: Decreasing in part of its range but stable in the Western Cape.

Continuing decline in mature individuals: Yes

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 species is mainly found in savannah and grassland habitats, although it probably has a wide habitat tolerance and has been recorded from lowland rainforest, semi-desert grassland, fynbos (with dense grass) and pine

plantations (Larivière & Jennings 2009; Stuart & Stuart 2013). Preferred habitats are grassy; for example, the few records from arid southwestern Africa are associated with semi-desert grassland (Stuart & Stuart 2013). African Striped Weasels may reach their highest densities in moist grasslands (Rowe-Rowe 1992) and are also found in montane grassland (Medland & Dudley 1995). Road kills have been collected from areas of pastures and cultivated fields (Monadjem 1998; Stuart et al. 2015).

They are predominantly nocturnal but are occasionally seen during the day. They may make use of existing rodent burrows but are also good burrowers themselves. As such, soil texture may also be an important habitat determinant (Rowe-Rowe 1992). This species' body shape, elongated with short, powerful limbs, makes it ideally suited to a subterranean lifestyle. It has relatively poor eyesight, probably because it spends most of its activity periods underground, and hunts using smell rather than sight. This poor eyesight may be one of the reasons that many of the specimens obtained for museum collections are in fact road kill victims.

This species is a specialist predator, feeding only on warm-blooded vertebrates, and there are no formal records of them feeding on invertebrates, amphibians or reptiles (Stuart & Stuart 2013). They mainly feed on rodents (often catching them in their burrows), moles and shrews. Birds, on the ground, are taken opportunistically (Rowe-Rowe 1978b). They can prey on rodents up to their own size.

Interestingly, females do not appear to experience oestrus (Rowe-Rowe 1975, 1978c). They are generally solitary animals, widely dispersed, so the chances of an oestrus female encountering an adult male are very small. However, they do indulge in prolonged copulation that lasts between 65 and 72 minutes (Rowe-Rowe 1978c), which may induce ovulation (Rowe-Rowe 1975) and represent an adaptation to a solitary lifestyle.

Ecosystem and cultural services: As African Striped Weasels only occur at low densities, they do not necessarily keep rodent populations under control.

Use and Trade

The species is used in traditional medicine and is easily captured when encountered. Cunningham and Zondi (1991) regarded this species as one of the most heavily hunted animals for the traditional medicine trade. The high demand for this species was corroborated by Ngwenya (2001) who found it was the second most sought after species in KwaZulu-Natal. Skins are commonly used by traditional healers and sangomas as a good luck charm (Stuart et al. 2015). They have also been found in traditional medicine markets in the Eastern Cape and Gauteng (Simelane & Kerley 1998; Whiting et al. 2011). They are also highly prized in traditional medicine in Lesotho (Lynch 1994; N.L. Avenant pers. comm. 2015).

Threats

Habitat loss is perhaps the greatest threat to this species (Table 3). Being a specialist feeder on small mammals, occurring at low densities, and having an apparent association with habitats that are being altered or lost, places this species at risk within the assessment region. Large tracts of grasslands, where rodent densities are highest, have been ploughed to grow food or cash crops (maize, sugarcane, bananas, pineapples, vegetables and livestock fodder), while moist grassland is being increasingly converted to commercial timber plantations (Rowe-Rowe 1990, 1992). Furthermore, overgrazing, particularly in subsistence farming areas, causes declines of small mammals by removing ground cover (Rowe-Rowe & Lowry 1982).

Loss of prey base is likely to affect this species significantly more than others because individuals are long and thin and well-adapted for entering burrows or confined spaces to kill their prey, but this means they have a higher metabolic rate (owing to a greater proportion of surface area to body mass) than conventionally shaped and stockier animals (Rowe-Rowe 1978a). Males need about 95 g of prey / day and females need 67 g / day (Rowe-Rowe 1978a). Food requirements increase during pregnancy (1 month) and lactation (2 months), as well as during the 5–6 weeks before the young can kill on their own (Rowe-Rowe 1978c). If females raise one litter per year, food requirements are greater for at least 4 months. Thus, the annual prey requirements of *Rhabdomys*-sized (*c*. 35 g) small mammals would be 1,000–1,100 prey items / year for males and 730–1,100 prey items / year for females. A pair of African Striped Weasels thus needs about 2,000 murids / year and are, therefore, highly dependent on intact habitat and healthy prey populations.

The loss of habitat and prey base is compounded by severe hunting pressure. The species is hunted for use in traditional medicines. Cunningham and Zondi (1991) suggested that hunting pressure had increased to the extent that it is now scarce in eastern South Africa. Ongoing rural settlement expansion in most provinces (GeoTerraImage 2015) is likely to increase or sustain current harvesting rates. With increasing human populations in rural areas there are also increases in the numbers of domestic dogs, which compete with African Striped Weasels for food and often kill them (Rowe-Rowe 1990, 1992, 1996). Black-backed Jackals are also known to prey on African Striped Weasels (Bagniewska & Kamler 2014) and thus the artificial increase in numbers of jackals

Table 2. Use and trade summary for the African Striped Weasel (*Poecilogale albinucha*)

Category	Applicable?	Rationale	Proportion of total harvest	Trend
Subsistence use	Yes	Traditional medicine	Unknown	Unknown
Commercial use	Yes	Traditional medicine	Unknown	Unknown
Harvest from wild population	Yes	Traditional medicine	All	Unknown
Harvest from ranched population	-	-	-	-
Harvest from captive population	-	-	-	-

Table 3. Threats to the African Striped Weasel (*Poecilogale albinucha*) 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 (grasslands) for monocultures.	La Grange 2011	Indirect	Regional	Ongoing
		Schoeman et al. 2013	Indirect	Regional	
		Jewitt et al. 2015	Indirect	Regional	
2	*2.3.3 Livestock Farming & Ranching*. Current stress *1.2 Ecosystem Degradation*: loss of prey base from overgrazing.	Jewitt et al. 2015	Indirect	Regional	Ongoing
3	*5.1.1 Hunting & Collecting Terrestrial Animals*: poaching for traditional medicine.	Cunningham & Zondi 1991	Empirical	Local	Ongoing
		Simelane & Kerley 1998	Empirical	Local	
		Ngwenya 2001	Empirical	Regional	
		Whiting et al. 2011	Empirical	Local	
4	*1.1 Housing & Urban Areas*. Current stress *2.1 Species Mortality*: increased harvesting rates and predation from domestic dogs.	GeoTerraImage 2015	Indirect	National	Ongoing
5	*2.2.2 Wood & Pulp Plantations*: habitat loss from commercial forestry.	Schoeman et al. 2013	Indirect	Regional	Ongoing
		Jewitt et al. 2015	Indirect	Regional	
6	*8.2.2 Problematic Native Species/Diseases*: increased abundance of Black-backed Jackals may depress African Striped Weasels.	-	Anecdotal	-	Possibly increasing
7	*4.1 Roads & Railroads*: collisions with vehicles.	-	Anecdotal	-	Unknown

due to injudicious management (*sensu* Avenant & du Plessis 2008; Minnie et al. 2016) may depress weasel subpopulations.

There is evidence of African Striped Weasels being killed on roads in both the Northern Cape (B. Wilson unpubl. data) and Western Cape (C. Birss unpubl. data), where road casualties amounted to 28% of specimens for the latter province.

Current habitat trend: Loss of grassland habitat is a severe threat for African Striped Weasels. Between 1994 and 2005, the combined footprint of urbanisation, forestry/ plantations, mining and cultivation in three provinces that comprise part of its core range (KwaZulu-Natal, Mpumalanga and Gauteng) increased by an estimated 8.5%, although the impact of strip mining in Mpumalanga was probably underestimated (Schoeman et al. 2013). Loss of wetland and associated grassland habitat is predicted to exceed 10% in the next three generations, given that development applications were received for 72% of the surface area of Mpumalanga Province between 2005 and 2010 (La Grange 2011). More recently, in KwaZulu-Natal, between 2005 and 2011, there was a loss of 7.6% of natural habitat (Jewitt et al. 2015), primarily due to agricultural expansion. Agricultural transformation of grassland in KwaZulu-Natal (timber plantations, maize and sugarcane) and the Eastern Cape (e.g. pineapple plantations) is particularly reducing the quality of habitat.

Conservation

This species is present in several protected areas across its range, which should be comprehensively documented. Outside protected areas, land-use planning should continue to conserve grassland habitats through protected area expansion, conservancy formation or stewardship schemes. Reducing agricultural intensification to conserve grassland habitats is likely to be a successful intervention for this species. For example, it was recorded in 2015 on a former dairy farm in the Free State where the last cattle were removed in 2004 (Buschke 2016).

Conservationists should also work with farmers and rural communities to reduce overgrazing and retain ground cover to sustain the prey base of African Striped Weasels. Conservationists should also raise the public profile of this species and increase sightings submissions to improve our knowledge of its distribution. For example, in 2004, a private conservation group, Royal Hembe Conservation Group, on the north coast of KwaZulu-Natal started using the African Striped Weasel as a flagship species to promote care and sound management of declining coastal habitats. One of their members, a zoo curator, initiated a captive breeding programme for the species at Mitchell Park Zoo, Durban.

Recommendations for land managers and practitioners:

- Sustain natural prey diversity by retaining ground cover.
- Systematic monitoring projects should be established to formally assess population trend.
- Ezemvelo KZN Wildlife has listed the African Striped Weasel as a key species for continued monitoring and each staff member keeps a booklet to record sightings. Similarly, CapeNature has it listed as a “priority species” and all sightings and specimens are collected. This should be established in other provinces.

Table 4. Conservation interventions for the African Striped Weasel (*Poecilogale albinucha*) 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 grassland habitats.	-	Anecdotal	-	-	SANParks protected area expansion strategy
2	*1.2 Resource & Habitat Protection*: protect grasslands through conservancies, private protected areas and biodiversity stewardship schemes.	-	Anecdotal	-	-	Ezemvelo KZN Wildlife biodiversity stewardship programme
3	*2.3 Habitat & Natural Process Restoration*: reduce overgrazing in communal lands to increase ground cover and prey base.	-	Anecdotal	-	-	-
4	*4.2 Awareness & Communications*: raise awareness and educate public to reduce harvesting rates and improve knowledge on distribution.	-	Anecdotal	-	-	-

Research priorities:

- Long-term surveys are necessary to establish baseline population data and density to gauge the effectiveness of conservation efforts.
- Quantifying the severity of threats, including habitat loss and levels of harvesting.
- Determining whether the species is a habitat generalist or a specialist of grasslands.
- Field studies are needed to evaluate area requirements, population composition and specific habitat tolerance (for example, prey availability, soil texture, and cover). This includes determining densities and ecological adaptations in arid areas.
- The genetics of the southern African population/s should be assessed to determine whether there is any gene flow and establish whether there are any evolutionarily significant units. Dispersal and mobility information, which could be obtained from genetic studies, may assist in understanding what is happening with the Western Cape population to understand patterns of gene flow and connectivity between populations. Genetic samples are being collected and currently housed with the University of Stellenbosch, to understand regional differences with a view to possible future reintroductions.
- Understanding the effects of climate change in reducing suitable grassland habitat.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP). This includes reporting road casualties to the Endangered Wildlife Trust Road Watch application.

Data Sources and Quality

Table 5. Information and interpretation qualifiers for the African Striped Weasel (*Poecilogale albinucha*) assessment

Data sources	Field study (unpublished), indirect information (literature, unpublished, expert knowledge), museum records
Data quality (max)	Inferred
Data quality (min)	Suspected
Uncertainty resolution	Expert consensus
Risk tolerance	Precautionary

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