Proteles cristata – Aardwolf


Alex Sliwa

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 (1978)	Appendix III (Botswana)
Endemic	No

"The English colloquial name has been borrowed from the Afrikaans, which means earth-wolf, a reference to their living in holes in the ground" (Skinner & Chimimba 2005).

Taxonomy

Proteles cristata (Sparrman 1783)

ANIMALIA - CHORDATA - MAMMALIA - CARNIVORA - HYAENIDAE - *Proteles* - *cristata*

Synonyms: *Proteles cristatus* (Sparrman 1783) [orth. error]

Common names: Aardwolf (English), Maanhaarjakkals (Afrikaans), Isambane (Ndebele, Swati, Zulu), Thakadu (Sesotho, Tswana), Xomboni (Tsonga), Thagalu (Venda)

Taxonomic status: Species

Taxonomic notes: Two subspecies are usually recognised: *P. c. cristata* from southern areas of the species distribution, and *P. c. septentrionalis* from central and northeastern Africa (Skinner & Chimimba 2005). Their validity requires confirmation.

Assessment Rationale

This species is listed as Least Concern as it is widespread within the assessment region and present in numerous protected areas and habitats, as long as there are termites available. Aardwolves can occupy open and degraded grassland where there is high termite abundance. The expansion of wildlife ranching may be increasing suitable habitat across the assessment region, although this should be weighed against possible increases in direct or indirect persecution. Additionally, climate change is predicted to potentially decrease food availability for the Aardwolf and it is possible that it will become threatened in the near future. For now, there is no evidence to indicate a range-wide decline.

Regional population effects: There is a continuous range that extends outside of the assessment region into neighbouring countries, and the assessment region does not appear to be a sink. Aardwolves are believed to be good dispersers as they walk tirelessly and can easily cover 20 km in one night when advertising mating rights (Sliwa 1996).

Distribution

The Aardwolf has a disjunct distribution in Africa, occurring in two discrete areas (1,500 km apart), one in East and northeastern Africa and one in southern Africa (Skinner & Chimimba 2005). The southern African distribution includes South Africa, Swaziland, Namibia, Botswana, Zimbabwe and a narrow strip in the western region of Mozambique. Aardwolf distribution is largely determined by the distribution of *Trinervitermes* termites, which constitute their principle food (Anderson 2013).

Within the assessment region, Aardwolves occur throughout the nine provinces in areas with suitable habitats. This species favours drier areas, most notably in the Northern Cape game ranch and farming lands. Within the North West Province, Power (2014) estimated that its range has expanded by 8% since 1983, and that Aardwolves were common at Bloemhof Dam Nature Reserve. There are no records from Lesotho (Lynch 1994).

Richmond-Coggan (2014) interviewed 190 landowners across South Africa and asked whether they had seen Aardwolf on their properties. Aardwolves were found on at least one property in all nine of South Africa's provinces. Forty-five percent of respondents indicated that this species was present on their land. Eastern Cape (50%), Free State (71%), Gauteng (50%), and Northern Cape (50%) respondents indicated the highest proportion of properties with Aardwolf presence. Lowest Aardwolf presence was indicated in KwaZulu-Natal (25%).

Population

The Aardwolf is widely distributed within the assessment region and the population appears to be stable (Richmond-Coggan 2014). In prime habitat (open grassland and scrub regions), densities may reach 1 adult / km^2 on farms with good populations of termites and no persecution by farmers (Bashant 2008; Anderson 2013). Our understanding of the population sizes and trends of Aardwolves is uncertain and further research is required to quantify the population.

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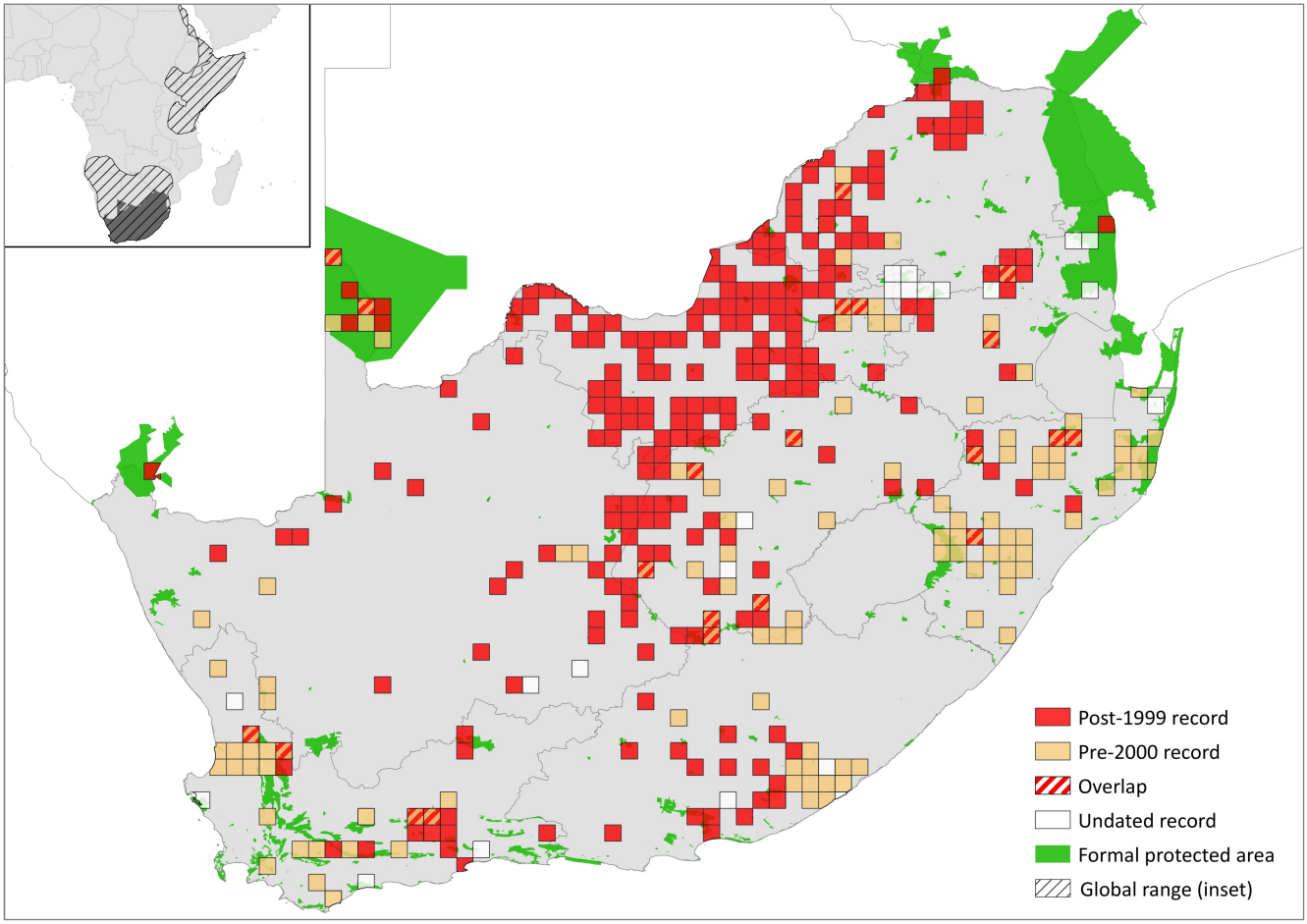

Figure 1. Distribution records for Aardwolf (*Proteles cristata*) within the assessment region

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	Extant	Native
Zimbabwe	Extant	Native

Current population trend: Stable

Continuing decline in mature individuals: Unknown, but probably not.

Number of mature individuals in population: Unknown

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 this species seems to be largely dependent on the presence of harvester termites, its distribution is relatively continuous as favourable habitats are generally connected. In addition, the Aardwolf has the ability to cover large distances (Sliwa 1996) and thus connect between fragments – if they occur.

Habitats and Ecology

Open, grassy plains constitute the prime habitat of this species. The Aardwolf is entirely absent from forests or pure desert (Anderson 2013). However, in southern Africa it occupies diverse habitats, ranging from the karroid habitats of the Western Cape and Eastern Cape, the grasslands and scrub of Botswana, the open savannah woodlands of Zimbabwe, to the inland gravel plains of the Namib Desert in Namibia (Skinner & Chimimba 2005). The species has been recorded to 2,000 m asl in Ethiopia (Yalden et al. 1996). Throughout their distribution, Aardwolves have been recorded to feed primarily on nasute harvester termites (genus *Trinervitermes*) and, in any particular region, mainly on one species. They are largely independent of water, obtaining their moisture requirements from termites (Anderson 2013).

Photo 1. Aardwolf (*Proteles cristata*) cubs (Alex Sliwa)

Photo 2. Adult Aardwolf (*Proteles cristata*) searching for termites at night (Fredrik Dalerum)

Female Aardwolves come into pro-oestrus in the latter weeks of June and mating generally occurs in the first two weeks of July (Skinner & Chimimba 2005). Aardwolves are considered socially monogamous but sexually polygamous with numerous extra-pair copulations occurring in the short winter mating period (Estes 1991; Skinner & Chimimba 2005). Gestation period is approximately 90 days and most litters consist of between two to four cubs, sometimes five (Photo 1). In the assessment region, cubs are born between October and December (Skinner & Chimimba 2005; Marneweck et al. 2015). The female gives birth in a den where the cubs remain for up to a month before emerging. Males will assist in the rearing of the young. Between 4 and 6 weeks, the cubs remain close to the den. As the cubs get older, they will venture further away from the den. Eventually between 12 and 16 weeks, the cubs will forage with an adult throughout the territory (Skinner & Chimimba 2005).

All scientific reports on Aardwolf foraging and diet agree that this species is an obligate insectivore (Cooper & Skinner 1979; Richardson 1987; Matsebula et al. 2009; de Vries et al. 2011) and poses no risk to livestock. There are, however, historic anecdotal accounts of Aardwolf taking vertebrate prey items (Estes 1991; Nowak 1991; D. Marneweck pers. obs. 2011). For example, Kingdon (1977) reported that an Aardwolf had killed a number of birds and Bothma and Nel (1980) described Aardwolves to have eaten small rodents, carrion, eggs, birds and baby tortoises. However, such instances are likely to be very rare based on the paucity of such reports (Yarnell & MacTavish 2013). A comprehensive review of the species' ecology can be found in Koehler and Richardson (1990) and Anderson (2013).

Ecosystem and cultural services: No specific ecosystem service reported. See below for cultural services.

Use and Trade

There are documented accounts of Aardwolves being consumed as food or used in medicinal practices by indigenous tribes in Africa (Richardson 1984; Koehler & Richardson 1990; Hofer & Mills 1998). It is likely that such uses and practices are limited in the assessment region.

Table 2. Possible net effects of wildlife ranching on the Aardwolf (*Proteles cristata*) and subsequent management recommendations

Net effect	Positive
Data quality	Estimated
Rationale	Overstocked wildlife ranches may increase termite abundance, which would increase Aardwolf abundance.
Management recommendation	Reduce persecution of this species through holistic management techniques.

Table 3. Threats to the Aardwolf (*Proteles cristata*) 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	*5.1.2 Hunting & Collecting Terrestrial Animals* and *5.1.3 Persecution/Control*: Aardwolves are killed intentionally by landowners as they are mistakenly perceived as damage-causing animals; or accidentally (snares, poison) during control operations.	-	-	National	Intentional persecution decreasing; accidental killing stable.
2	*4.1 Roads & Railroads*: motor vehicle collisions contribute to mortality.	EWT unpubl. data	Empirical	National	Increasing with road construction.
3	*1.2 Commercial & Industrial Areas*: habitat loss through expansion of industrial agriculture. Current stress *1.2 Ecosystem Degradation*.	-	-	National	Stable
4	*12.1 Other Threat*: some landowners destroy termitaria, using a plough or poisons, which diminishes Aardwolves' resource base.	-	-	Local	Unknown, probably stable.

Wildlife ranching is generally thought to preserve and potentially expand suitable habitat for this species, since Aardwolves thrive on open and moderately degraded grassland with high termite abundance (for example, Power 2014). Landowner attitudes are also generally positive towards this species, although it is sometimes mistakenly persecuted as a damage-causing animal.

Threats

There are currently no major threats to Aardwolves. In South Africa, the Aardwolf was previously persecuted by some farmers for the mistaken belief that it was a predator of livestock, chickens and eggs (Richardson 1984; Anderson 1988). However, such reports are not substantiated by studies of gut or faecal contents and probably result from mistaken identity with hyaenas or jackals (Anderson 2013), and this perception has subsequently changed. They are, however, the occasional inadvertent victims of problem animal control operations, especially those using gin traps (M.D. Anderson pers. comm. 2015).

Loss of habitat, through urbanisation or expansion of industrial agriculture may have negative impacts. Additionally, some farmers in South Africa destroy termitaria, using a plough or poisons, which diminishes Aardwolves' resource base, and poisons used for locust control may also have negative effects (Anderson 2013).

Although Aardwolves usually avoid roadways, motor vehicle collisions contribute to mortality as well. As they are wide-ranging and not often restricted by fencing, they often cross main roads and are killed. For example, between April 2013 and December 2016, 301 Aardwolves were found as roadkill across South Africa (EWT unpubl. data), which is likely a small fraction of the actual number killed.

As a highly specialised forager, Aardwolves may be vulnerable to future environmental changes, for example, shifts in grassland communities caused by global warming. However, as the ecological outcomes of future temperature fluctuations are uncertain, it is unclear to what extent they will impact Aardwolf populations.

Current habitat trend: Stable. The Aardwolf thrives on moderately degraded grassland, owing to high termite abundances (Power 2014). However, land-use practices that destroy termitaria will locally cause habitat decline for this species.

Conservation

Aardwolves are found in numerous well-managed protected areas across their distribution range, including Kruger National Park (Mpumalanga and Limpopo provinces), Pilanesberg National Park (North West Province), Kgalagadi Transfrontier Park and Tswalu Kalahari Reserve (Northern Cape Province), Mountain Zebra National Park, Addo Elephant National Park and Great Fish River Nature Reserve (Eastern Cape Province). Grassland burning and livestock grazing may increase populations of *Trinervitermes*, which would therefore benefit Aardwolves (Anderson 2013).

Educational campaigns could be put in place to dispel the myth that Aardwolves prey on livestock. In addition, landowners must be able to identify Aardwolves, the areas which they favour and know the general biology of the species, particularly what they eat. Game and nature

Table 4. Conservation interventions for the Aardwolf (*Proteles cristata*) 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	*4.3 Awareness & Communications:* education and awareness to reduce intentional persecution.	-	-	Local	-	-
2	*2.1 Site/Area Management*: correct burning and grazing regimes to sustain termite density.	-	-	Local	-	-

reserves also need to be incorporated into such campaigns, as some managers know very little about Aardwolves.

Recommendations for land managers and practitioners:

- Burn grasslands to maintain termite density.
- Maintain termite density by not destroying termitaria, using a plough or poisons.
- Maintain grazing regimes in open grassland.
- Design and maintain a specific Aardwolf education webpage – so far there is too little information centrally available.

Research priorities:

- Conduct genetic studies to evaluate large-scale population structure and movement across the species' range.
- Conduct genetic research into subspecies validity or even presence of distinct, but so far unrecognised, subspecies or populations.
- Quantify population trends and sizes.
- Evaluate the ecological impacts of Aardwolves in grassland communities, both as predators and prey.
- Determine suitable burning regimes which enhance termite abundance.
- Conduct a detailed and extensive survey specifically designed for Aardwolves in order to get a better representation of the species' finer-scale distribution.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.
- Encourage landowners and ranchers to sustain termites on their farms by maintaining open grassland communities.
- Educate farmers on Aardwolf feeding ecology.

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Data Sources and Quality

Table 5. Information and interpretation qualifiers for the Aardwolf (*Proteles cristata*) assessment

Data sources	Field study (literature, unpublished), indirect information (literature, expert knowledge, unpublished)
Data quality (max)	Inferred
Data quality (min)	Suspected
Uncertainty resolution	Author consensus
Risk tolerance	Evidentiary

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Assessors and Reviewers

J. Low de Vries[1], David Marneweck[1,2], Fredrik Dalerum[1,3,4], Samantha Page-Nicholson[2], Michael G.L. Mills[5†ɬ], Richard Yarnell[6ɬ], Alex Sliwa[7†], Emmanuel Do Linh San[8‡]

[1]University of Pretoria, [2]Endangered Wildlife Trust, [3]University of Oviedo, [4]Stockholm University, [5]Private Wildlife Researcher, [6]Nottingham Trent University, [7]Cologne Zoo, [8]University of Fort Hare

[†]IUCN SSC Cat Specialist Group, [ɬ]IUCN SSC Hyaena Specialist Group, [‡]IUCN SSC Small Carnivore Specialist Group

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

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