Canis adustus – Side-striped Jackal


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Regional Red List status (2016)	Least Concern
National Red List status (2004)	Near Threatened (D1)
Reasons for change	Genuine change: Range expansion
Global Red List status (2014)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

Unlike Black-backed Jackals, Side-Striped Jackals seem to have very little impact on livestock (Sillero-Zubiri et al. 2004) and therefore are not generally perceived as much of a threat by landowners.

Taxonomy

Canis adustus Sundevall 1847

ANIMALIA - CHORDATA - MAMMALIA - CARNIVORA - CANIDAE - *Canis* - *adustus*

Common names: Side-striped Jackal (English), Grysjakkals, Witwasjakkals (Afrikaans), Ikhanka, Igowa, Ipungutjha, Enemida (Ndebele), Pukubje (Sepedi), Phokojwe (Sesotho), Rantalajê, Rantalajwê, Swatê (Setswana), Imphungushe, Inkalwane, Jakalasi (Swati), Hlathi, Mhungubye (Tsonga), Dabe (Venda), Udyakalashe (Xhosa), Impungushe (Zulu)

Taxonomic status: Species

Taxonomic notes: Coetzee (1977) initially listed seven subspecies of *Canis adustus* on the African continent. However, only one of these subspecies occurs in the assessment regions: *C. a. adustus*.

Assessment Rationale

The Side-striped Jackal is listed as Least Concern as it appears to be expanding westwards into the Lowveld of South Africa and thus we infer that the population is increasing or at least stable. The species has been observed in areas where Black-backed Jackals (*Canis mesomelas*) have either been extirpated or have declined in Mpumalanga. Furthermore, this species' dietary breadth and ability to co-exist with humans in modified landscapes suggests that subpopulations are only threatened in extremely modified habitats or with disease epidemics.

The mature population size has been estimated as 1,356 to 8,907 individuals based on a density of 1 breeding pair / 25 km^2 across the area of occupancy (AOO) (16,950 km^2) and extent of occurrence (EOO) (111,335 km^2), respectively. Further density estimates from within the assessment region are necessary to refine this estimate. Additionally, the majority of the population exists within Kruger National Park and there are no systemic threats that could cause rapid population decline: Side-striped Jackals are not perceived by landowners to be as much of a threat as Black-backed Jackals, and thus we suspect persecution rates are lower; they have high reproductive rates which facilitates rapid recovery following crashes; and the expansion of game farms may be increasing natural prey for this species.

Regional population effects: The Side-striped Jackal is an edge of range species, therefore it is expected that there is continuous distribution with the rest of its range. Immigration into the assessment region is possible, as are rescue effects.

Distribution

The Side-striped Jackal is present over much of sub-Saharan Africa. It occurs from Gambia and Senegal through the Sahelian regions of West Africa to the Horn of Africa, and then southwards into southern Africa and the assessment region (Loveridge & Macdonald 2003). In the arid southwest and northwest of the continent the species is generally replaced by the Black-backed Jackal (*Canis mesomelas)* and in North Africa by the African Golden Wolf (*Canis anthus* or *lupaster*) [previously believed to be the Golden Jackal (*Canis aureus*)].

Within the assessment region, it occurs in eastern Limpopo, Mpumalanga and northern KwaZulu-Natal and has an assumed area of occupancy across the whole of Kruger National Park and its adjoining private conservancies (Limpopo and Mpumalanga). It is sparsely spread in the more western areas of the lowveld towards the escarpment. The southern area where this species is most commonly seen is Chrissiesmeer, and the most western record is Belfast. Northeastern KwaZulu-Natal marks the species most southerly occurrence (Rowe-Rowe 1992). Side-striped Jackals are also found in the eastern regions of Swaziland (A. Monadjem pers. comm. 2016), but do not occur in Lesotho.

Over the past two decades the species seems to have been expanding its range westwards into the Lowveld, especially in areas where Black-backed Jackal numbers are suppressed (G. Camacho pers. obs.). For example, there are now records of the species on the edge of the

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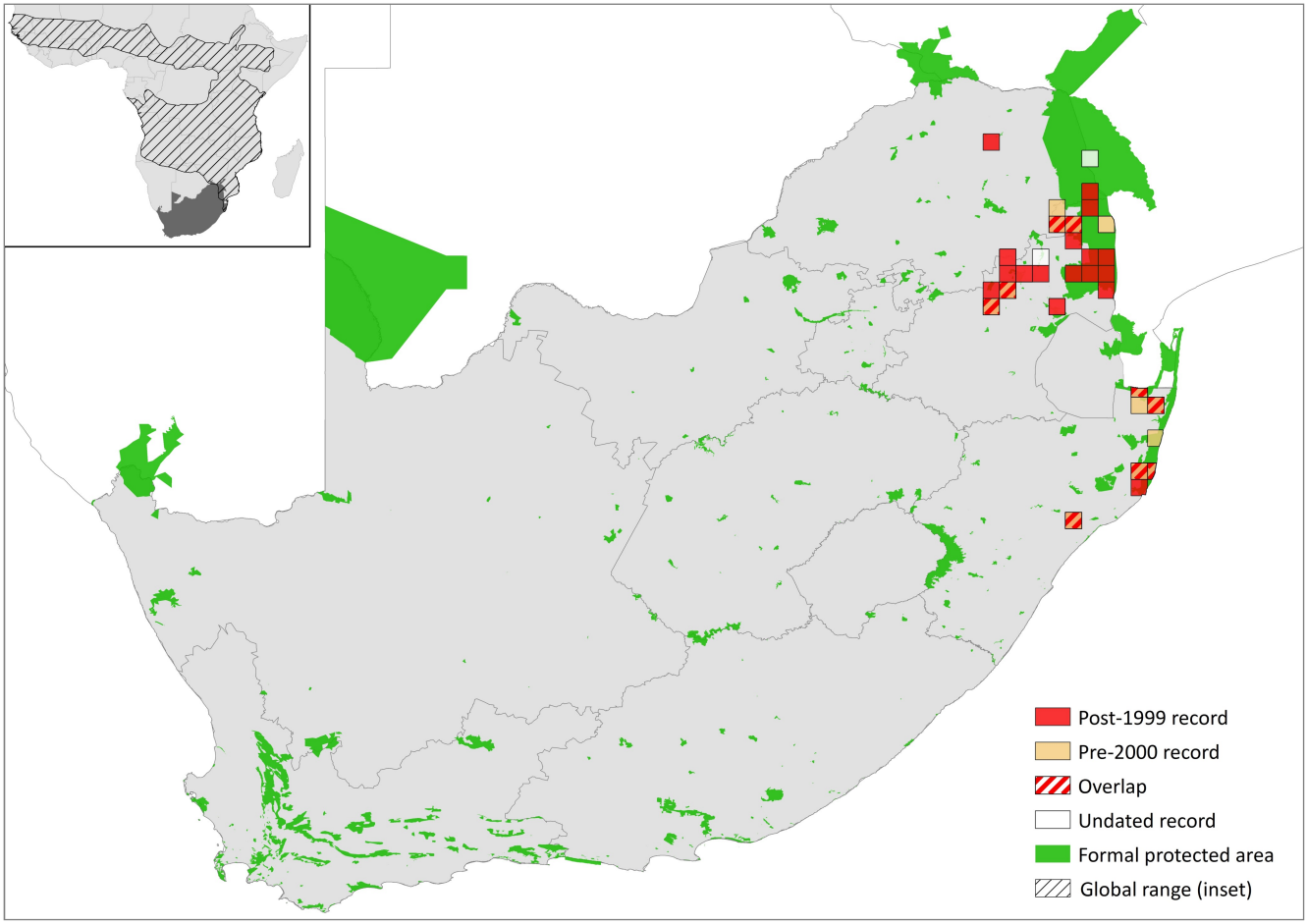

Figure 1. Distribution records for Side-striped Jackal (*Canis adustus*) within the assessment region

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

town of Lydenburg in the western lowveld and records from the Soutpansberg (Limpopo Province). The current extent of occurrence (EOO) is estimated to be 111,335 km^2, which is a 61% increase in EOO compared to 2004 (EOO estimated at 43,525 km^2; Friedmann & Daly 2004). The extent of range expansion is probably over-estimated due to insufficient data in the previous assessment but may indicate a genuine range increase too.

Population

Throughout their range Side-striped Jackals are naturally uncommon. In Mpumalanga they are widely distributed to the central and eastern parts of the province, but based on field observations over the past two decades (G. Camacho pers. obs.), we infer that their numbers total far fewer than that of Black-backed Jackals per unit area. In certain parts of the lowveld (for example, Sabie Sands Private Nature Reserve) there has been a decline, whereas, in Manyeleti Game Reserve, their numbers appear stable (G. Camacho unpubl. data). However, it is likely that the population is at least stable and may even be increasing as evidenced by recent range expansions.

South African estimates of abundance are not available, but, from work undertaken in two diverse habitats in Zimbabwe, densities were estimated at around 1 individual / km^2 in highveld commercial farmland (Rhodes et al. 1998), where rural density is probably highest, and estimates from western Zimbabwe were between 0.5–0.8 individual / km^2 (Macdonald et al. 2004). In Niokolo-Koba National Park (Senegal), however, Side-striped Jackal density was found to be much lower, with only 0.07 individual / km^2 (Sillero-Zubiri et al. 1997).

Seeing that the Lowveld of South Africa possesses similar habitat types to the Zimbabwean studies, both being within the Savannah Biome, it may be reasonable to assume similar density estimates. These yield between 8,475 and 16,950 individuals (using the upper and lower density estimates for all occupied grid cells in Figure 1: 678 km^2 / grid cell x 25 occupied grids; hence 16,950 km^2 x 0.5–1.0 individual / km^2). Of course, not all habitats are suitable and so true density is most likely lower. Friedmann and Daly (2004) estimated a density of 1 breeding pair / 25 km^2 (i.e. 0.08 individual / km^2). Using this density estimate across the entire EOO yields 4,453 breeding pairs and a minimum of 678 breeding pairs for the occupied grid cells. Thus, a more realistic mature population estimate ranges from 1,356 to 8,907 individuals. Additionally, as Side-striped Jackals appear to be expanding westwards into South Africa, we infer that the population is increasing or at least stable.

Table 2. Threats to the Side-striped Jackal (*Canis adustus*) 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	*5.1.3 Persecution/Control:* persecution of Side-striped Jackals by farmers.	-	Anecdotal	Local	Increasing
2	*4.1 Roads & Railroads*: road collisions.	-	Anecdotal	Local	Increasing with road construction.
3	*8.2 Problematic Native Species/Diseases*: Side-striped Jackals vulnerable to diseases such as rabies, canine distemper and mange.	Bingham et al. 1995; Loveridge 1999	Empirical	Local	Stable

Current population trend: Stable, possibly increasing.

Continuing decline in mature individuals: No

Number of mature individuals in population: 1,356–8,907

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Unknown

Severely fragmented: No

Habitats and Ecology

Side-striped Jackals are found in a range of habitats. These include game areas through farmland to towns within the broad-leaved savannah zones, including wooded habitats, bush, abandoned cultivations, marshes and montane habitats up to 2,700 m asl (Ginsberg et al. 1990). Side-striped Jackals favour thickly wooded country and tend to avoid open savannah grasslands (Skinner & Chimimba 2005). They frequently occur near rural dwellings and farm buildings, and penetrate peri-urban and urban areas (Skinner & Chimimba 2005). Throughout their distributional range they are closely associated with well-watered habitats (Skinner & Chimimba 2005). Where Side-striped Jackals occur sympatrically with other canid species, they may avoid competition by ecological segregation (Fuller et al. 1989). In such areas of sympatry, Side-striped Jackals usually occupy areas of denser vegetation, while Black-backed Jackals and African Golden Wolves (previously thought to be Golden Jackals) dominate in the more open areas (Loveridge 1999; Loveridge & Macdonald 2003).

As with other jackal species, Side-striped Jackals are omnivorous and opportunistically change their diet based on local and seasonal food availability (Mills & Hes 1997; Atkinson et al. 2002; Skinner & Chimimba 2005). For example, on commercial farmland in the Zimbabwean highveld, it eats mainly wild fruit (30%) and small (< 1 kg) to medium-sized (> 1 kg) mammals (27% and 23%, respectively), with the remainder of its diet comprising birds, invertebrates, grass and carrion (Atkinson et al. 2002). Skinner and Chimimba (2005) concur that these jackals consume a relatively high proportion of plant materials and that they will also feed on carrion when it is available. In fact, the success of the Side-striped Jackal can be largely attributed to its ability to feed on a variety of food sources (Mills & Hes 1997). Side-striped Jackals also have a more generalized dentition compared to Black-backed Jackals and thus, a broader dietary niche (Skinner & Chimimba 2005).

Side-striped Jackals can occur solitarily, in pairs or in family groups of up to seven individuals (Loveridge & Macdonald 2003). Larger groups are generally made up of a mated, monogamous pair and their young (Skinner & Chimimba 2005). Mating is most commonly observed between June and July. Gestation is approximately 60 days and litters can range between four and six pups which are born between August and November (Skinner & Chimimba 2005). The pair will assist in the rearing of the young pups and will return every 2–3 intervals through the night to feed the pups regurgitated food (Loveridge & Macdonald 2003).

Ecosystem and cultural services: None specifically reported.

Use and Trade

There appears to be little or no trade in Side-striped Jackal products in the assessment region.

Threats

Like other jackal species, the Side-striped Jackal is sometimes persecuted on private land by landowners in an effort to protect their livestock. However, there is very little evidence for extensive predation on domestic stock (Rowe-Rowe 1992; Loveridge & Macdonald 2003; Sillero-Zubiri et al. 2004), or game larger than antelope calves (Loveridge & Macdonald 2003). It is unlikely that persecution has an effect on the overall population, but persecution and snaring could affect local populations (Hoffman 2014). In towns and suburbs, jackals may be run over by vehicles. They are vulnerable to diseases such as canine distemper, mange and rabies (Bingham et al. 1995; Loveridge 1999), for all of which they are known or suspected reservoirs and vectors for domestic dog infection (Rhodes et al. 2008), and therefore are also locally persecuted for this reason.

Current habitat trend: Stable

Conservation

Side-striped Jackals occur in several conservation areas, including Kruger National Park and adjoining private conservancies. The species is not listed on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendices, and it has no legal protection outside protected areas. Currently, there are no specific conservation actions that target this species.

Table 3. Conservation interventions for the Side-striped Jackal (*Canis adustus*) 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*: addressing wrong perceptions and educating landowners on the efficacy and efficiency of holistic management.	-	Anecdotal	-	-	Canis–Caracal Programme (CCP); Predation Management Forum of South Africa (PMF)
2	*2.1 Site/Area Management*: the promotion of the holistic approach to the management of damage-causing animals.	-	Anecdotal	-	-	-

Recommendations for land managers and practitioners:

- Currently, there is no management plan for this species and it does not require one at this stage. We, however, encourage managers and landowners to use a holistic approach when controlling damage-causing animals.

Research priorities:

- Population size and trends (can be promoted by citizen science, especially in areas where densities are low or where very specific research questions are asked).
- Predatory impact of the Side-striped Jackals on game ranches.
- At a national scale, number of Side-striped Jackals killed during predator-control operations.
- Spatial ecology of the species with size of home range in relation to prey density and human activity.
- Effects of sympatric apex predators on the population size, survival and behaviour of Side-striped Jackals.
- Evidence for range expansion.

The following broad research projects or predation management programmes are currently ongoing/in place:

- *Canis–Caracal Programme (CCP)*, run by the African Large Predator Research Unit, UFS: aims at finding solutions to reduce the widespread impact of predation on the livestock industry (national). Contact details: Prof. H.O. de Waal, Department of Animal, Wildlife and Grassland Sciences and African Large Predator Research Unit (ALPRU), PO Box 339, Internal Box 70, University of the Free State, Bloemfontein, 9300, South Africa. Email: dewaalho@ufs.ac.za.
- *Predation Management Information Centre (PMIC)*: collating and analysing reliable information on predation and predation management methods, which will be made available continuously to a management information system (MIS). A team of dedicated staff members handles calls and enquiries. Experts in the team are available to provide advice to farmers. The centre is also responsible for the management of information and resources. Aim: to generate information that can be used to reduce the widespread impact of predation on the livestock industry. A collaborative initiative between the UFS and the PMF. Contact details: Email: PredationMC@ufs.ac.za. Telephone: 051 401 2210 (on week days from 08:00–16:00).
- *Scientific Assessment on the issue of predation on small livestock in South Africa (PredSA)*: a collaborative initiative between the NMMU and the PMF. Contact details: Prof. Graham Kerley, Centre for African Conservation Ecology (ACE), PO Box 77000, Nelson Mandela Metropolitan University, Port Elizabeth, 6031, South Africa. Email: graham.kerley@nmmu.ac.za.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Side-striped Jackal (*Canis adustus*) assessment

Data sources	Field study (literature, unpublished), indirect information (literature, expert knowledge)
Data quality (max)	Estimated
Data quality (min)	Suspected
Uncertainty resolution	Minimum/maximum values
Risk tolerance	Evidentiary

Encouraged citizen actions:

- Report sightings on virtual museum/social media platforms (for example, iSpot and MammalMAP), especially outside protected areas. Jackal sightings are not common, so the use of camera-traps by citizen scientists is encouraged as more data can accrue this way than through direct observations.
- For the farmers and hunters controlling the species, it is crucial that they report all the dead animals (trapped, shot or poisoned), as well as their possible livestock losses due to the species, with photographs and GPS coordinates, to the national Predation Management Information Centre (PMIC; email: PredationMC@ufs.ac.za).

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