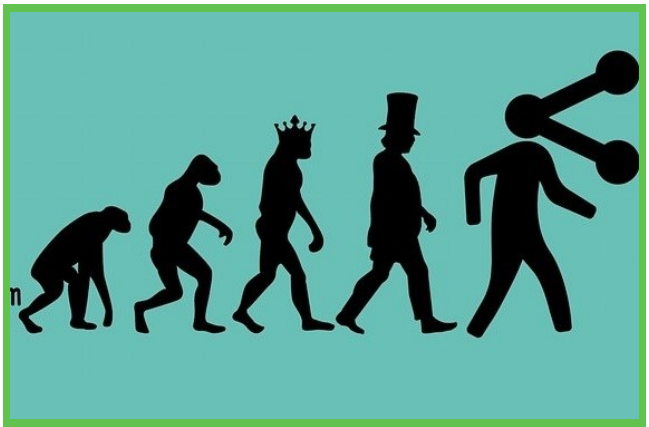
Homo sapiens sapiens – Human



Regional Red List status (2016)	**Least Concern**
National Red List status (2004)	Not Evaluated
Reasons for change	Non-genuine change
Global Red List status (2008)	Least Concern
TOPS listing (NEMBA)	None
CITES listing	None
Endemic	No

Not until we are lost do we begin to understand ourselves (Henry David Thoreau).

Taxonomy

Homo sapiens sapiens Linnaeus 1758

ANIMALIA - CHORDATA - MAMMALIA - PRIMATES - HOMINIDAE - *Homo* - *sapiens* - *sapiens*

Synonyms: *Homo rhodesianaus*

Common names: Human (English)

Taxonomic status: Subspecies

Taxonomic notes: Although Humans express a staggering diversity of skin colour and morphological attributes, gene flow is steady enough to prevent speciation. Kurzweil (2005) estimates that the "singularity", the hypothesis that the rate of technological advancement will lead to runaway artificial intelligence exceeding Human intellectual capacity and control, will occur around the year 2045.

Assessment Rationale

Listed as Least Concern in the assessment region due to our extremely large population size (estimated at 52.98 million in 2013), with a healthy projected growth rate of 2.4% until 2040 (60.94 million). We cover the entire extent of occurrence with an average of 42 individuals / km^2 and 675 individuals / km^2 in Gauteng Province alone. Although political and economic turmoil threaten the stability of our population, it is not expected to lead to regional extinction. The main threat to our species is the threat we pose to other species: the scale and speed at which Humans are transforming landscapes and consuming resources has led to the epoch of the Anthropocene, wherein Humans have become the greatest destructive force on the planet. By undermining the capacity for ecosystems to function and thus provide ecosystem goods and services, Humans may well be increasing our extinction risk in the long run. Humans are very adaptable but, unfortunately for the rest of biodiversity, not very sapient.

Key interventions to curb the destructive nature of Humans, and the demise of all life on Earth, include:

1. Voluntary family-planning practices to liberate women from unintentional reproduction.
2. Behavioural economic practices to curb over-consumerism.
3. A switch in diet to consume less meat, and, within the assessment region, more game meat.
4. Stricter governmental control and regulation of multinational corporations that cause harm to the environment.

We suspect that the world can accommodate all 8.7 million described species (Mora et al. 2011) if Humans were to simply consume less, utilise space more effectively and care more about their ecological communities.

Regional population effects: The rescue effect is unnecessary due to excessive *in situ* growth.

Distribution

Humans have the widest distribution of any terrestrial mammal species, inhabiting every continent on Earth (although there are no permanent settlements on Antarctica). A small group of Humans has been introduced to space, where they inhabit the International Space Station. Thus, Humans are extraordinarily good dispersers, able to colonise all ranges, especially extra-limital habitats.

Humans have a clear preference for wetter areas and coastal areas, and are less common in deserts. Within the assessment region, all biomes are occupied by Human settlements (Figure 1), with, according to the 2011 national census, highest densities in Gauteng Province (675 individuals / km^2) and lowest in the Northern Cape Province (3.1 individuals / km^2). Thus the extent of occurrence is the area of the assessment region (1,219,912 km^2) with an estimated area of occupancy of 29,026 km^2 based on current (2013) Human settlement area (GeoTerraImage 2015). However, a complex feedback loop between culture and landscape means that most landscapes are managed for a cultural-specific aesthetic (for example, Nassauer 1995; Gobster et al. 2007). The implications of which mean there is very little 'pristine' nature left in the world but rather a mosaic of

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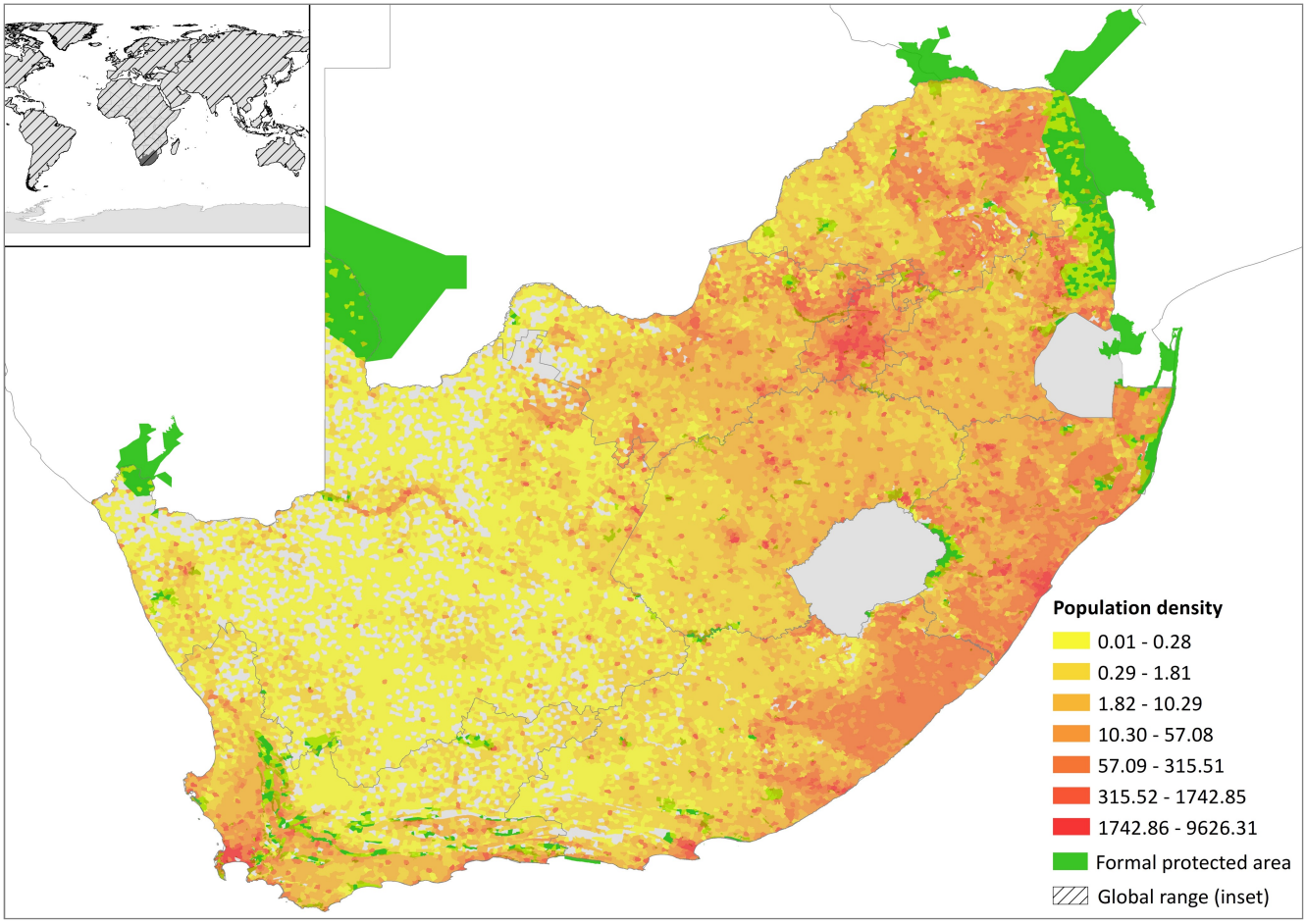

Figure 1. Distribution of Human (*Homo sapiens sapiens*) settlements within the assessment region. Higher densities are indicated by darker shades of red. (Data source: CSIR Built Environment. GAP 2010. https://gap.csir.co.za/gap).

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

'scenes' where nature is used as a narrative device devoid of any transcendent property (Cronon 1996).

In South Africa, such a narrative often takes the form of 'the bush' where educated and affluent individuals exhibit a subtle colonial attitude towards their landscapes, similar to the rugged individualism of the American frontier, and have subsequently fuelled a demand for so-called eco-estates and cordoned-off conservancies, which, unfortunately, may only be fuelling alienation from the 'local' landscape (Ballard & Jones 2011). Similarly, although transfrontier conservation areas are hugely beneficial for biodiversity, their efficacy in unifying cultures and societies remains questionable as the imagery of the quintessential African landscape is rooted in primitivist discourse, which precludes the material development of African communities (Draper et al. 2004).

It is clear that the integration of culture and landscape in South Africa is politically and aesthetically fraught and more work needs to be done to sustain a vision of the land that includes all stakeholders.

Population

The South African population of Humans was estimated at 52.98 million in 2013, which equates to 31.79 million mature individuals using a 60% mature population structure. Similar 2013 population estimates for Swaziland and Lesotho are 1.25 and 2 million respectively. The largest subpopulation exists in Gauteng Province, with an estimated 12.7 million residents. The annual rate of population growth is 1.3% for South Africa (Statistics South Africa 2013). The Human population within the assessment region is thus safely over the 10,000 threshold required to consider application of IUCN Red List Criterion C.

South Africa is one of the most culturally diverse countries in the world, with 11 official languages (Afrikaans, English, Ndebele, Northern Sotho, Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa and Zulu) and four major ethnic groups. Although racially segregated from 1948 to 1994, subpopulations and cultures are in the process of integration. Such high ethnic diversity, and increasing rates of gene flow between groups, should ensure a resilient population in the future. As far as mating systems go, most communities are monogamous, although some individuals remain polygamous.

While most other species suffer the problem of too few individuals, Humans need to reduce their abundance. The global Human population size has increased from about 10 million 10,000 years ago to over 7 billion in 2013. Parallel to this, there has been a major increase in per capita resource use, which significantly compounds the damage caused to biodiversity and makes the species vulnerable to population crash through environmental collapse or disease pandemics (Freedman 2014). Such unprecedented rates of population growth and consumption have led to the delineation of a new epoch: the Anthropocene (Smith & Zeder 2013). This Human-dominated epoch is estimated to have begun around 1800 at the onset of major industrialisation and has led, among other phenomena, to the increase of atmospheric carbon dioxide from preindustrial 270–275 ppm to over 380 ppm currently (Steffen et al. 2011; Zalasiewicz et al. 2011). If we do not achieve planetary stewardship soon, the Human species risks driving the global system into a state that is hostile to life and not easy to engineer solutions (Steffen et al. 2011), especially for the majority of the world's people and species.

Within the assessment region, subpopulations are increasing alongside protected area boundaries (Wittemyer et al. 2008), which may impact negatively on biodiversity. With no economic or social mechanism to provide low-carbon protein or sustainable resources from protected areas to rural communities, segregation and crime will continue to be a problem in the countryside.

Simultaneously, South Africa is becoming increasingly urbanised, with data from the World Bank showing approximately 64% of the population now lives in urban areas and is set to continue increasing. Designing our cities to sustainably cope with increased Human density and ensuring our economy can provide enough jobs for urban migrants, will be a key challenge for government during this century.

Current population trend: Increasing

Continuing decline in mature individuals: No

Number of mature individuals in population: 31.79 million

Number of mature individuals in largest subpopulation: 12.7 million in Gauteng

Number of subpopulations: Unknown

Severely fragmented: No

Habitats and Ecology

Humans are found in a wide variety of habitats, largely thanks to our ability to use technology to adapt to and modify our habitats. The most interesting aspect of the ecology of Humans in the assessment region is our feeding habits. Humans in South Africa eat over 630 marine species, mostly fish, through commercial, subsistence and recreational fisheries (Driver et al. 2012). Although there is danger of over-exploiting these stocks, most stocks can recover with good management. For example, hake (*Merluccius* spp.) shows signs of recovery due to lower catch quotas (Butterworth & Rademeyer 2005). Additionally, the decline of South Coast Rock Lobster (*Palinurus gilchristi*) was arrested in the early 2000s, through coordinated catch and effort reductions, a 30% reduction in the number of active vessels and a reduction in the illegal catch (Driver et al. 2012).

South Africans also eat a lot of meat, and have shown a decrease in the consumption of the staples maize and bread and an increase in our annual consumption of chicken from 6 kg to 27 kg per person (Agricultural Statistics 2008). The South African national cattle herd has increased by about 6 million head since the 1970s and now stands at near 14 million (FAO 2006). Local poultry production has increased significantly over the last 20 years, but has not been able to meet the massive increase in local demand for white meat, and chicken is now one of South Africa's largest agricultural imports.

Around 69% of South Africa is suitable for grazing, and livestock farming is the largest agricultural sector in the country (Driver et al. 2012). Originally cows grazed on grasslands that were not suitable for crops, converting inedible grass into high-value protein. Today this simple truth has been forgotten and 75% of South Africa's cattle spend a third of their lives in feedlots, fed by grains grown on the country's scarce arable land. Not only does this practice produce meat with an unhealthy fatty acid profile, it also has major water implications. Compared to range-fed beef, it takes about 65 times the quantity of surface water to produce feedlot-finished beef in South Africa if the feed crops are irrigated – 860 litres for every 500 g grain-fed steak. A sustainable solution is to reduce our daily consumption of red meat and to source natural, range-fed meat (Machovina et al. 2015). A reduction in beef and chicken consumption could be compensated by an increase in game meat consumption, which, with its low-fat, low-carbon and generally free-range production, could represent an ethical choice for modern consumers (Hoffman & Wiklund 2006; Taylor et al. 2015). Given that 48% of South Africa's wetland ecosystems are Critically Endangered and 9% of its terrestrial systems are Critically Endangered (Driver et al. 2012), consuming less energy-intensive meat will help with both national food security and biodiversity conservation. South African consumers must also be careful to recycle organic waste, as, globally, consumers throw away more than a third of the food they have paid for and taken home (Lundqvist et al. 2008).

South African landscapes are also rich in medicinal plants. An estimated 27 million South Africans (more than half the population) are consumers of traditional medicine, with a significant supporting industry (Driver et al. 2012). Trade in traditional medicinal plants and products were estimated to be worth R2.9 billion per year in 2007, with at least 133,000 people employed in the trade (Driver et al. 2012). The potential to develop new medicinal products for commercial production, drawing on indigenous knowledge of medicinal plants, remains under-explored.

Through globalisation and extensive international trade, South Africans have also increased the number of invasive alien species in our systems: 660 plant species, six mammal species, ten bird species, and at least six reptile, 22 freshwater fish, 26 mollusc and 7 crustacean species, and more than 70 invertebrate species (Driver et al. 2012). Not only do invasive species threaten indigenous biodiversity, they also have serious socio-economic impacts including threats to water security, reduced productivity of rangelands, increased fire risk, and impacts on crop agriculture (Richardson & van Wilgen 2004). In South Africa, billions of rands worth of ecosystem services are lost each year as a result of invasive alien plants, a value that would be higher had no management of these plants been carried out (van Wilgen et al. 2001).

Table 2. Threats to the Human (*Homo sapiens sapiens*) 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. Biological Resource Use:* long-term destruction of natural resources undermining capacity to exist.	Numerous	Estimated, projected, inferred	National	Increasing

Ecosystem and cultural services:

- Disservice: Agents of the Anthropocene.
- Service: Able to act as stewards.

Use and Trade

Slavery has occurred throughout history and, currently, Human trafficking is a blight upon developing communities across the world.

Threats

Although there are no immediate major threats to Humans within the assessment region, the major long-term threat is the undermining of the natural resources on which the entire biotic community depends (Driver et al. 2012). The degradation of water resources is a particular threat, as 48% of our wetlands are Critically Endangered and 25% of our river systems are Critically Endangered (Driver et al. 2012). These trends are set to worsen given the projected effects of climate change (Ziervogel et al. 2014).

Current habitat trend: Although Humans can engineer their habitats and thus live everywhere, they are reducing the capacity for their landscapes to support habitation.

Conservation

At present, no conservation measures are required. However, several interventions are required both globally and within the assessment region to avoid a calamitous collapse of the Earth system and thus threaten the viability of life on Earth:

1. Decrease birth rate through voluntary family planning and education of women (for example, Potts 2014): If every woman in the world had half a child fewer than the status quo, global population would be closer to 7 rather than 17 billion by the end of the century. Voluntary family planning is based on freedom over one's body and represents a genuine increase in quality of life for both women and the family unit.
2. Decrease per capita consumption: The culture of consumerism has instilled a linear sense of identity construction whereby increasing material acquisition is construed as a proxy for increasing happiness and social status (Sanne 2002). However, Human identities should be adaptive, renewable and cyclical so as to find meaning amidst shifting contexts (Child 2011). A key intervention, however possible, is to thus instil an experiential and non-consumptive sense of identity as opposed to a linear and product-based identity. Additionally, social marketing can be used to inculcate a sense of place and thus increase the likelihood that conservation planning will be effective in South Africa (Wilhelm-Rechmann et al. 2014).
3. Decrease meat consumption: The majority of the evidence indicates that reducing meat consumption (Machovina et al. 2015), especially if the meat originates from the industrial food chain (rather than from alternative farms or wildlife ranches), is more resource-efficient and will lead to land-sparing (Leader-Williams 2002).
4. Working for ecosystem services: The Working for Water (WfW) programme was established to both create employment and to clear water catchments of alien vegetation to increase flows. This programme has been a success and should be continued to increase the resilience of our social-ecological landscapes (Turpie et al. 2008).
5. Stricter enforcement and penalties on corporations and polluters/developers will need to be established. This includes more innovative private-public partnerships in generating both social and ecological welfare while undertaking profit-making schemes. Ultimately, a shift in the global economic mode from neo-liberal market capitalism to steady state economics will need to be fostered (Daly 2014).

An evidence base for the interventions above will need to be developed to create a "business case" for their implementation.

Recommendations for land managers and practitioners:

- Alleviate poverty, possibly through using wildlife resources to provide low-cost, low-carbon protein to rural communities, thus enhancing national food security (*sensu* Leader-Williams 2002).
- Promote ethical environmental and social behaviour, possibly through a shame and honour system (Jacquet et al. 2011).
- Promote biodiversity stewardship schemes across South Africa.

Research priorities:

- Collating evidence for effective strategies to promote good stewardship behaviours.

Encouraged citizen actions:

- Become an engaged and moral citizen (Ojala & Lidskog 2011).

Data Sources and Quality

Table 3. Information and interpretation qualifiers for the Human (*Homo sapiens sapiens*) assessment

Data sources	Indirect information (literature)
Data quality (max)	Suspected
Data quality (min)	Suspected
Uncertainty resolution	Tentative consensus
Risk tolerance	Evidentiary

References

Ballard R, Jones GA. 2011. Natural neighbors: Indigenous landscapes and eco-estates in Durban, South Africa. Annals of the Association of American Geographers **101**:131–148.

Butterworth DS, Rademeyer RA. 2005. Sustainable management initiatives for the southern African hake fisheries over recent years. Bulletin of Marine Science **76**:287–320.

Child MF. 2011. Conservation of adaptive self-construction: a flux-centred solution to the paradox of nature preservation. Environmental Values **20**:527–548.

Cronon W. 1996. Uncommon ground: Rethinking the human place in nature. WW Norton & Company, New York, USA.

Daly HE. 2014. From uneconomic growth to a steady-state economy. Edward Elgar Publishing, Cheltenham, UK.

Draper M, Spierenburg M, Wels H. 2004. African dreams of cohesion: Elite pacting and community development in transfrontier conservation areas in Southern Africa. Culture and Organization **10**:341–353.

Driver A, Sink KJ, Nel JN, Holness S, Van Niekerk L, Daniels F, Jonas Z, Majiedt PA, Harris L, Maze K. 2012. National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. Synthesis Report. South African National Biodiversity Institute and Department of Environmental Affairs, Pretoria, South Africa.

Freedman B. 2014. Population Growth and Global Change. Pages 571–577 in Freedman B, editor. Global Environmental Change. Springer Netherlands, Dordrecht, The Netherlands.

GeoTerraImage. 2015. 1990–2013/14 South African National Land-Cover Change. DEA/CARDNO SCPF002: Implementation of Land-Use Maps for South Africa. Project Specific Data Report, Pretoria, South Africa.

Gobster PH, Nassauer JI, Daniel TC, Fry G. 2007. The shared landscape: what does aesthetics have to do with ecology? Landscape Ecology **22**:959–972.

Hoffman LC, Wiklund E. 2006. Game and venison–meat for the modern consumer. Meat Science **74**:197–208.

Jacquet J, Hauert C, Traulsen A, Milinski M. 2011. Shame and honour drive cooperation. Biology Letters:rsbl20110367.

Kurzweil R. 2005. The Singularity is Near: When Humans Transcend Biology. Penguin, USA.

Leader-Williams N. 2002. Animal conservation, carbon and sustainability. Philosophical Transactions of the Royal Society of London. Series A: Mathematical, Physical and Engineering Sciences **360**:1787–1806.

Lundqvist J, de Fraiture C, Molden D, others. 2008. Saving water: from field to fork: curbing losses and wastage in the food chain. Stockholm International Water Institute Stockholm, Sweden.

Machovina B, Feeley KJ, Ripple WJ. 2015. Biodiversity conservation: The key is reducing meat consumption. Science of the Total Environment **536**:419–431.

Mora C, Tittensor DP, Adl S, Simpson AG, Worm B. 2011. How many species are there on Earth and in the ocean? PLoS Biology 9:e1001127.

Nassauer J. 1995. Culture and changing landscape structure. Landscape Ecology **10**:229–237.

Ojala M, Lidskog R. 2011. What lies beneath the surface? A case study of citizens' moral reasoning with regard to biodiversity. Environmental Values **20**:217–237.

Potts M. 2014. Getting family planning and population back on track. Global Health: Science and Practice **2**:145–151.

Richardson DM, van Wilgen BW. 2004. Invasive alien plants in South Africa: how well do we understand the ecological impacts? South African Journal of Science **100**:45–52.

Sanne C. 2002. Willing consumers—or locked-in? Policies for a sustainable consumption. Ecological Economics **42**:273–287.

Smith BD, Zeder MA. 2013. The onset of the Anthropocene. Anthropocene **4**:8–13.

Statistics South Africa. 2013. Mid-year Population Estimates. Statistical Release P0302, Pretoria, South Africa.

Steffen W et al. 2011. The Anthropocene: From global change to planetary stewardship. AMBIO: A Journal of the Human Environment **40**:739–761.

Taylor WA, Lindsey PA, Davies-Mostert HT. 2015. An assessment of the economic, social and conservation value of the wildlife ranching industry and its potential to support the green economy in South Africa. Page 160. Endangered Wildlife Trust, Johannesburg, South Africa.

Turpie JK, Marais C, Blignaut JN. 2008. The working for water programme: Evolution of a payments for ecosystem services mechanism that addresses both poverty and ecosystem service delivery in South Africa. Ecological Economics **65**:788–798.

van Wilgen BW, Richardson DM, Maitre DCL, Marais C, Magadlela D. 2001. The economic consequences of alien plant invasions: examples of impacts and approaches to sustainable management in South Africa. Environment, Development and Sustainability **3**:145–168.

Wilhelm-Rechmann A, Cowling RM, Difford M. 2014. Using social marketing concepts to promote the integration of systematic conservation plans in land-use planning in South Africa. Oryx **48**:71.

Wittemyer G, Elsen P, Bean WT, Burton ACO, Brashares JS. 2008. Accelerated human population growth at protected area edges. Science **321**:123–126.

Zalasiewicz, Jan, Mark Williams, Alan Haywood, and Michael Ellis. "The Anthropocene: A New Epoch of Geological Time?" Philosophical Transactions of the Royal Society of London A: Mathematical, Physical and Engineering Sciences **369**:835–841.

Ziervogel G, New M, Archer van Garderen E, Midgley G, Taylor A, Hamann R, Stuart-Hill S, Myers J, Warburton M. 2014. Climate change impacts and adaptation in South Africa. Wiley Interdisciplinary Reviews: Climate Change **5**:605–620.

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