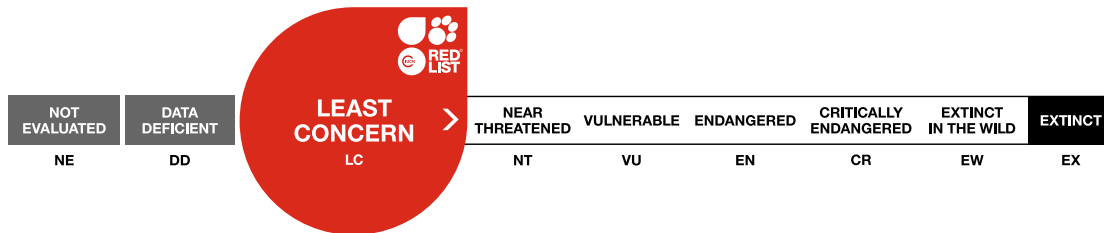




Stigmochelys pardalis, Leopard Tortoise

Amendment version

Assessment by: Baker, P.J., Kabigumila, J., Leuteritz, T., Hofmeyr, M. & Ngwava, J.M.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Reptilia	Testudines	Testudinidae

Scientific Name: *Stigmochelys pardalis* (Bell, 1828)

Synonym(s):

- *Centrochelys pardalis* (Bell, 1828)
- *Geochelone pardalis* ssp. *pardalis* (Bell, 1828)
- *Geochelone pardalis* (Bell, 1828)
- *Geochelone pardalis* Fitzinger, 1835
- *Megachersine pardalis* (Bell 1828)
- *Megachersine pardalis* Hewitt, 1933
- *Psammobates pardalis* (Bell, 1828)
- *Psammobates pardalis* Le, Raxworthy, McCord & Mertz, 2006
- *Testudo pardalis* ssp. *babcocki* Loveridge, 1935
- *Testudo pardalis* Bell, 1828

Common Name(s):

- English: Leopard Tortoise
- French: Tortue léopard
- Spanish; Castilian: Tortuga leopardo
- Afrikaans: Bergskilpad
- Amharic: Eli [el-lee]
- Swahili: Kobe

Taxonomic Source(s):

TTWG [Turtle Taxonomy Working Group: van Dijk, P.P., Iverson, J.B., Rhodin, A.G.J., Shaffer, H.B. and Bour, R.]. 2014. Turtles of the world, 7th edition: annotated checklist of taxonomy, synonymy, distribution with maps, and conservation status. *Chelonian Research Monographs* 5(7): 000.329-479, doi:10.3854/crm.5.000.checklist.v7.2014.

Taxonomic Notes:

There is debate over the existence of two subspecies. Loveridge and Williams (1957) originally recognized two subspecies: *Geochelone pardalis babcocki* (Loveridge, 1935) alongside *Geochelone pardalis pardalis* (Bell, 1828). Genetic analysis by Le *et al.* (2006) supported this view however the geographical origin of the specimens were largely unknown. A recent Africa-wide phylogeographic study (Fritz *et al.* 2010) argued that there is no basis for the recognition of *Stigmochelys p. babcocki*.

The phylogenetic placement of the species remains dynamic: after being placed in *Geochelone* by Loveridge and Williams (1957), it has subsequently been placed in *Stigmochelys* by Gerlach (2001), *Centrochelys* by Vetter (2002), and *Psammobates* by Le *et al.* (2006); consensus appears to have settled on *Stigmochelys*.

Assessment Information

Red List Category & Criteria: Least Concern [ver 3.1](#)

Year Published: 2022

Date Assessed: August 29, 2014

Justification:

Stigmochelys pardalis is a widespread tortoise species that remains common in most places and the threats are not considered to be severe enough to have caused any significant declines so far.

Previously Published Red List Assessments

2015 – Least Concern (LC)

<https://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T163449A1009442.en>

Geographic Range

Range Description:

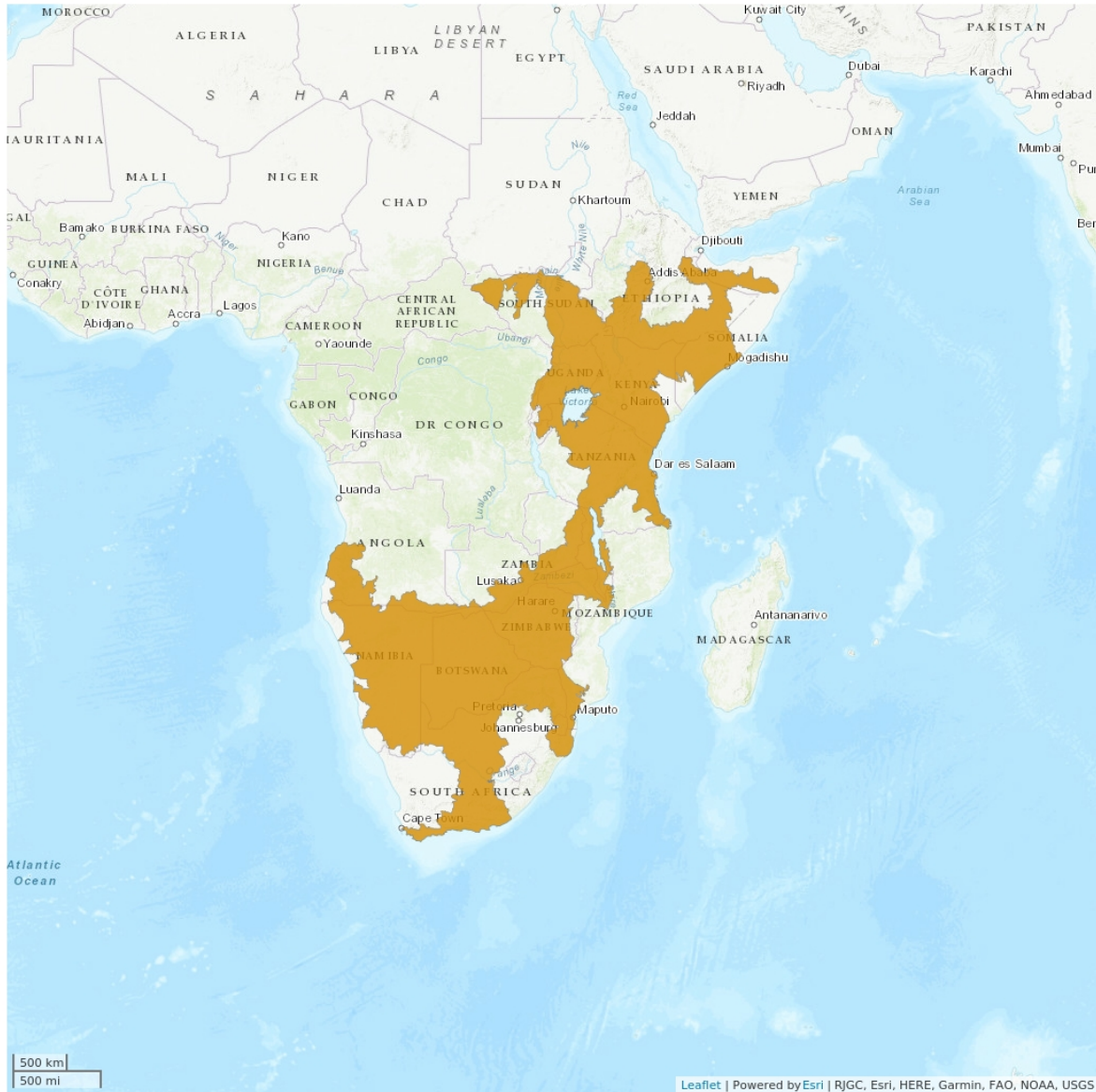
Stigmochelys pardalis occurs widely through the arid and savanna regions of eastern and southern Africa, from South Sudan and Somalia to Namibia and South Africa. The species is generally absent from the humid forest regions of central Africa. (Ernst and Barbour 1989, Iverson 1992, Spawls *et al.* 2002 and Branch 2008).

Country Occurrence:

Native, Extant (resident): Angola; Botswana; Burundi; Congo, The Democratic Republic of the; Djibouti; Eswatini; Ethiopia; Kenya; Malawi; Mozambique; Namibia; Rwanda; Somalia; South Africa; South Sudan; Tanzania, United Republic of; Uganda; Zambia; Zimbabwe

Native, Presence Uncertain: Eritrea

Distribution Map

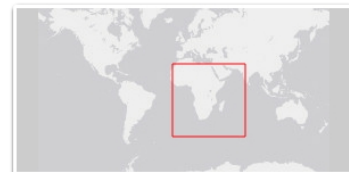
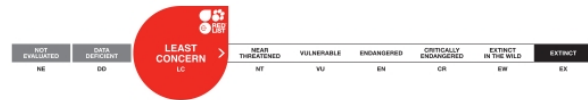


Legend

EXTANT (RESIDENT)

Compiled by:

Chelonian Research Foundation 2014



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

Population

Overall population estimates for this species are unknown but Bonin *et al.* (2006) refer to populations as being “still numerous”. McDougal (2000) reported that tortoises across their range are rare in regions with high human populations (overharvesting) and consequently in areas with low human populations, tortoise populations are “apparently secure”. This species was recorded in consistently high numbers in northern Tanzania (Kabigumila 2001) and is common in most Tanzanian protected areas (J. Kabigumila and Mwaya pers. comm. at workshop August 2013). Boycott and Bourquin (2000) considered this species to be in low densities over its range in South Africa. A study in the Thicket Biome of the Eastern Cape in South Africa found a density of 0.85 tortoises per hectare (Mason *et al.* 2000). A population estimate of 57.6 ± 4.0 tortoises in a 5,500 ha area was obtained in a study done in the semi-arid Nama-Karoo, South Africa and this is a lower density than populations found in more mesic areas (McMaster and Downs 2006). Population numbers in East African savanna habitat may be lower than in the more mesic northern (Ethiopian highlands) and southern (Thicket biome, South Africa) habitats where fire is not a dominant component of ecosystems. Overall there is no evidence of range contractions or local extinctions (Branch 2008). Participants at the Sub-Saharan African tortoise & freshwater turtle red listing workshop (August 2013) considered that the species is generally common in southern Africa, where it is subject to a variety of threats, but not at levels where impacts on populations have been documented.

Current Population Trend: Unknown

Habitat and Ecology (see Appendix for additional information)

Habitat varies greatly over this species' large range, and Leopard Tortoises utilize the most habitat types of any sub-Saharan species (Branch, 2008). Habitats include karroid fynbos in the south to mesic thicket, arid and mesic savanna, thorn scrub, and grassland as you move northeastward in the range. Leopard Tortoises can be found from sea-level to about 2,900 m altitude (Hailey and Coulson 1995, Mason *et al.* 2000, Malonza *et al.* 2006, Branch, 2008).

Diet includes a wide variety of plants such as seasonal annuals, grasses, succulents and forbs (parts include leaves, flowers, seeds). Occasional ingestion of dried carcass, bone, ash, or faeces has also been observed (Milton 1992, Rall and Fairall 1993, Kabigumila 2001, Busson and Loehr 2011). *Stigmochelys* is known to be an important seed disperser in Addo Elephant National Park, where its biomass exceeds that of most other herbivores. As it does not “chew cud” like most mammalian herbivores, seeds pass intact through the digestive tract. It is therefore of greater significance as a seed-disperser than ungulates (Milton 1992, Mason 1995).

Size tends to vary geographically with larger individuals in mesic habitat at both the northern and southern extremes of its range (individuals known to reach up to 70 cm). In the central savanna of East Africa animals are around 30-45 cm (Lambert 1995, Branch 2008, Fritz *et al.* 2010). Females grow faster than males, females are heavier, and tortoises reach sexual maturity at about 12 to 15 years. Tortoise are known to live from 30 to 75 years in captivity (Boycott and Bourquin 2000, Branch 2008). Nesting takes place from May to June or from October to November depending on latitude. Female Leopard Tortoises lay 6-15 (exceptionally up to 30) spherical hard-shelled eggs and may have multiple clutches (3-7) during a breeding season. Incubation period varies from 8-15 months depending on temperatures (Bonin *et al.* 2006, Branch 2008).

Natural predators on young/eggs include monitor lizards, snakes, honey badgers, jackals, mongoose, eagles, and crows; however, adult tortoises have also been reported to be preyed upon by lions in Kruger National Park and hyena in Bwabwata National Park (Broadley 1989, Bonin *et al.* 2006, Branch, 2008, Hanssen and Cunningham, 2012).

Systems: Terrestrial

Use and Trade

Leopard Tortoises are infrequently eaten by some ethnic groups (such as in Zambia) within its range (Lambert 1995, Bonin 2006). In Somalia Leopard Tortoises are collected mainly for medicinal purposes and considered as aphrodisiac and the turtle-derived medicines are specially used to treat lung diseases such as tuberculosis, asthma and cough. Small Leopard Tortoises are occasionally killed and eaten by pastoralists in southern Ethiopia and their empty shells are used as cowbells (P.J. Baker pers. comm. 2013). The Ikoma tribe of Northern Tanzania considers the leopard tortoise as a totem animal, and the scutes have medicinal value (Kabigumila 1998). An increasing demand of tortoise bones in China and Southeast Asia may apparently encourage the collection of leopard tortoises in Somalia. (Amir 2007).

Trade was reported in Mto wa Mbu (Northern Tanzania), however, most of the local people who collect tortoises did it as an alternative source to supplement their income. Animals caught were sold to dealers from Arusha, and only occasionally to local middlemen (Kabigumila 1998). Some animals are understood to be traded from Ethiopia to East Africa and onwards into the global trade (Participants, Sub-Saharan African tortoise & freshwater turtle red listing workshop, August 2013).

Between 1977 and 2011 – 339,813 live tortoises were in international trade (49% Zambia exports; 14% Mozambique Exports; 12% El Salvador exports; 11% Tanzania exports) the majority (80%) were declared as captive bred. That demand has steadily grown from less than 30 animals per year in 1977 to more than 30,000 per year by 2011. The highest importing countries are Japan, Hong Kong, U.S., Netherlands, and Spain (UNEP-WCMC 2013).

Most exports from Kenya and Tanzania originate from captive breeding operations, with little collection from the wild recorded, and it is understood that the breeding operations relieve collection pressure on the wild population.

Threats (see Appendix for additional information)

Declines in some areas of East Africa have been attributed to unsustainable harvest for the pet trade. Some tortoises in East Africa (Kenya, Tanzania) have also been known to be killed by frequent fires common in this region, although the species is perceived to hold stable overall. In South Sudan, habitat burning impacts may be sufficiently widespread to have impacted populations.

In South Africa deaths as the result of electric fences meant to keep out mammalian predators can be a significant factor (Participants, Sub-Saharan African tortoise & freshwater turtle red listing workshop, August 2013).

Concern has been expressed about the potential of collection of (mainly) adults for human consumption, with the influx of foreign contractors and purchasing power associated with large-scale

development projects, as well as improved transport logistics and economic activity between Africa and East Asia in recent years. While no significant impacts on *Stigmochelys pardalis* have been recorded to date, analogy with Asian tortoise populations indicates that the possibility of severe and sudden impact should not be ignored.

Conservation Actions (see Appendix for additional information)

The Leopard Tortoise has been listed in Appendix II of CITES since 1975. Tanzania has had a zero annual export quota for specimens removed from the wild and traded for primarily commercial purposes since 2009, and the Congo (DRC) has been under a trade suspension for this species since 2001 (CITES, Notification 2013/013). In 2001 the USDA enacted a prohibition on the importation of African land tortoises including *Stigmochelys pardalis* into the United States because of the risk posed by Heartwater disease, an acute, infectious disease carried by ticks and affecting ruminants, to the US livestock industry (Smith and Redding, 2001). Leopard Tortoises occur in multiple protected areas throughout the range including Awash National Park (NP), Mago NP, Nechisar NP, and Omo NP in Ethiopia (Fife 2012; Baker pers. comm. 2013); Tana River Primate National Reserve in Kenya (Malonza *et al.* 2006); Bwabwata NP in Namibia (Hanssen and Cunningham 2012); Kruger NP, Bontebok NP, Karoo NP, Addo Elephant Park, Mountain Zebra NP, and the Franklin Nature Reserve in South Africa (Grobler 1982, Broadley 1989, Bonin 2006, Douglas and Rall 2006); Arusha NP, Serengeti NP, Lake Manyara NP, and Tarangire NP in Tanzania (Kabigumila 1995, Razzetti and Andekia Msuya 2002); and Sengwa Wildlife Research Area in Zimbabwe (Hailey and Coulson 1995).

Human traditional beliefs offer protection against local exploitation in parts of its range, as this tortoise is often respected in local traditions and generally left unharmed when found (Spawls *et al.* 2002).

This species is readily bred in captivity (Mislin 2006, Velensky and Velenska 2006, Fife 2012). In Tanzania, the species is farmed to supply the legal export trade (Kabigumila 1998). However, it was found on occasion that the farms were not abiding by quota regulations and the tortoises did not have adequate enclosures, diet, veterinary attention and clean water, resulting in a reproductive output that was poor and likely unable to keep up with the trade demand (Kabigumila 1998).

Trade in Leopard Tortoises needs to be monitored carefully, particularly of larger, adult animals, in view of potential consumption trade to urban areas and to East Asia.

More genetic work is recommended to identify conservation units; recent work (Fritz *et al.* 2010) identified seven genetic lineages, of which five occur in South Africa, with some likely endemic to the country.

Credits

Assessor(s): Baker, P.J., Kabigumila, J., Leuteritz, T., Hofmeyr, M. & Ngwava, J.M.

Reviewer(s): van Dijk, P.P. & Rhodin, A.G.J.

Authority/Authorities: IUCN SSC Tortoise and Freshwater Turtle Specialist Group

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Appendix

Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
2. Savanna -> 2.1. Savanna - Dry	Resident	Suitable	-
3. Shrubland -> 3.5. Shrubland - Subtropical/Tropical Dry	Resident	Suitable	-
3. Shrubland -> 3.6. Shrubland - Subtropical/Tropical Moist	Resident	Suitable	-
3. Shrubland -> 3.7. Shrubland - Subtropical/Tropical High Altitude	Resident	Suitable	-
3. Shrubland -> 3.8. Shrubland - Mediterranean-type Shrubby Vegetation	Resident	Suitable	-

Use and Trade

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

End Use	Local	National	International
13. Pets/display animals, horticulture	No	Yes	Yes
16. Establishing ex-situ production *	No	No	No

Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity	Impact Score
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.4. Scale Unknown/Unrecorded	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
7. Natural system modifications -> 7.1. Fire & fire suppression -> 7.1.1. Increase in fire frequency/intensity	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		

Conservation Actions in Place

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: Yes, over part of range
Area based regional management plan: No
Occurs in at least one protected area: Yes
In-place education
Included in international legislation: Yes
Subject to any international management / trade controls: Yes

Conservation Actions Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action Needed
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management
3. Species management -> 3.1. Species management -> 3.1.2. Trade management
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.1. International level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level

Research Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Research Needed
1. Research -> 1.1. Taxonomy
2. Conservation Planning -> 2.3. Harvest & Trade Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.3. Trade trends

Additional Data Fields

Distribution
Lower elevation limit (m): 0
Upper elevation limit (m): 2,900
Population
Extreme fluctuations: No
Population severely fragmented: No
Habitats and Ecology
Movement patterns: Not a Migrant

Amendment

Amendment reason: This amended assessment was created to add the range map which was missing from the last published assessment.

The IUCN Red List Partnership



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