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Psammobates tentorius ssp. trimeni, Western Tent Tortoise

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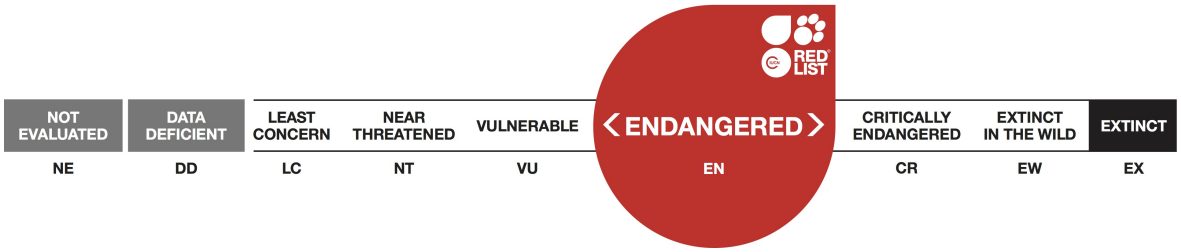

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Reptilia	Testudines	Testudinidae

Taxon Name: *Psammobates tentorius ssp. trimeni* (Boulenger, 1886)

Synonym(s):

- *Chersinella trimeni* (Boulenger, 1886)
- *Testudo trimeni* Boulenger, 1886

Parent Species: See *Psammobates tentorius*

Common Name(s):

- English: Western Tent Tortoise

Taxonomic Source(s):

TTWG (Turtle Taxonomy Working Group: Rhodin, A.G.J., Iverson, J.B., Bour, R. Fritz, U., Georges, A., Shaffer, H.B. and van Dijk, P.P.). 2017. Turtles of the World: Annotated Checklist and Atlas of Taxonomy, Synonymy, Distribution, and Conservation Status (8th Ed.). In: Rhodin, A.G.J., Iverson, J.B., van Dijk, P.P., Saumure, R.A., Buhlmann, K.A., Pritchard, P.C.H., and Mittermeier, R.A. (eds), *Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group*, pp. 1-292. Chelonian Research Monographs.

Taxonomic Notes:

A recent molecular study (mitochondrial and nuclear DNA) of southern African tortoise radiations indicated that *Psammobates tentorius* consists of four deeply divergent lineages, including a distinctive *P. t. trimeni* and two lineages within *P. t. verroxii* (Hofmeyr *et al*. 2017).

Assessment Information

Red List Category & Criteria: Endangered A4ce ver 3.1

Year Published: 2018

Date Assessed: June 13, 2017

Justification:

The range of *Psammobates tentorius trimeni* is small and restricted to a few vegetation units of the western Succulent Karoo, which are under continued pressure. A combined soil and veld degradation index (Hoffman *et al*. 1999) showed moderate degradation for the taxon's habitat in the Northern Cape. Bourne *et al*. (2012) indicated that the Namaqua district (western Northern Cape) experiences multiple impacts from overgrazing, destructive or illegal mining, and unsustainable land use involving ploughing of natural veld for fodder cropping, uncontrolled harvesting of natural products, and irresponsible tourism activities in sensitive areas. The same processes occur in the taxon's southern habitat in the Western Cape Province, which is severely impacted by cultivation and land degradation (Rouget *et al*. 2004). Unfortunately, habitat degradation and destruction of the taxon's sensitive habitat is continuing

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(Schoeman *et al*. 2013) and may escalate. Predictions are that climate change will bring an increase in temperature and a decrease in rainfall, with increased aridity in the western Succulent Karoo (Bourne *et al*. 2012). Such changes would increase grazing pressure in this region, which is expected to affect the status of *P. t. trimeni* adversely. It is estimated that >30% of the taxon's habitat has been destroyed over the past 40 years (1.5 generations) and that future changes in habitat over the next 40 years (1.5 generations) will be at least of equal proportions, with a total reduction in population size in excess of 50%. Available information indicates that Pied Crow *(Corvus albus)* predation on this taxon is increasingly severe, with anthropogenic facilitation having led to increased abundance of this species in western South Africa over the past three decades (Cunningham *et al*. 2016), making increased predation on *P. t. trimeni* highly likely, especially in conjunction with the current (and predicted prevailing) South African drought. Consequently, *P. t. trimeni* is assessed to be Endangered under criterion A4ce. This taxon was also considered Endangered at a Tortoise and Freshwater Turtle Specialist Group Red Listing workshop in 2013 (TTWG 2014, 2017).

Geographic Range

Range Description:

The distribution of *Psammobates tentorius trimeni* is concentrated in the Namaqualand Sandveld and Richtersveld Bioregions and extends peripherally into the Namaqualand Hardeveld Bioregion. Genetic evaluation has shown that local populations of the northwestern localities (Kamiesberg Mountains) belong to *P. t. tentorius* instead of their traditional assignment to *P. t. trimeni*. Although *P. t. trimeni* is on record as present in southwestern Namibia (Griffin 2003), its occurrence there has not been verified despite extensive sampling for genetic studies (M.D. Hofmeyr pers. obs.).

Country Occurrence:

Native: South Africa (Northern Cape Province, Western Cape)

Population

Although the species *Psammobates tentorius* is widespread, population density is generally low throughout its range (Branch 2008), and populations appear to be declining slowly. Populations of the restricted subspecies *P. t. trimeni* appear to be declining more rapidly than the other subspecies (M.D. Hofmeyr pers. obs.) and are under greater threat.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Psammobates tentorius occurs in arid regions under varying temperature regimes, from sea level to at least 1,500 m. *Psammobates t. trimeni* is restricted to a winter-rainfall region dominated by dwarf succulent shrubs and annuals. Branch (2008) reported that *P. tentorius* feeds in early morning or late afternoon on grasses (*Stipagrostis* sp.), annuals (*Oxalis* sp., *Gazania krebsiana*), and succulents (*Anacampseros* sp.). Females reach 14.5 cm carapace length (CL) and 400 grams, males attain 10 cm CL and 170 grams (Boycott and Bourquin 2000); generation time is estimated at 25-30 years by analogy with similar dryland tortoises. Although the reproduction of *P. t. trimeni* has not been studied, anecdotal reports indicate that females produce one egg at a time (Boycott and Bourquin 2000).

Systems: Terrestrial

Use and Trade

Because of its small size, *Psammobates tentorius* is not a significant food source for humans, but like *P. oculifer* (Cunningham 2006), historically, its shell may have been used by indigenous peoples as decorative snuff containers or storage boxes for personal effects. Between 1981 and 2015, 259 live *P. tentorius* (subspecies not stated; some may have been *P. t. trimeni*) were recorded in the international trade (96% South African exports) with the majority (72%) being declared as captive bred. The main importing countries were Japan, U.S., and Czech Republic. This species fares poorly in captivity (Branch 1989).

Threats (see Appendix for additional information)

The range of *Psammobates tentorius trimeni* is the smallest of all *P. tentorius* subspecies and more restricted than initially thought after genetic results showed that it does not occur in the eastern parts of Namaqualand (M.D. Hofmeyr and S.R. Daniels unpubl. data). Habitat in the distribution of *P. t. trimeni* is threatened by mining activities (e.g., for diamonds, sand, copper, granite, sandstone, and gypsum), the inevitable expansion of human settlements in such areas, and overgrazing by livestock. Rouget *et al.* (2004) ranked the Succulent Karoo second highest for mining pressure of the nine terrestrial priority areas identified in South Africa. A combined soil and vegetation degradation index placed the western Northern Cape in the second highest degradation category (Hoffman *et al*. 1999). Latest climate change predictions show that although the western Succulent Karoo will remain relatively stable, the coast-hugging habitat of *P. t. trimeni* will be impacted under all climate change scenarios (Driver *et al*. 2012).

Additional known threats for *P. tentorius* include road mortality, veld fires, and electrocution by livestock/game fences (Cunningham and Strauss 2005, Cunningham 2006) as well as predation by small carnivores, eagles, honey badgers, goshawks, crows, monitor lizards, and ostriches (Branch 1989, Malan

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and Branch 1992, Lloyd and Stadler 1998, Visagie 2011). Available information indicates that Pied Crow *(Corvus albus)* predation on this taxon is increasingly severe, with anthropogenic facilitation of Pied Crows having led to increased abundance in western South Africa over the past three decades (Cunningham *et al*. 2016), making increased predation on *P. t. trimeni* highly likely. Known levels of collection and trade are low, but illegal collection is still likely for *P. t. trimeni*, which is the most colourful subspecies (Cunningham 2006, Branch 2008). Overall, threats facing *P. t. trimeni* are high.

Conservation Actions **(see Appendix for additional information)**

Psammobates tentorius is included in CITES Appendix II and is protected in South Africa by provincial nature conservation ordinances and biodiversity laws at regional level. In Namibia, the Tent Tortoise is protected under the 1975 Nature Conservation Ordinance and the recent Parks and Wildlife Management Act as Vulnerable, Protected Game, and Specially Protected (Cunningham 2006). Tent Tortoises are known to occur in the Karoo National Park, Camdeboo National Park (formerly Karoo Nature Reserve), Anysberg Nature Reserve, Goegap Nature Reserve, Tankwa Karoo National Park, Akkerendam Nature Reserve, Tierberg Karoo Research Centre, and Augrabies Falls National Park in South Africa (Branch 1989, Boycott and Bourquin 2000, Griffin 2003, Leuteritz and Hofmeyr 2007). Conservation measures to protect the habitat of *P. t. trimeni* are essential, as well as basic research on the taxon's demographics, ecology, status, and impacts of subsidised predators and other threats.

Credits

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External Resources

For Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

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

Habitat	Season	Suitability	Major Importance?
3. Shrubland -> 3.5. Shrubland - Subtropical/Tropical Dry	Resident	Suitable	-
3. Shrubland -> 3.8. Shrubland - Mediterranean-type Shrubby Vegetation	Resident	Suitable	-

Threats

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

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.4. Scale Unknown/Unrecorded	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
3. Energy production & mining -> 3.2. Mining & quarrying	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Unknown	Slow, significant declines	Unknown
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
8. Invasive and other problematic species, genes & diseases -> 8.2. Problematic native species/diseases -> 8.2.2. Named species (Corvus albus)	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: No
Systematic monitoring scheme: No
In-Place Land/Water Protection and Management

Conservation Actions in Place
Conservation sites identified: No
Occur in at least one PA: Yes
In-Place Species Management
Harvest management plan: No
Successfully reintroduced or introduced beningly: No
Subject to ex-situ conservation: No
In-Place Education
Subject to recent education and awareness programmes: No
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 Actions Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.2. Invasive/problematic species control
4. Education & awareness -> 4.1. Formal education

Research Needed

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

Research Needed
1. Research -> 1.1. Taxonomy
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Continuing decline in area of occupancy (AOO): Yes

Distribution
Estimated extent of occurrence (EOO) (km²): 27778
Continuing decline in extent of occurrence (EOO): Yes
Lower elevation limit (m): 0
Upper elevation limit (m): 1500
Population
Continuing decline of mature individuals: Yes
Population severely fragmented: Yes
Continuing decline in subpopulations: Yes
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 25-30
Movement patterns: Not a Migrant

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