Namibia Scientific Society
Science for Society

September 22nd 2026

Namibia's Iconic Carnivores - Cheetah Ecology, Innovative Field Monitoing, and Future Conservation Challenges



Dr. Tim Hofmann
Conservation Scientist
Cheetah Conservation Fund

Cheetah CONSERVATION FUND

A little bit about myself

Dr. Tim Hofmann - Conservation Scientist & Canine Specialist

- From Wetzlar, Germany
- Field deployments in:
  - Germany (European Lynx)
  - North Macedonia (Balkan Lynx)
  - Indonesia (Coral Reefs and Bird Communities)
  - Peru (Bird Communities)
  - Mongolia (Forest Ecosystems)
  - Angola (Carnivore Communities)
- Since 2018 head of the detection dog project at the Cheetah Conservation Fund (CCF) in Namibia
- Involved in all Conservation Canines, Ecological Research & Human-Wildlife Conflict Mitigation



My dogs Enyakwa, Gamena, and Ole
(Credit - Dearbhaile Ní Dhubhghaill)

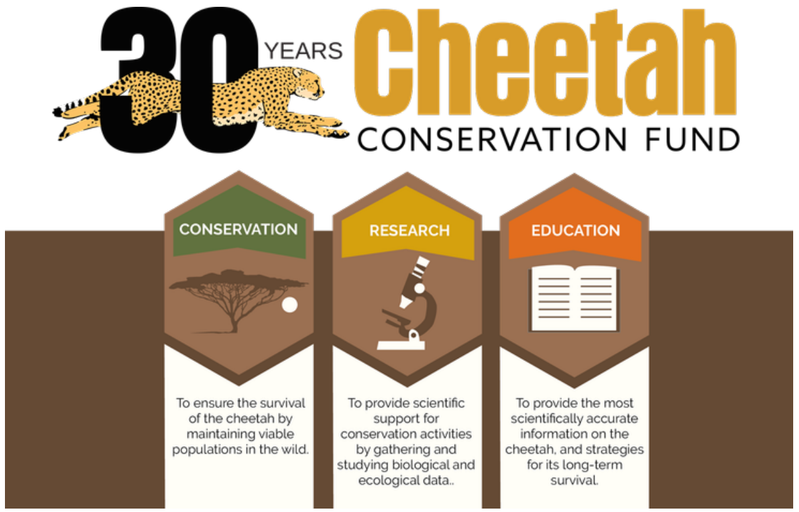
Cheetah CONSERVATION FUND

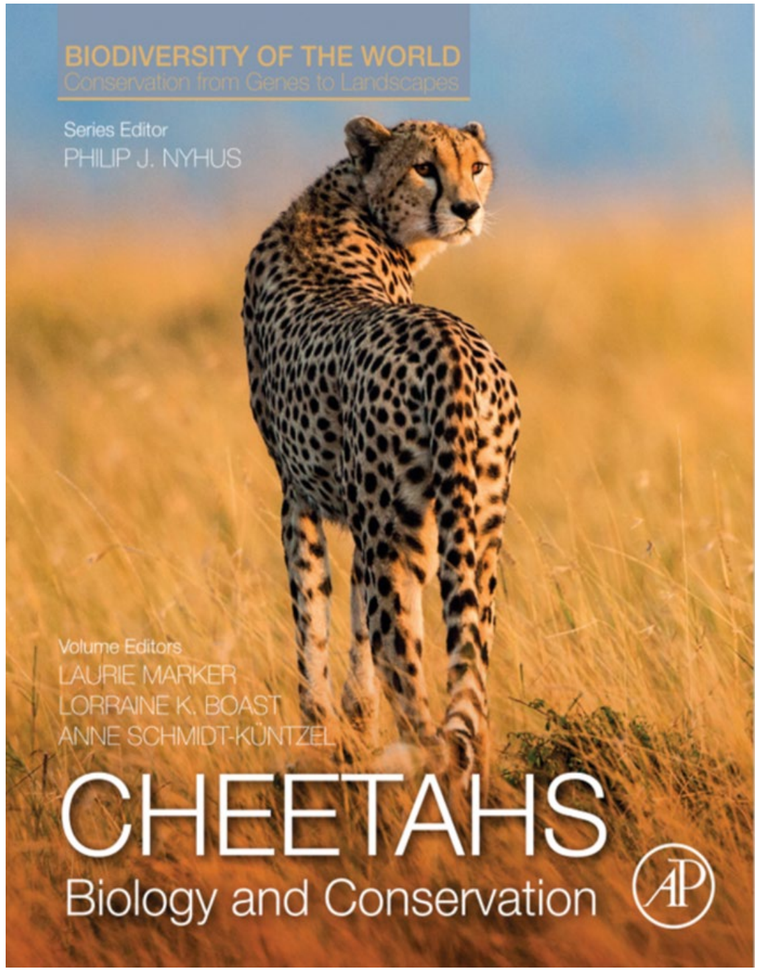
Cheetah Conservation Fund (CCF)

Mission Statement

"To be the internationally recognized centre of excellence in the conservation of cheetahs and their ecosystems.

CCF will work with all stakeholders to develop best practices in research, education and land use to benefit all species, including people."





The History of Cheetah Conservation Fund



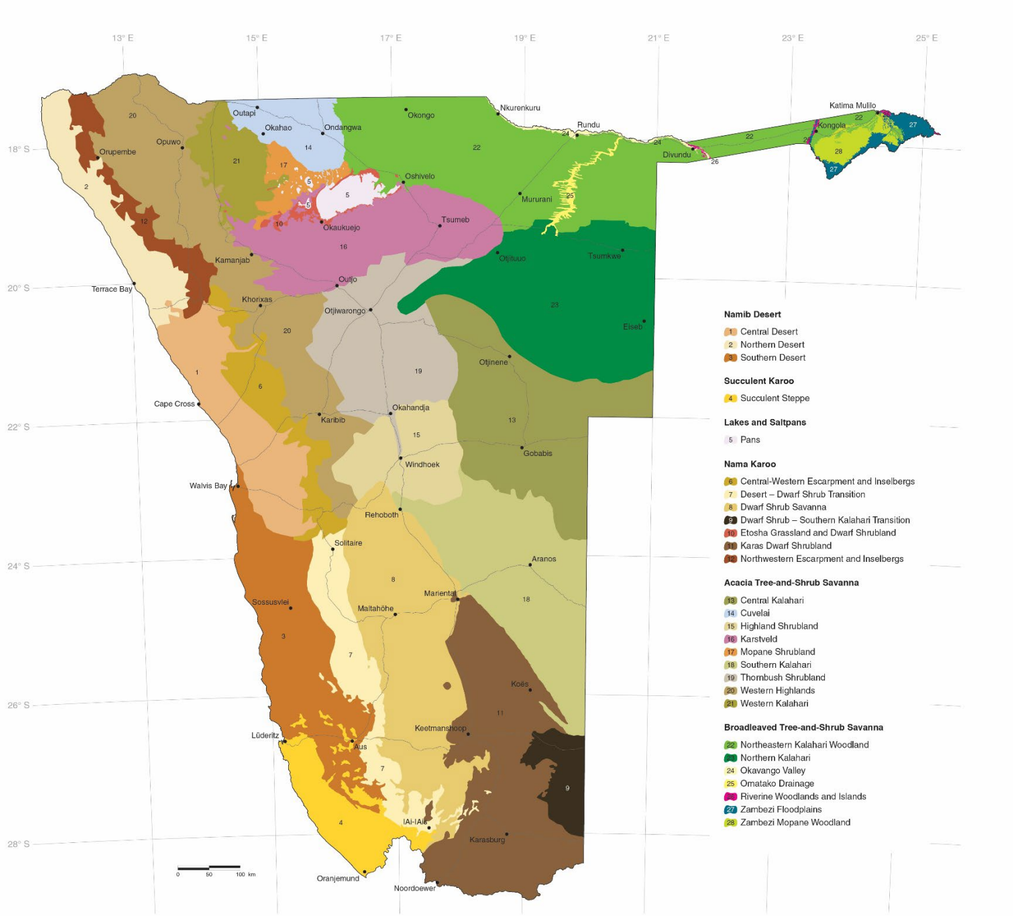
- **1974** – Dr. Laurie Marker joined Wildlife Safari (USA) and began working with cheetahs
- **1977** – Conducted her first cheetah research in Namibia with the ambassador cheetah Khayam
- **1980s** – Contributed to pioneering research on cheetah genetics, reproduction, and captive breeding
- **1990** – Founded the Cheetah Conservation Fund (CCF) in Namibia
- **Today** – CCF is a global leader in cheetah conservation, research, education, and community-based conservation with two centers:
  - The International Research and Education Centre in Otjiwarongo, Namibia
  - The Cheetah Rescue and Conservation Centre in Somaliland

Cheetah
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Diversity of Namibia

...Namibia is a country of infinite opportunities and diversity, from its topography and people to its culture and wildlife. Yet, despite the variety in its offerings throughout the various regions, Namibia remains one of the most beautiful countries worldwide, offering travellers a kaleidoscope of activities and adventures to enjoy during their stay in the land of contrasts....

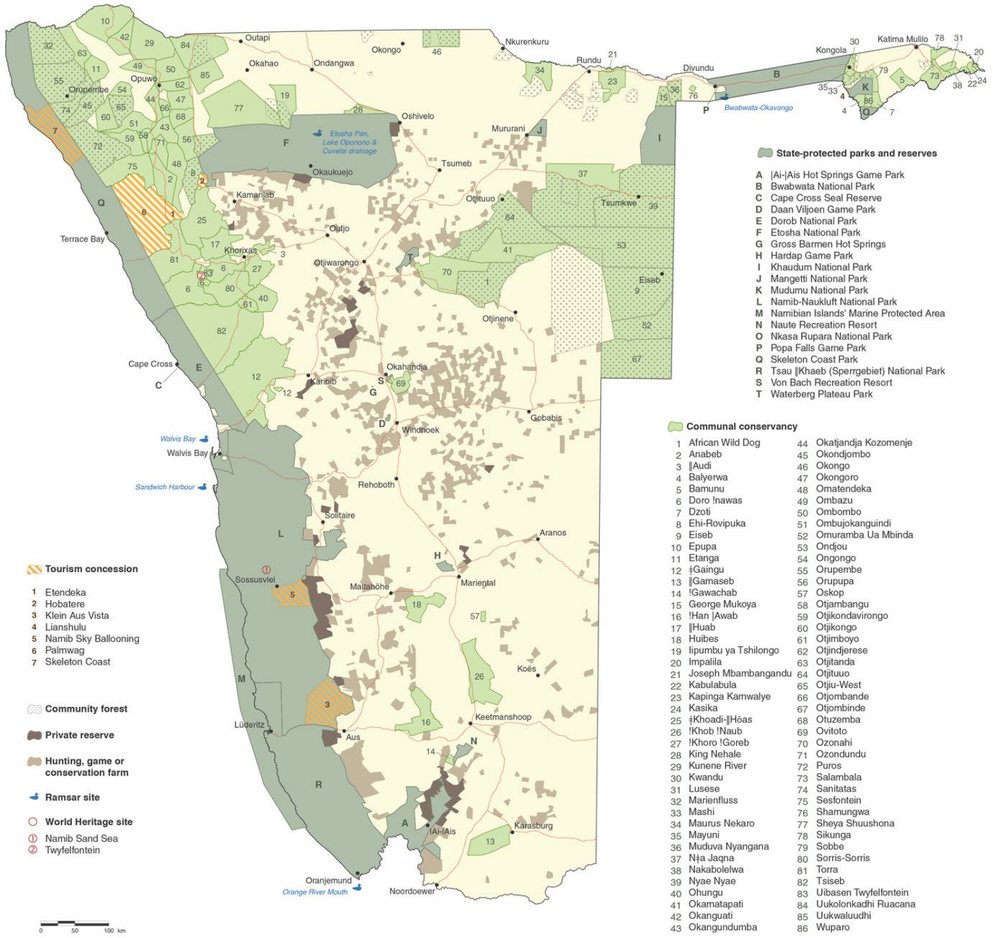
(https://visitnamibia.com.na/namibia-at-a-glance/)

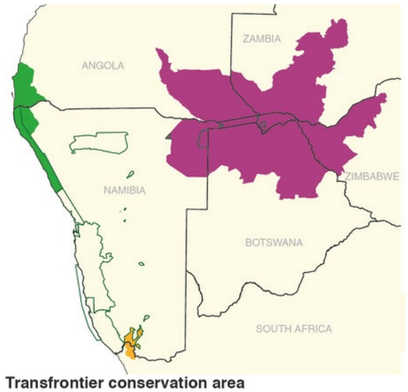


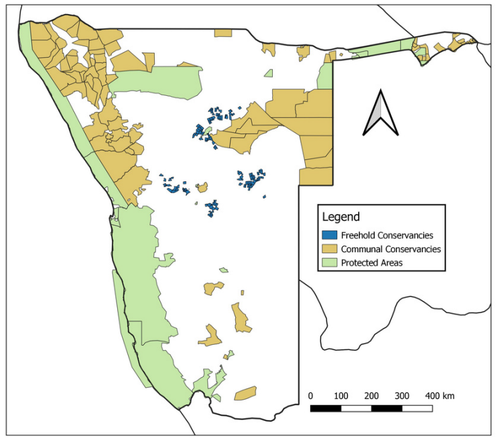
https://atlasofnamibia.online/sites/default/files/inline-images/Atlas_ch_06_02.jpg

Cheetah CONSERVATION FUND

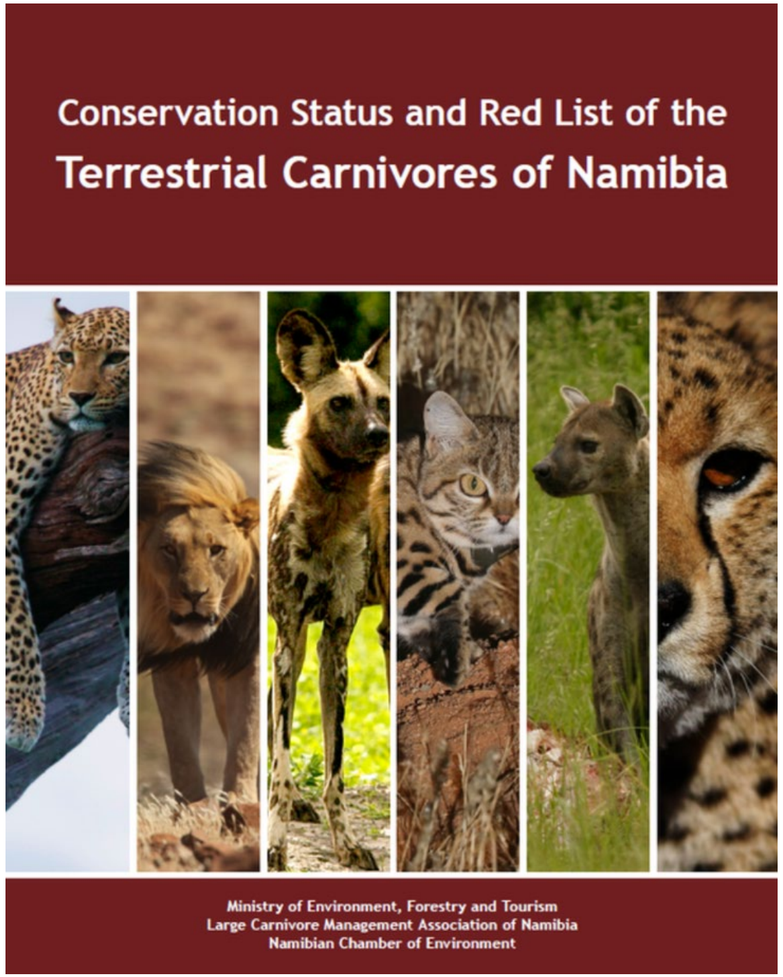
Use of land in Namibia







Namibia's large carnivores



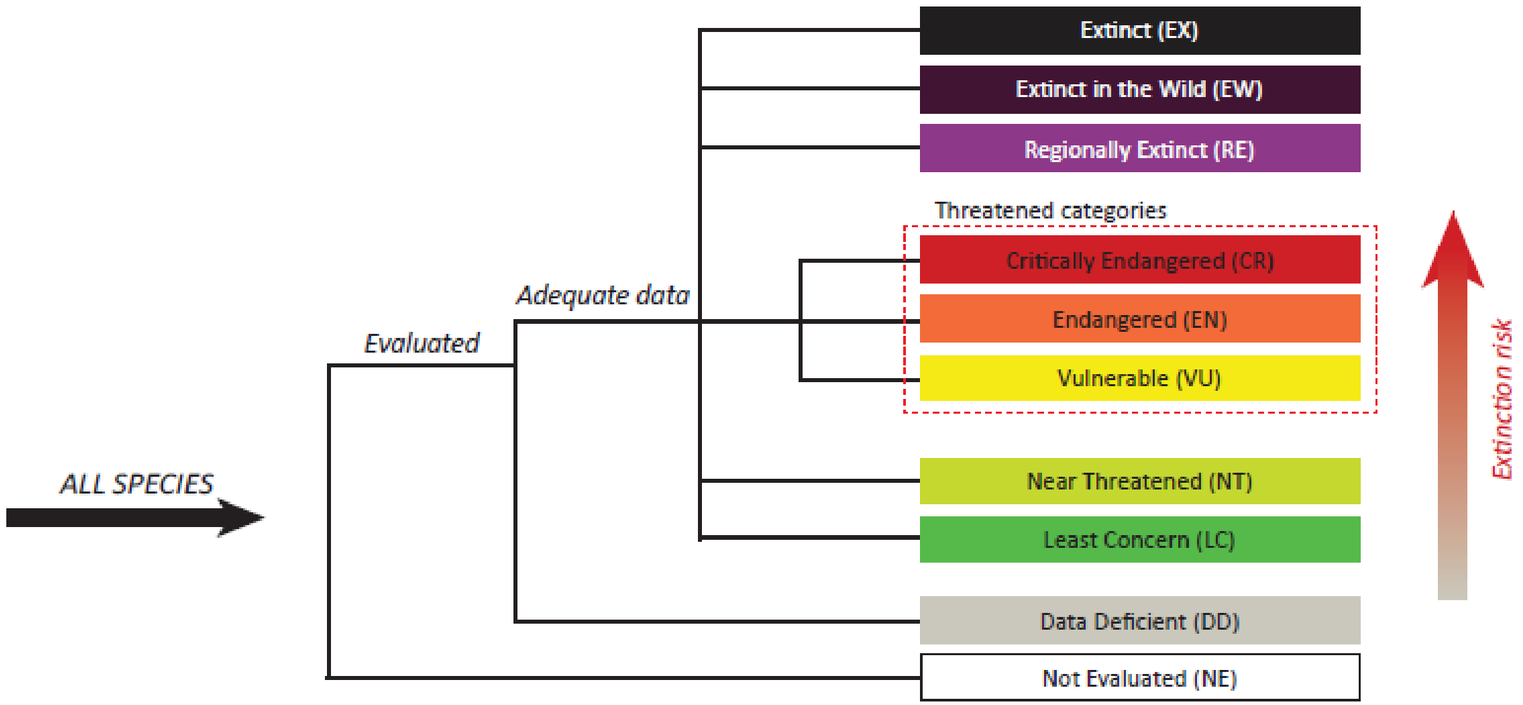
UNITY LIBERTY JUSTICE

LCMAN
LARGE CARNIVORE MANAGEMENT ASSOCIATION OF NAMIBIA

NCE
Namibian Chamber of Environment

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IUCN Red List categories of threat



IUCN Red List categories of threat (IUCN 2021)

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The Status of Namibian Carnivores

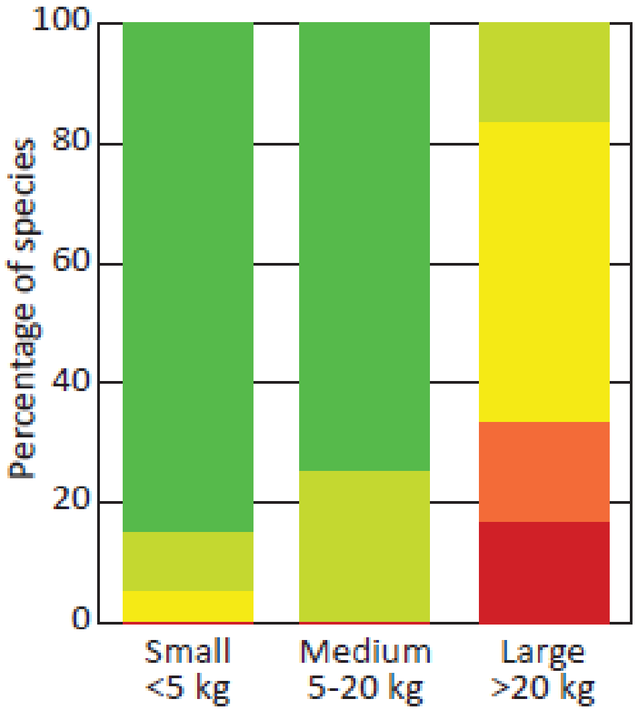
Namibia's Carnivore Diversity

- 34 terrestrial carnivore species (Order Carnivora)
- 6 threatened species (Critically Endangered, Endangered or Vulnerable)
- 5 Near Threatened
- 23 Least Concern

Carnivore families in Namibia with the numbers of species in each status category.

Family	Critically Endangered	Endangered	Vulnerable	Near Threatened	Least Concern	No. of Species
Felidae	0	1	3	1	2	7
Hyaenidae	0	0	1	1	1	3
Canidae	1	0	0	0	4	5
Mustelidae	0	0	0	3	2	5
Herpestidae	0	0	0	0	11	11
Viverridae	0	0	0	0	3	3
Total	1	1	4	5	23	34

Namibian large carnivores disaggregated by body size and threat category



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The Status of Namibian Carnivores

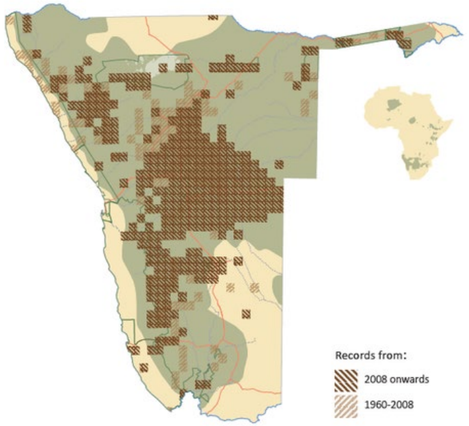
The 11 carnivore species of conservation concern in Namibia with their geographical ranges, proportion of their global ranges falling within Namibia, population estimates and trends.

Species	Global Status	Namibia Status	Namibian range (km²)	% Global range	Population estimate	Trend in Namibia
African wild dog	EN	CR	131,700	10.1	137-359	Stable
Cheetah	VU	EN	439,400	14.1	1,500	Decreasing
Black-footed cat	VU	VU	538,000	24.3	2,600	Decreasing
Leopard	VU	VU	776,800	9.1	<12,000	Variable
Lion	VU	VU	94,300	5.7	800	Stable
Spotted hyaena	LC	VU	399,800	2.7	615-715	Stable
Brown hyaena	NT	NT	685,600	28.0	<3,000	Stable
Serval	LC	NT	291,000	2.3	1,500-4,000	Stable
African clawless otter	NT	NT	±34,000	<1	Unknown	Decreasing
Spotted-necked otter	NT	NT	±23,000	<1	Unknown	Decreasing
African striped weasel	LC	NT	±46,000	<1	Unknown	Unknown

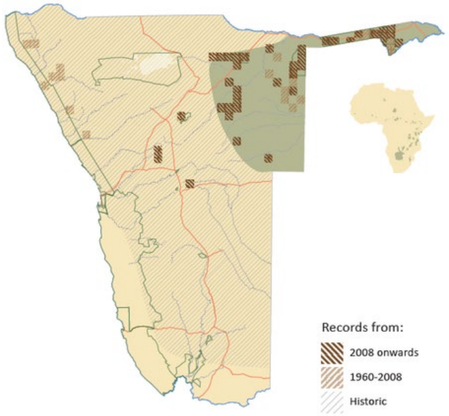
Cheetah CONSERVATION FUND

The Distribution of Namibian Carnivores

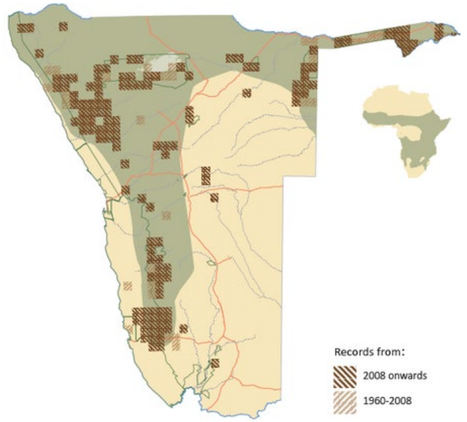
Cheetah *(Acinonyx jubatus)*



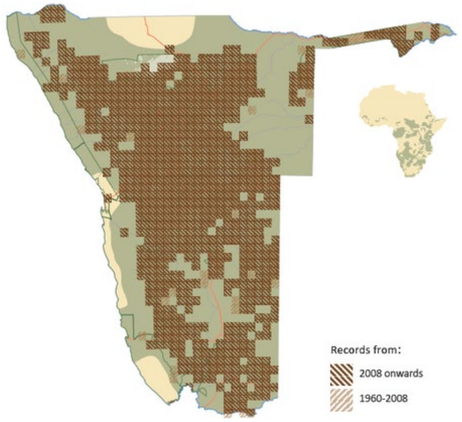
African wild dog *(Lycaon pictus)*



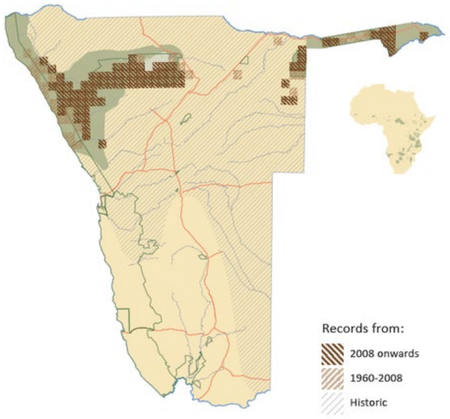
Spotted hyaena *(Crocuta crocuta)*



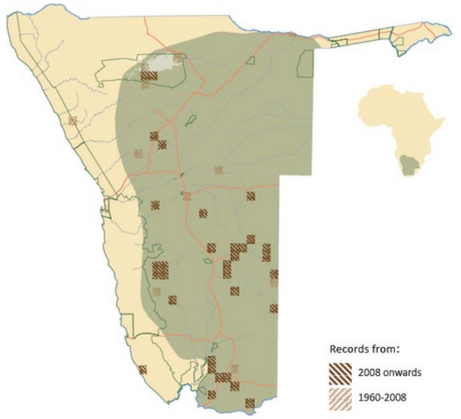
Leopard *(Panthera pardus)*



Lion *(Panthera leo)*



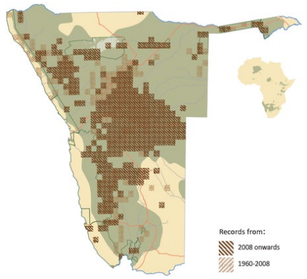
Black -footed cat *(Felis nigripes)*



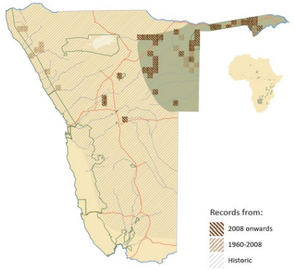
Cheetah CONSERVATION FUND

The Distribution of Namibian Carnivores

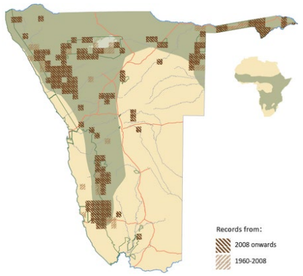
Cheetah *(Acinonyx jubatus)*



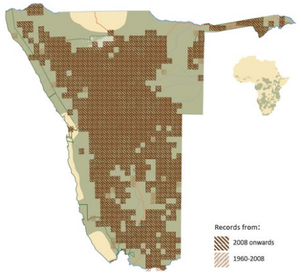
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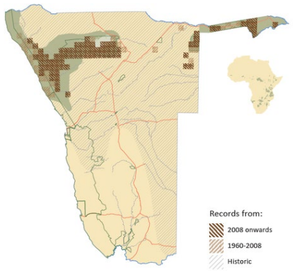
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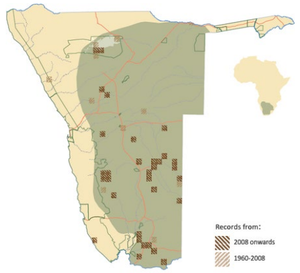
Leopard *(Panthera pardus)*

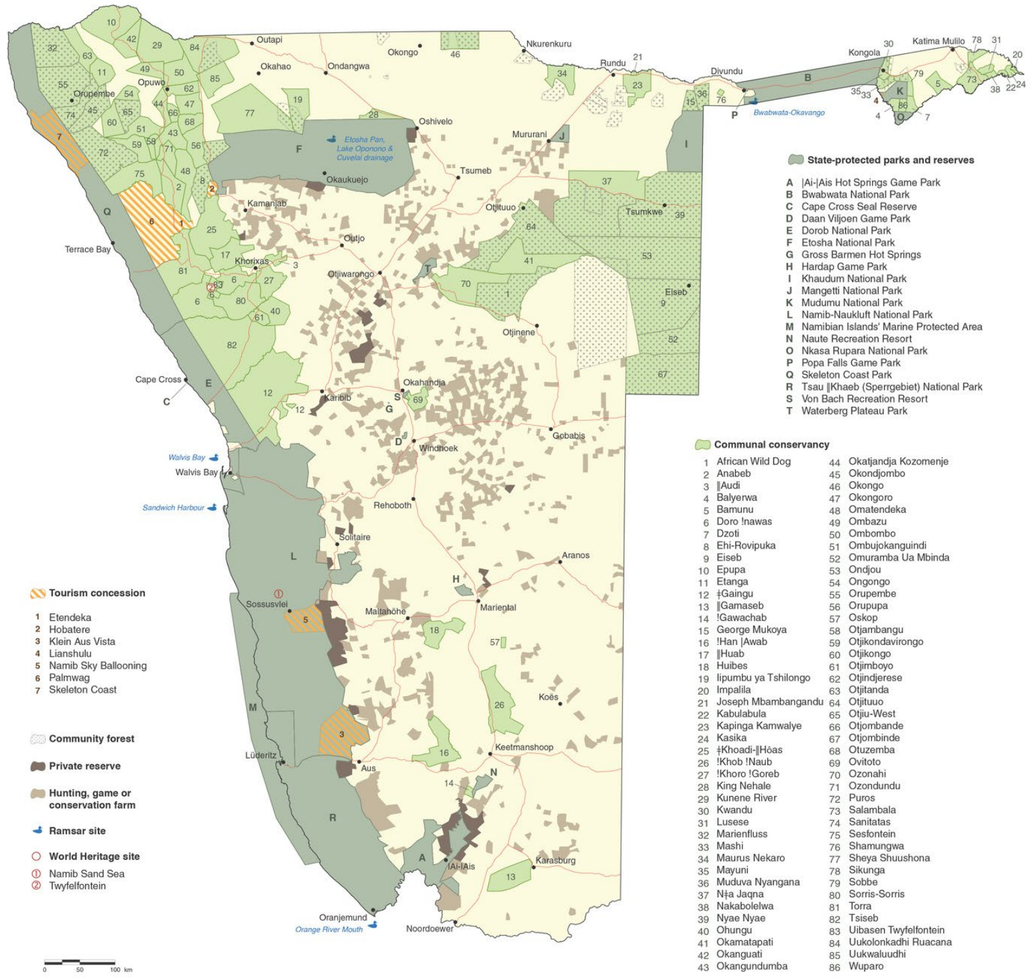


Lion *(Panthera leo)*



Black-footed cat *(Felis nigripes)*

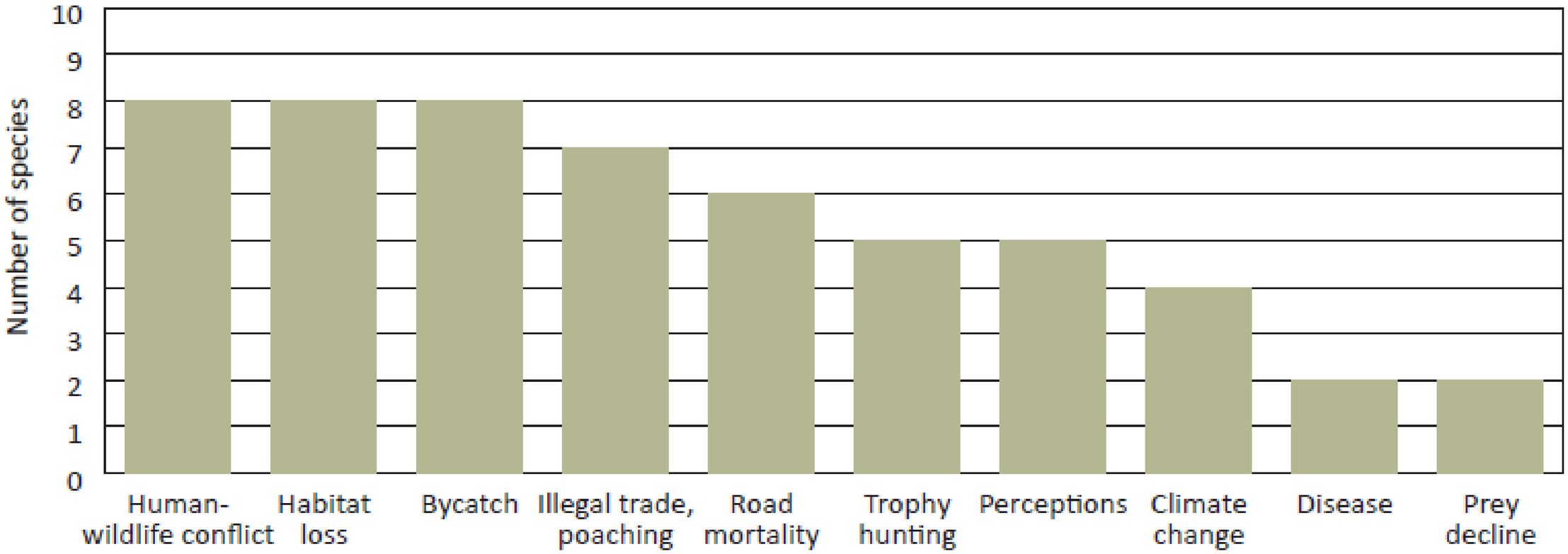




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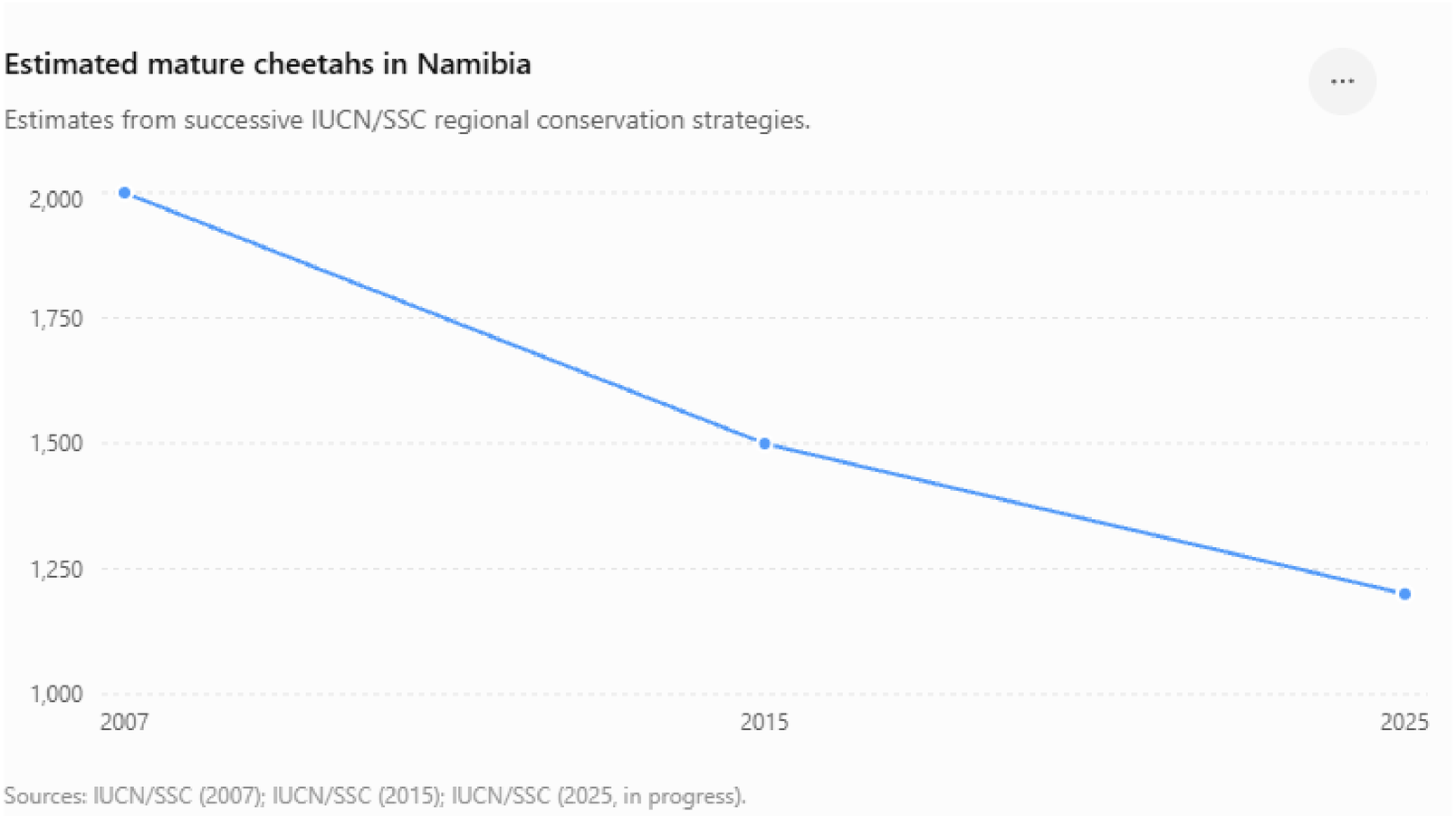
Threats faced by Namibian Carnivores

Threats faced by the ten carnivore species in Namibia that are classified as Near Threatened or worse.



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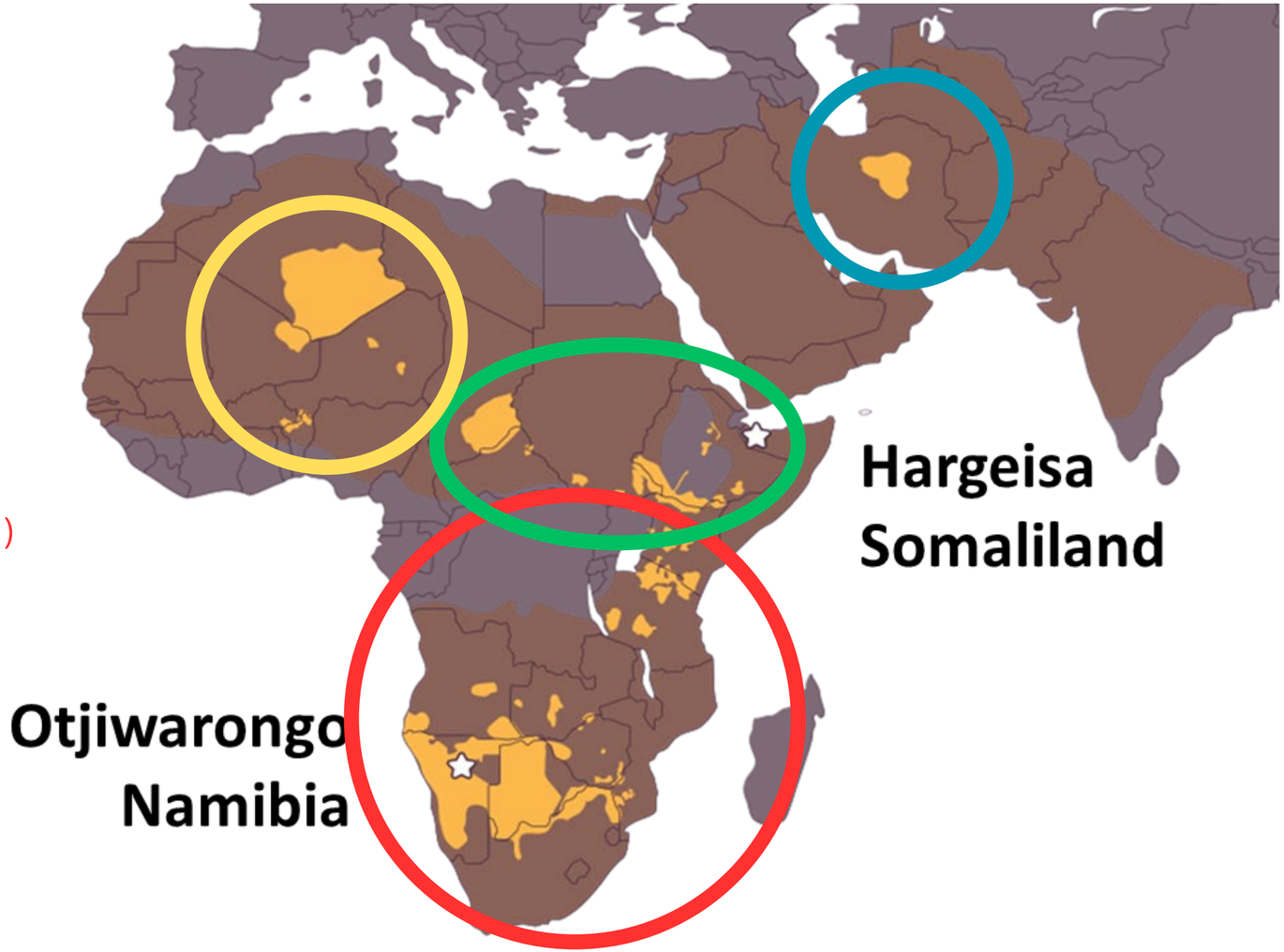
Cheetah Population - Namibia



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Cheetah Distribution - Global

- **<7,000 adults**
- 31 populations in 23 countries
- 20 populations <100 individuals
- Extirpated in 91% of historic range
- 4 Subspecies
  - Southeast African cheetah (*A. j. jubatus*)
  - Asiatic cheetah (*A. j. venaticus*)
  - Northeast African cheetah (*A. j. soemmeringii*)
  - Northwest African cheetah (*A. j. hecki*)
- Stronghold southern Africa



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Cheetah Conservation Fund in Somaliland

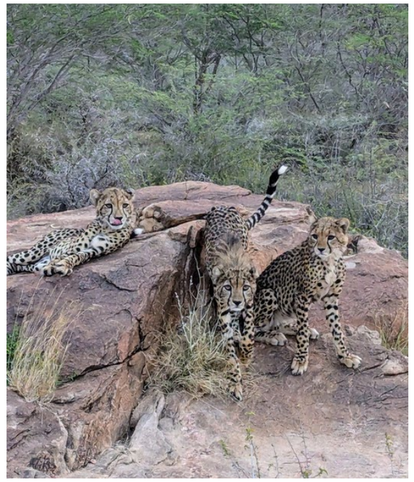
Cheetah Research and Conservation Center (CRCC)

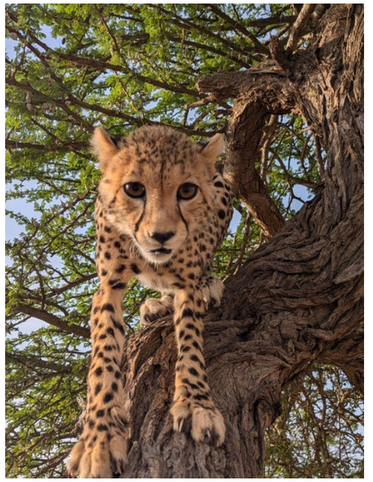
- Very large, open enclosures
- 4 staff/volunteer houses
- Veterinary clinic and attached cub quarters/quarantine
- Meat prep/butcher building
- Just opened a new Education Centre

Currently houses 130 cheetahs!







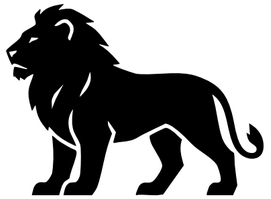


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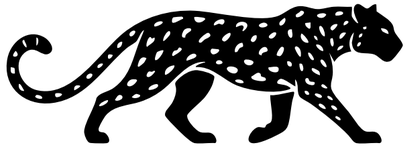
Cheetahs in Namibia

On Farmland:

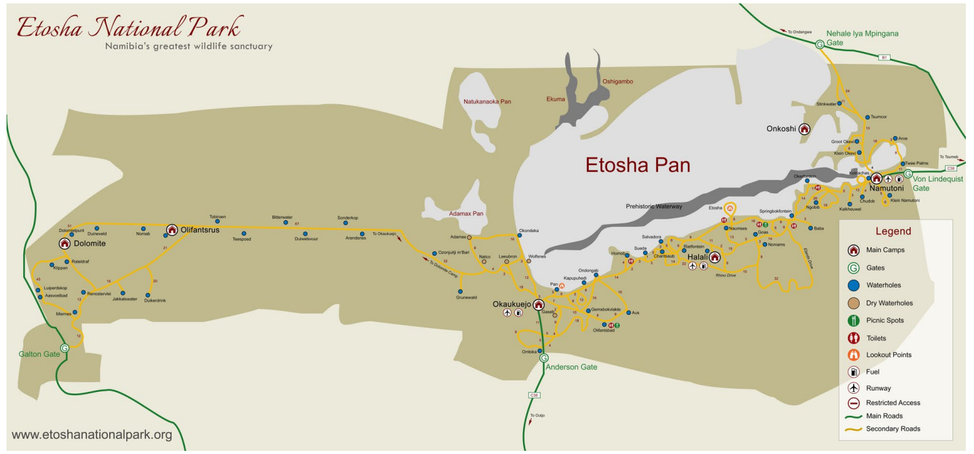
- Conflict with livestock and game farmers
- Habitat loss and fragmentation
- Unsustainable hunting of prey
- Road accidents
- Accidental snaring
- (Illegal trade)
- (Poorly managed tourism)



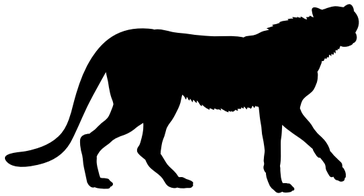
100 lions



50 leopards



In 'perfect' habitat the size of approximately the Etosha Pan (4800 km^2) could live:



10 cheetahs



~90% of cheetahs live outside of protected areas

Cheetah CONSERVATION FUND

CCF Center in Otjiwarongo, Namibia

- Open to the Public Research, Education & Training Center
- Hosts international students, interns, researchers, and training programmes
- 140 employees
- Lodge
- Museum
- Café
- 55,000 ha including reserve and farmland





Cheetah CONSERVATION FUND

CCF Namibia Programs



Livestock Guarding Dog Program



Cheetah Sanctuary



Ecological Research



Education



Biomass



Genetics Lab



Livelihood Development



Rehab & Release

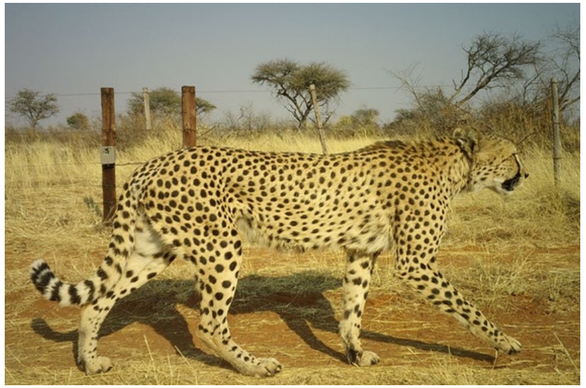
Spatial Tactics

Unique Social System

- Females are solitary: raising cubs alone
- Males form coalitions: typically 2 –3 males, often brothers
- Coalitions defend territories and may hold them for years
- Females range widely and overlap with multiple male territories
- Solitary vs. social living is sex -dependent









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Cheetah - Spatial Tactics

Territorial Males - small home ranges

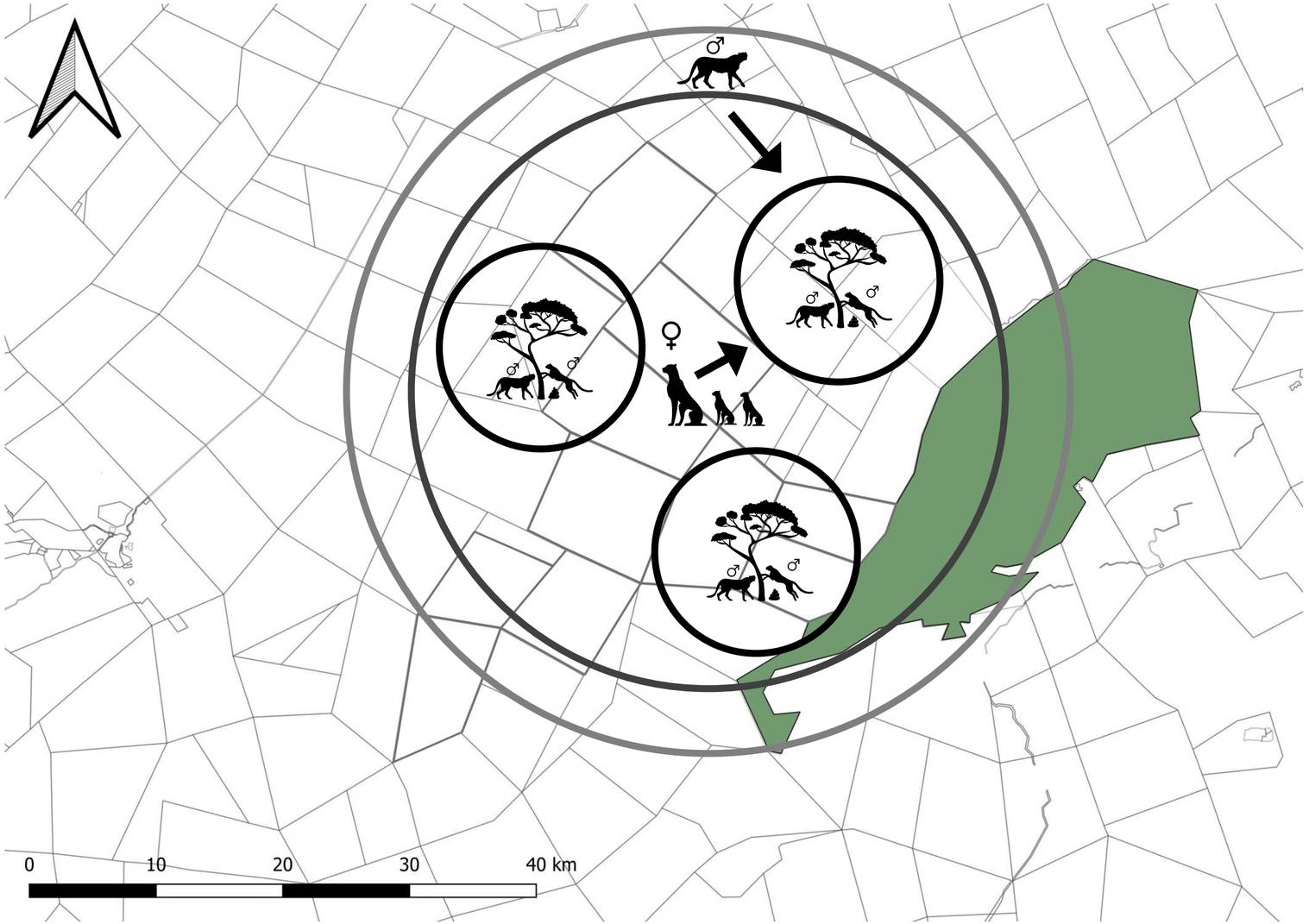
- 379 km² or 5 farms (Melzheimer et al. 2020)

Females - large home ranges

- 1600 km² or 23 farms (Marker et al. 2008)
- 650 km² or 9 farms (Melzheimer et al. 2020)
- 81 farms (Winterbach 2026 pers. comm.)

Non-territorial Males - large home ranges

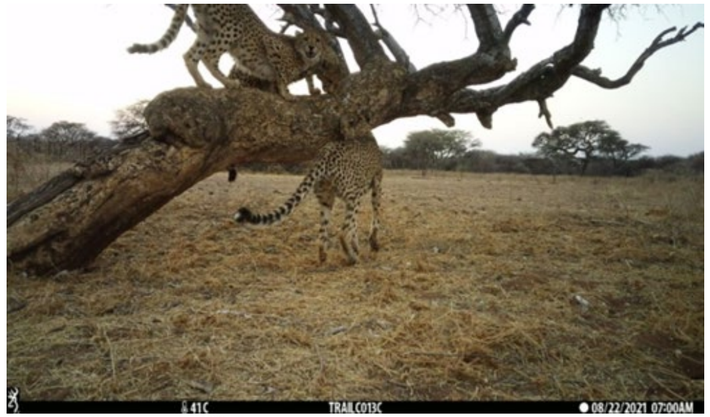
- 1,595 km² or 23 farms (Melzheimer et al. 2020)



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Cheetah Marking Sites











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Scat Detection Dogs

Quick Facts

- 🌿 Enable non -invasive wildlife monitoring
- 🧬 Data on species presence
- 📦 Find large numbers of samples
- 🎯 More accurate than human searchers
- 📊 Outcompete other survey methods in detection rates
- 🌎 Used worldwide in monitoring and conservation programs



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Scat Detection Dogs

At Cheetah Conservation Fund

- Belgian Malinois
- Team consists of 2 dogs and 2 handlers
- Enable downstream diet, genetics, and ecological studies
- Deployed all across Namibia
- Occasionally in southern Angola



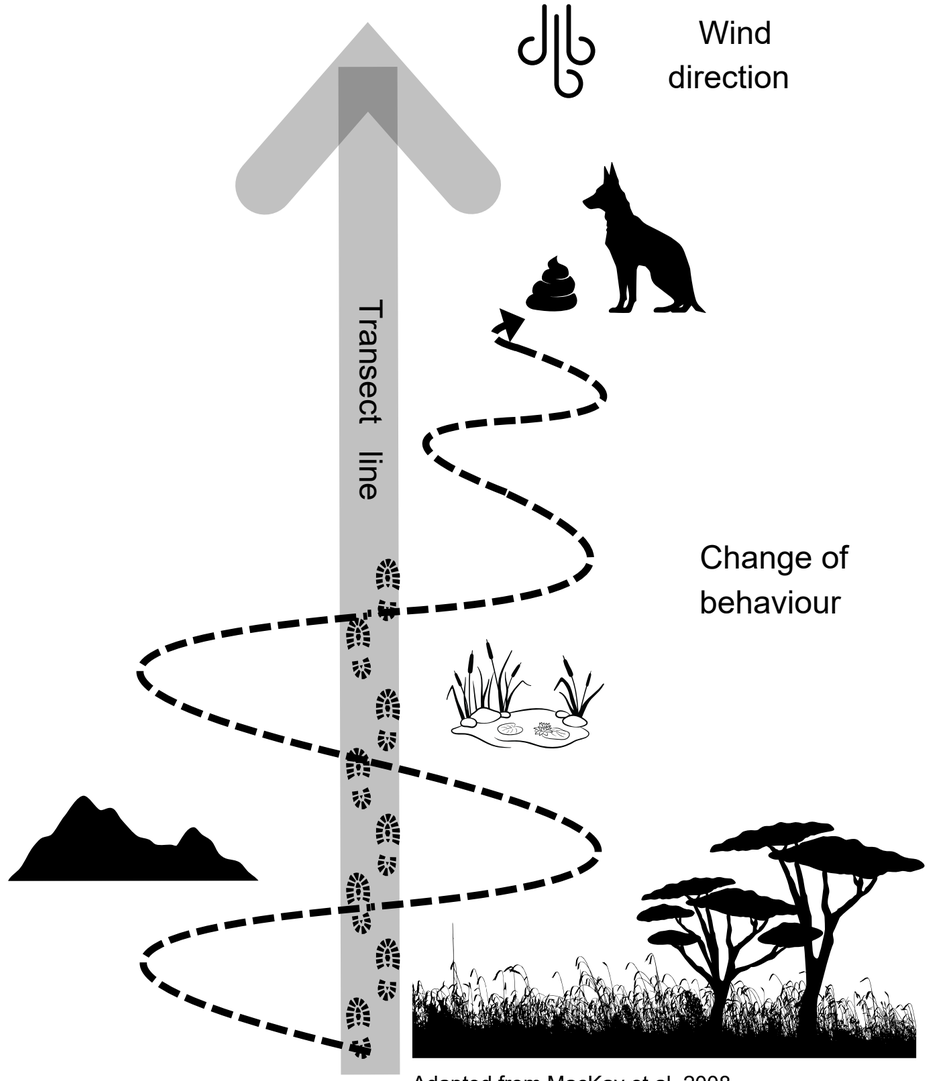
Scat Detection Dogs

Imprinting

- Dog is trained on one or multiple target species
- Trained via positive reinforcement
- Ignores all other scat

Field work

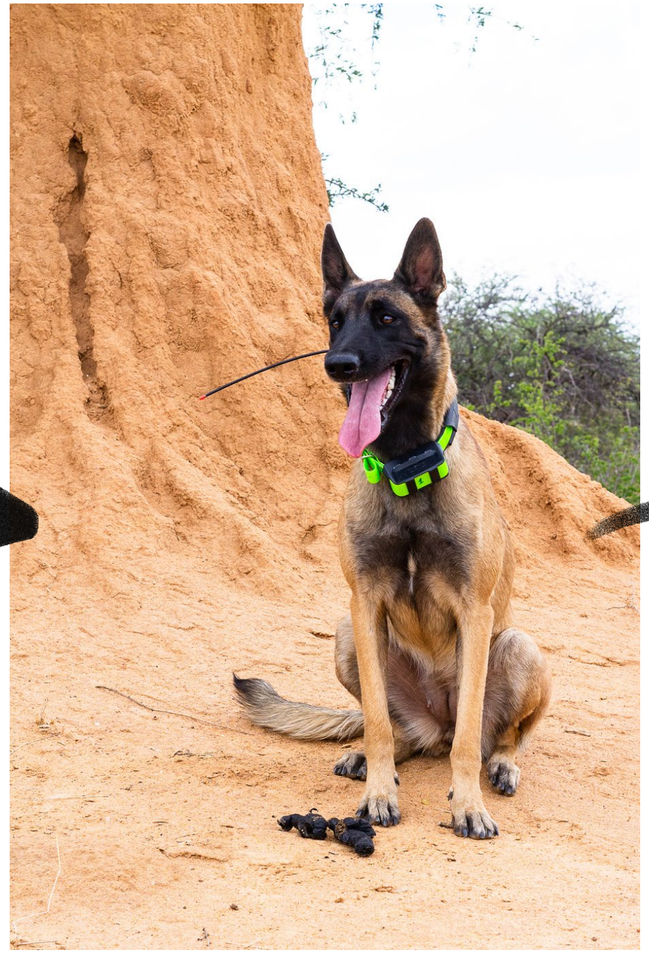
- Dog quarters ahead of the handler
- When target scent is encountered dog changes behavior
- Searches directed following the scent cone
- Shows a passive alert ‘sitting’

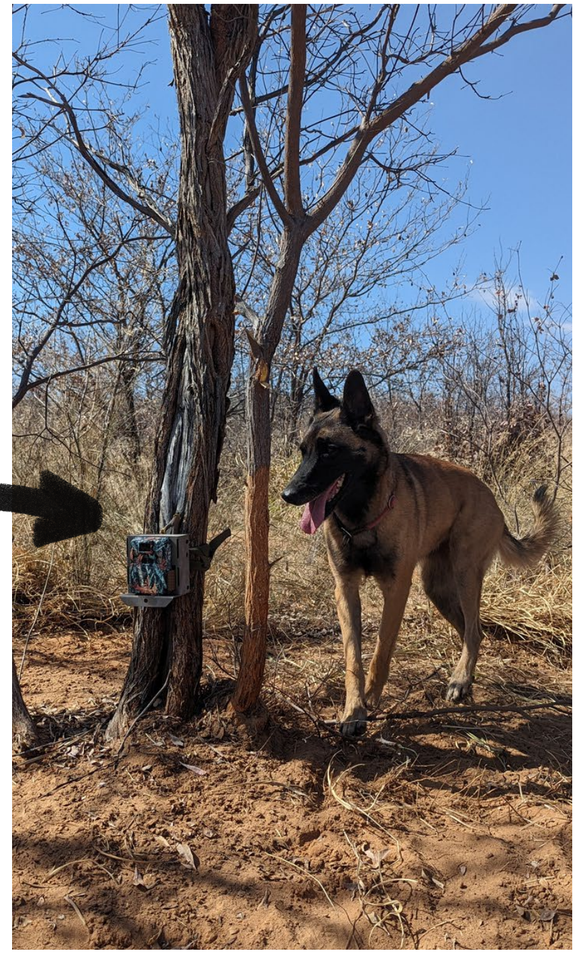


Adapted from MacKay et al. 2008

Monitoring







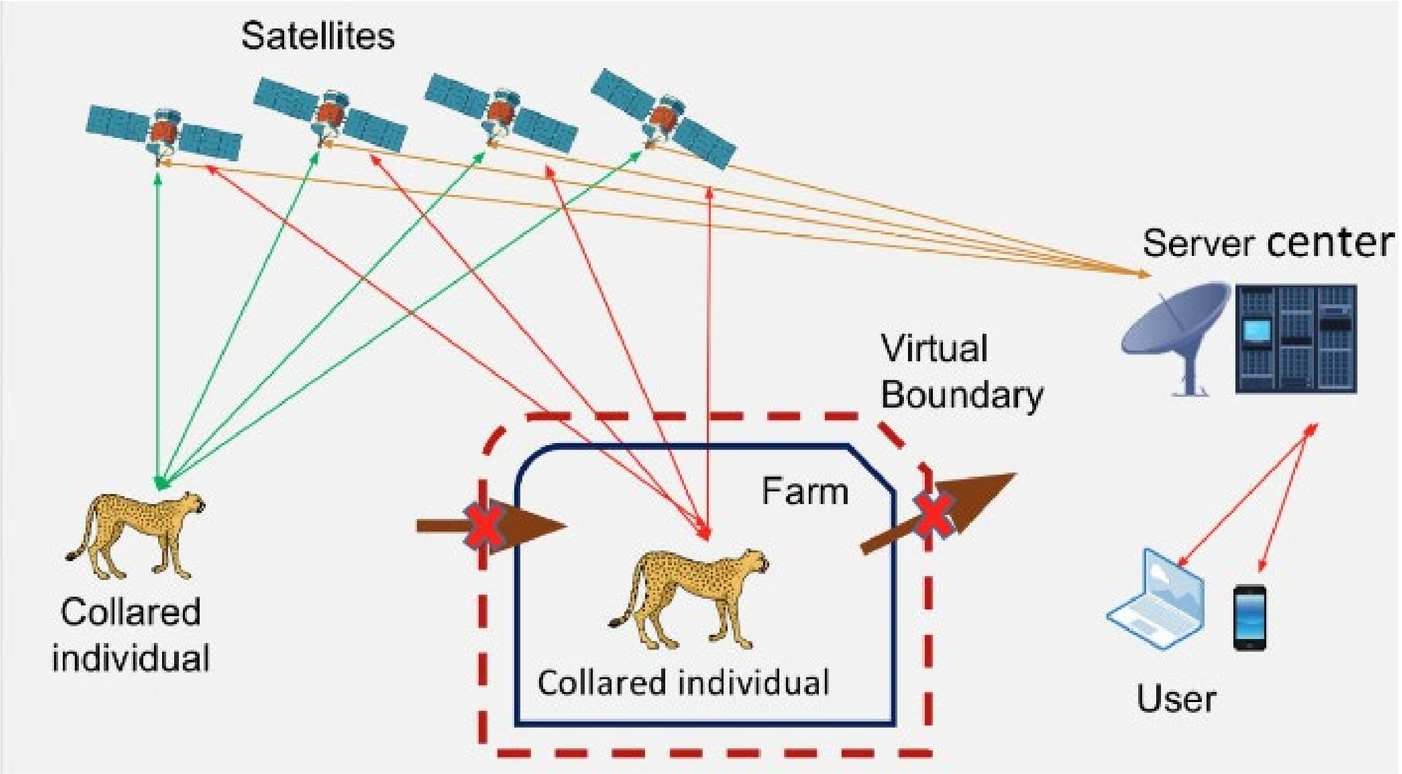
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CCF Early Warning System

- Cheetahs collared opportunistically
- Farm geofence uploaded
- Farmer receives alert once cheetah enters their farm
- Allowing for pro -active mitigation methods
- Started in 2021
- 106 farms participating
- To date, 21 cheetahs

→ Increased cheetah survival rate

→ Reduced levels of conflict



Livestock Guarding Dogs

Quick Facts

🛡 Deter predators, not chasing or killing them

🐑 Live full -time with herds and bond closely with livestock

📉 Can reduce livestock losses by up to 90%

🤝 Help decrease human –wildlife conflict

💰 Cost-effective, long -term solution

🌎 Used worldwide in conservation programs



Cheetah CONSERVATION FUND

Livestock Guarding Dogs

At Cheetah Conservation Fund

- Anatolian Shepherds, Kangals, and local mixed breeds
- 816 dogs placed in 32 years
- Deployed all across Namibia
- Occasionally in Tanzania & South Africa



Conclusion

- Namibia’s large carnivore guild is a national treasure
- The majority of species are of conservation concern
- Cheetahs occur widely and experiencing severe declines
- Namibia remains a stronghold for cheetahs
- Namibia has a responsibility for their conservation
- Cheetah conservation is rangeland conservation



Cheetah CONSERVATION FUND

Thank you!

Contact Dr. Tim Hofmann

Detectiondogs@cheetah.org

+49 163 170 67 84

Otjiwarongo, Namibia

www.cheetah.org

Cheetah CONSERVATION FUND





LCMAN
LARGE CARNIVORE MANAGEMENT ASSOCIATION OF NAMIBIA

Namibia Scientific Society
Science for Society

References

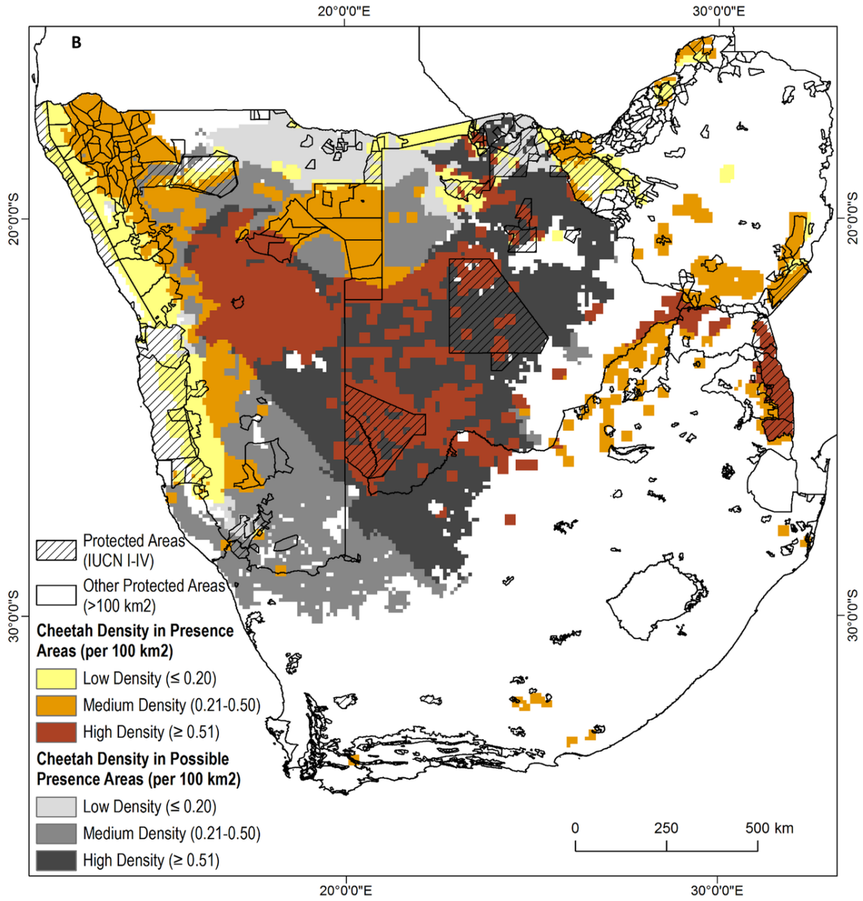
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Cheetah CONSERVATION FUND

Threats to Cheetahs

Almost 90% of Namibian cheetahs live on Farmland

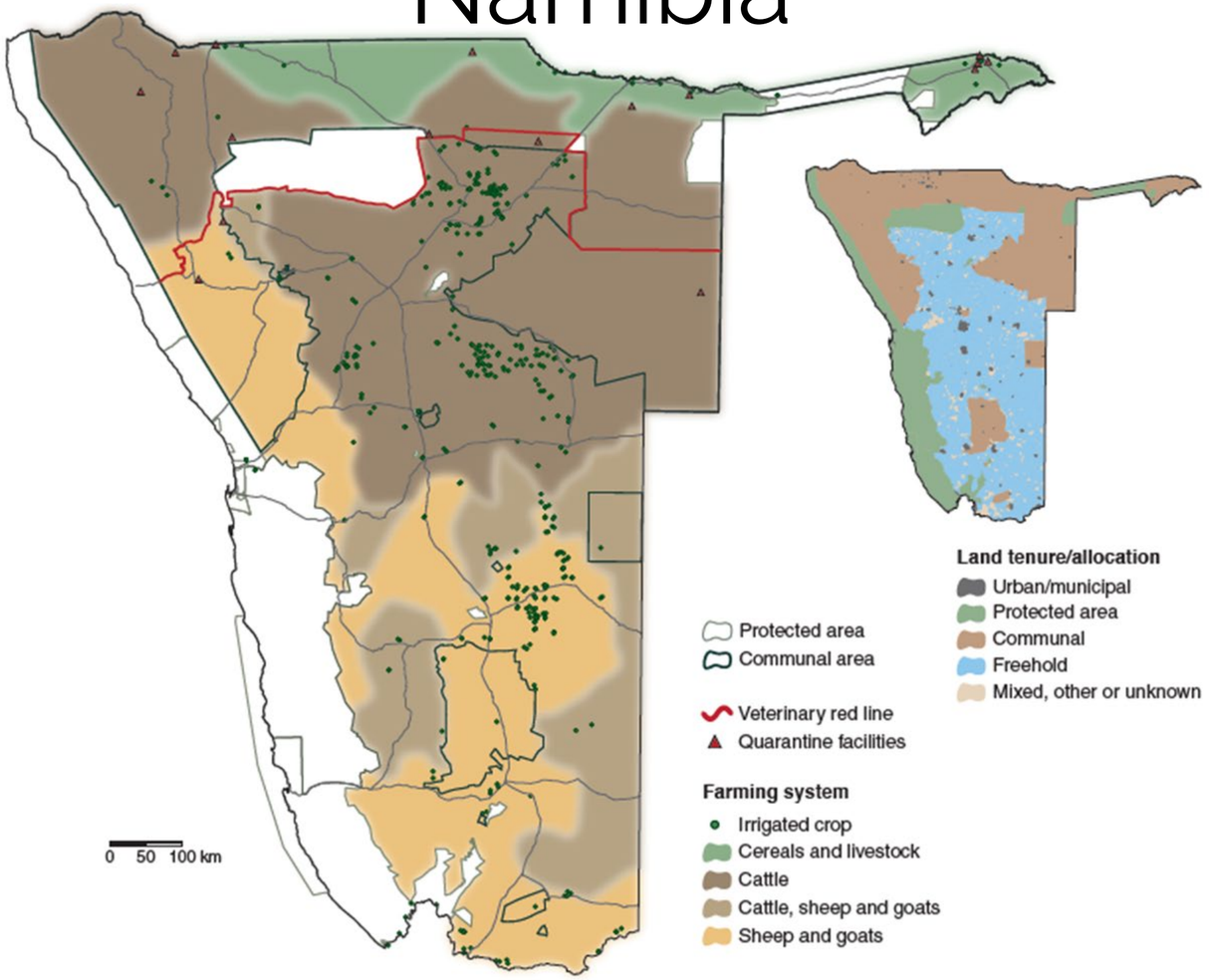
- Conflict with livestock and game farmers
- Habitat loss and fragmentation
- Unsustainable hunting of prey
- Road accidents
- Accidental snaring
- (Illegal trade)
- (Poorly managed tourism)



Weise, Florian J., et al. "The distribution and numbers of cheetah (Acinonyx jubatus) in southern Africa." PeerJ 5 (2017): e4096.

Cheetah CONSERVATION FUND

Use of land in Namibia



Conservation Actions

Threats faced by the ten carnivore species in Namibia that are classified as Near Threatened or worse

MANAGEMENT		
Sub-category	**Specific action**	**n**
Indirect	▸ Livestock protection/HWC mitigation	5
	▸ Reduce degradation/restore habitat	4
	▸ Increasing/maintaining wild prey	4
	▸ Land use planning	3
	▸ Road/infrastructure management	3
	▸ Range connectivity, reduce fragmentation	2
	▸ Farm/grazing management	2
Direct	▸ Translocation protocol/monitoring	4
	▸ Limit trophy hunting	2
	▸ Reintroduction	2

AWARENESS		
Sub-category	**Specific action**	**n**
Perceptions/ behaviour	▸ Education to improve tolerance	10
	▸ Recognition for predator-friendly farming	2
	▸ Discourage non-selective predator control	1
	▸ Better identification of problem species	1
	▸ Reduce hybrid serval/domestic cat demand	1
	▸ Employ community rangers	1
Policies	▸ Promote tourism	4
	▸ Create/improve economic incentives	4
	▸ Update species action plan	2
	▸ Improve HWC reporting and responses	2
	▸ Declare species as protected	1
	▸ Training on wildlife trade for officials	1

RESEARCH		
Sub-category	**Specific action**	**n**
Population/ distribution	▸ Monitor trends in specific areas	8
	▸ Collect more and/or better data	7
	▸ Obtain mortality data (all causes)	4
Threats	▸ Threat assessments for specific areas	2
	▸ Measure perceived vs. actual conflict	2
	▸ Risk analysis prior to reintroduction	1
	▸ Identify high-risk conflict areas	1
Other studies	▸ Establish DNA database	2
	▸ Economic cost/benefit studies	2
	▸ Dietary studies	2
	▸ Socio-ecological studies on communal lands	1