

Can cheetahs and wildlife ranchers ever live in co-existence?



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Namibia



Content of Talk

- Overview of Cheetah Distribution
- Threats to the Cheetah
- Game farms impact on cheetah
- Background on Cheetah Conservation Fund's research
- Conservation alternatives
 - Swing gates
 - Namibian Conservancies
- Conclusion





@Chris Johns





@Beverly Joubert



<7,000 Cheetahs Remaining 90% decline in ~ 100 years



Habitat Fragmentation



Large predators keep
cheetahs out of protected areas



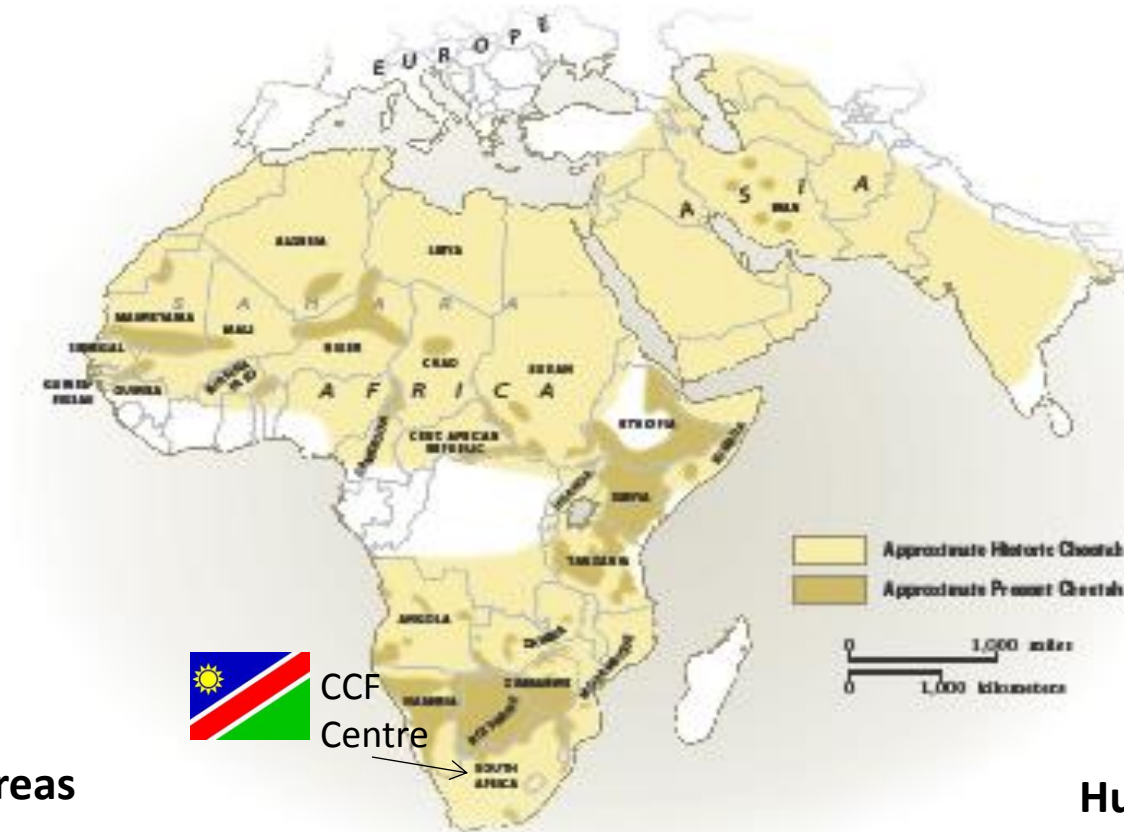
90% of
cheetahs
live on
farmland



Conflict with
game farmers



Human Wildlife
Conflict Linked to
Poor Livestock
Practices



Illegal Wildlife
Trade



Cheetah's challenges → Ecological and environmental vulnerability

Habitat fragmentation



Social/economic



Over exploitation



Environmental
Variation &
Climate Change

Demographic
stochasticity

Catastrophes

Reduced N

Small, fragmented
Isolated populations

Inbreeding
Loss of genetic
variation

Reduced adaptability

EXTINCTION
VORTEX



Cheetah and CITES Quota -

- In 1975, listed on Appendix I of CITES (prohibited the sale of live cheetahs or skins on the international market).
- In 1975 a SW African Nature Conservation Ordinance classified the cheetah as a 'protected animal' - although it may be shot in order to protect life or property.
- Between 1980 and 1990 – over 6700 cheetahs were reported captured or killed, mostly as a perceived threat to livestock loss.
- Despite its CITES listing, Namibia has been given a quota of 150 cheetahs annually since 1992, in **an attempt to reduce indiscriminate cheetah removal.**



The onus rests on the farmer

- The government relies on farmers reporting killing of cheetahs (and other predators).
- Farmer reporting to government is limited.
- This affects hunting permits.
- Recommended by NAPAHA to only hunt males not females and no baiting trap cage.



Indiscriminate removal is causing the biggest problem for cheetahs and is a significant conservation issue for cheetahs on the Namibian farmlands.



What is Cheetah Conservation Fund (CCF)?



- Leading organization in the world dedicated to cheetah conservation
- Situated on 48,000 ha. working livestock/wildlife farm
- Namibia has the largest remaining population of wild cheetahs
- Founded in 1990



What is CCF?



- Sanctuary
- 48,000 ha Model Farm and Game Reserve
- Veterinary Clinic
- Genetics Lab
- Training Educational Facility
- Habitat Restoration Program
- Open to the Public Research Center



Cheetah Survival =

←
Research on
Cheetah Biology &
Ecology



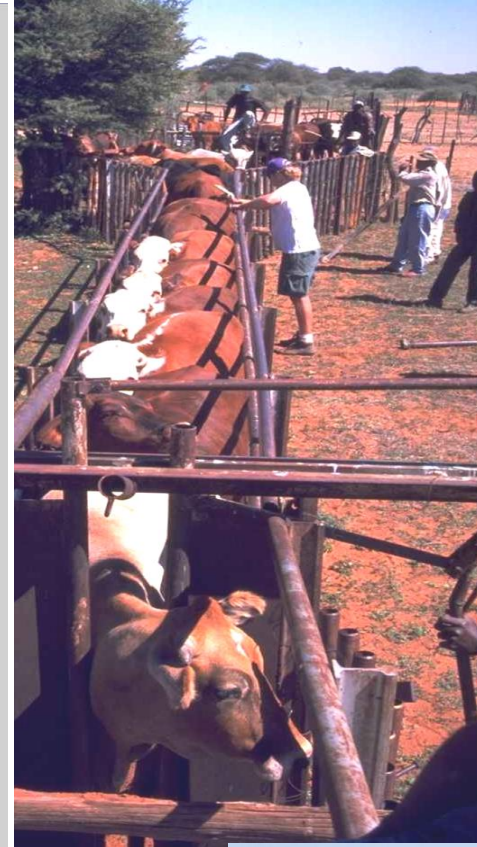
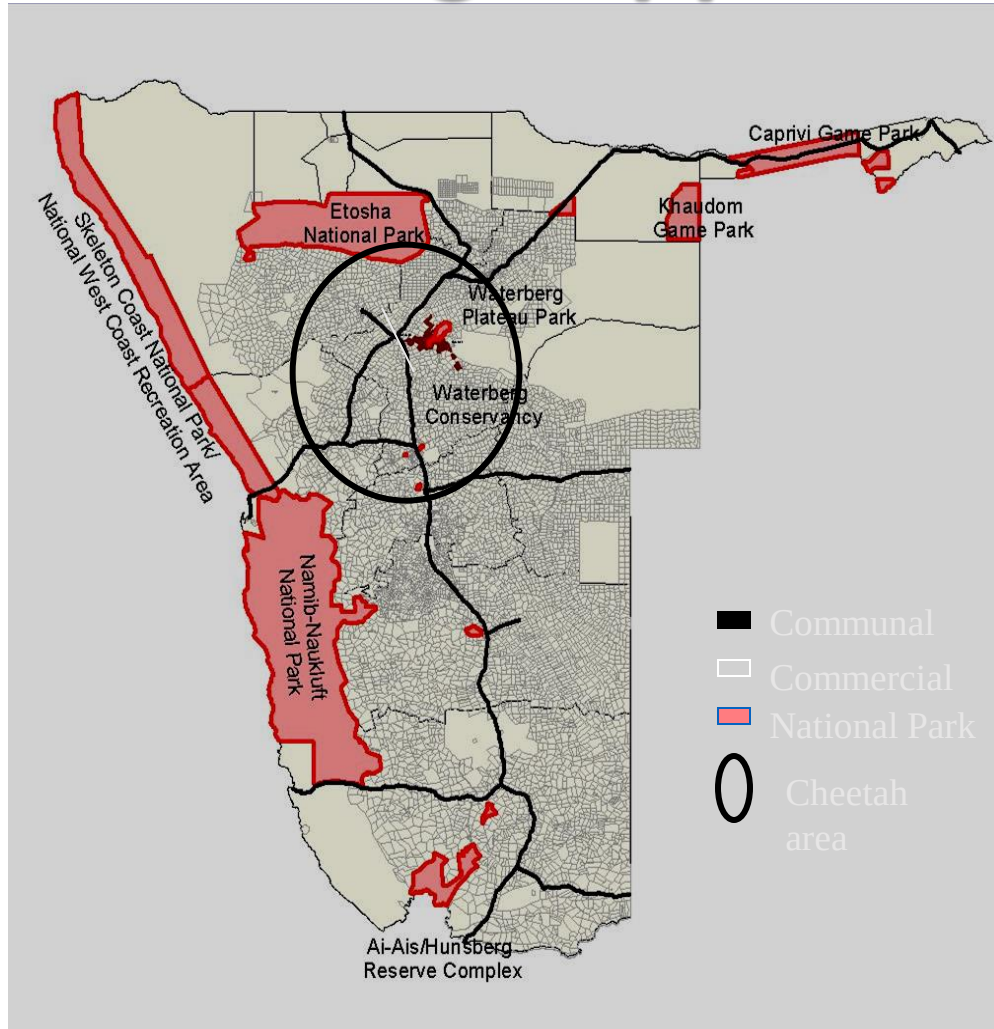
↓
Reducing Conflict



↘
Education and
Livelihoods



Farming Supports 70% of Namibians



90% of the cheetahs &

80% of the wildlife live outside protected areas



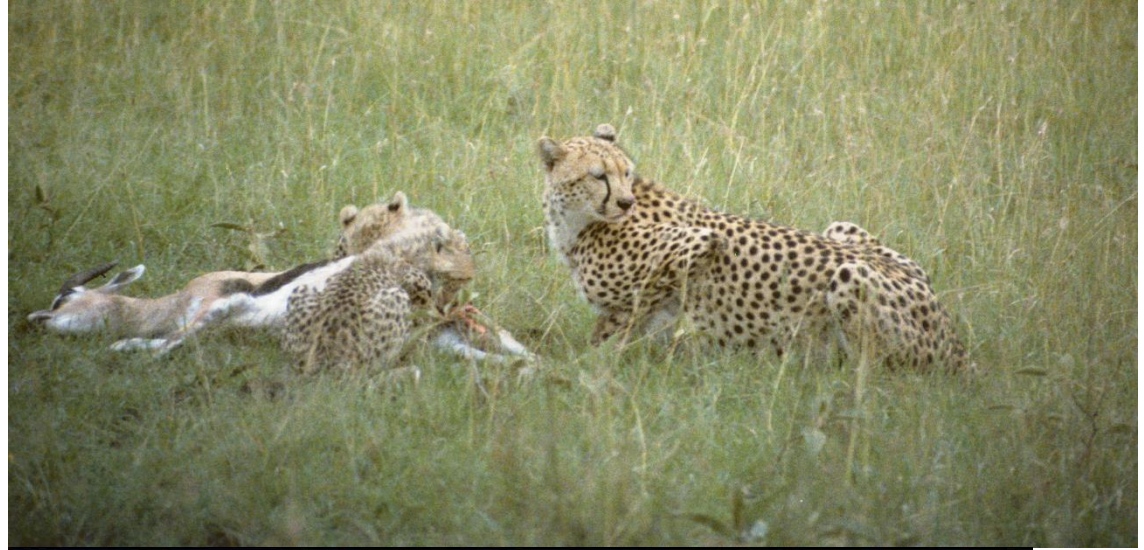
Game farming – the beginning



- 1960s in South Africa game more lucrative than cattle, growth of game farms (van der Waal & Dekker, 2000).
- 1970's Namibians followed this trend (Saltz *et al.* 2004).
- Significant increase of game farms Namibian on free-hold farms in the past 20 years.
- Animal movement becomes restricted but secures game ownership (Schumann *et al.* 2006).

Impact of game farming on predators

- Increased human-carnivore conflict over wildlife predation.
- Cheetahs are not tolerated in game rich areas due to the value of the game.
- Resulting in high removals of cheetahs



Impact of fences

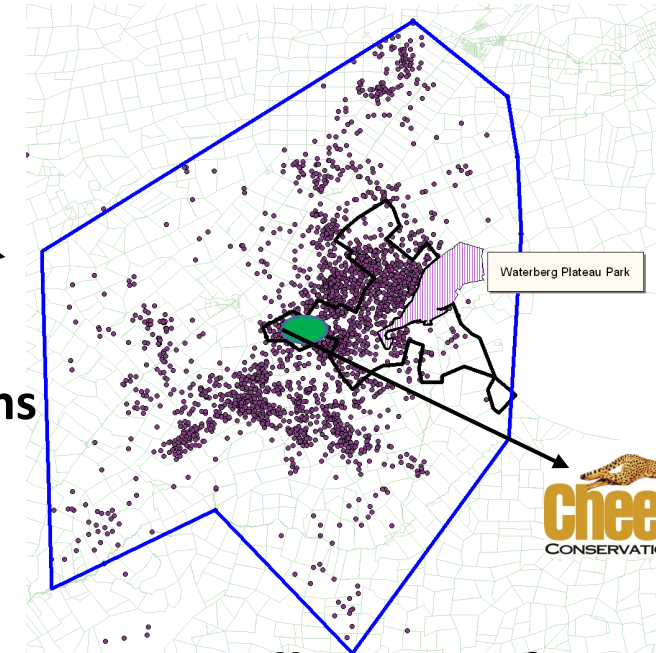


- Fences act as a barrier and detrimental in Arid environments
- Ecological impact
 - Blocking daily or wider migration movements
 - Restricting the range use of biodiversity

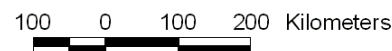
Impact of fences



- Confine individuals to a fixed area
 - No ability to disperse
 - Reducing genetic diversity
- Overgrazing – leading to land degradation

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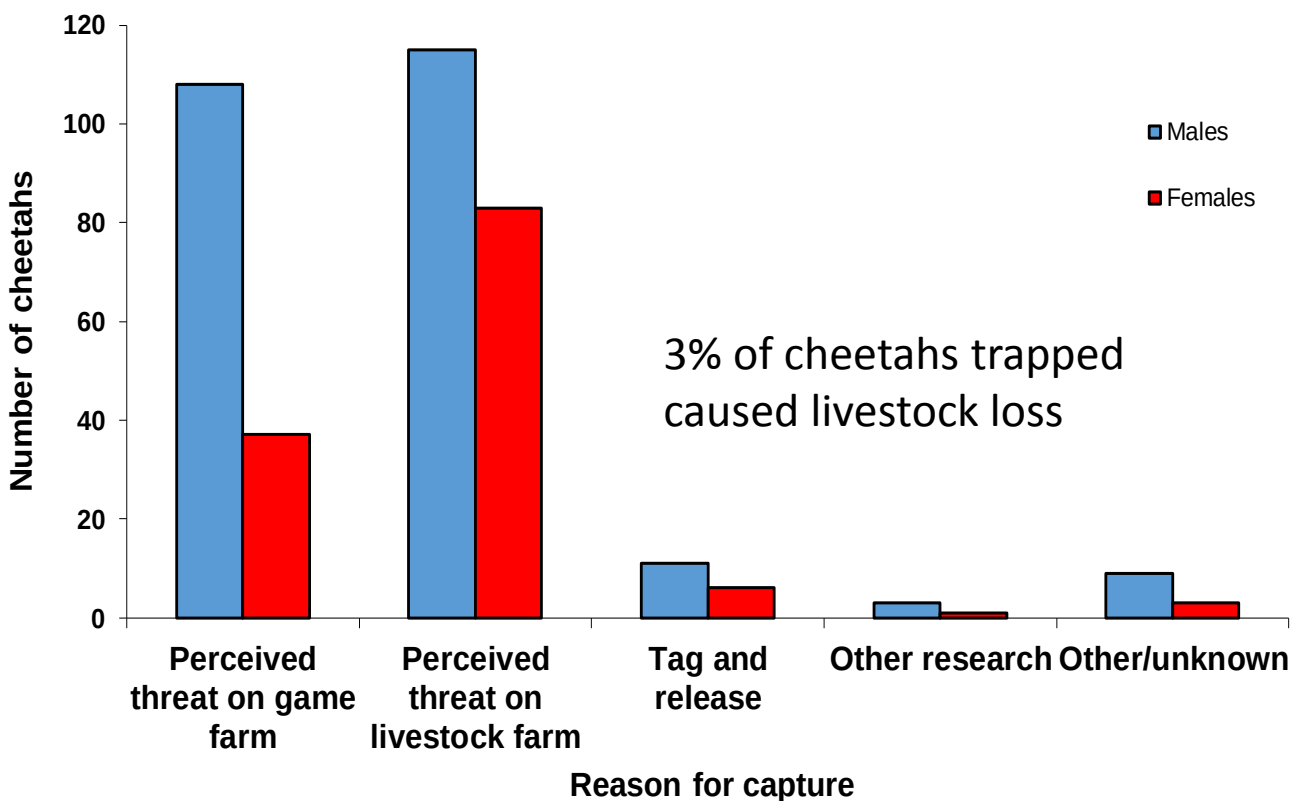
- Legend
-  Regions
 -  Freehold Farms
 -  Protected Areas
 -  CCF Questionnaire Survey Participants (1991 - 1999)
 -  Trapped cheetahs collected by CCF (1991 - 2007)
 -  Communal areas
 -  CCF Radio - Tracking study area 1993 - 2000



Trapped cheetahs
Blood samples
Sperm samples
Fecal samples
Necropsies



Reasons for live capture



Game farmers are now responsible for more cheetah removals than livestock farmers.



More 'Playtrees' on game than on to livestock farms

- Relationship between playtree abundance and game density
 - Farms with playtrees had significantly higher density of game than those without playtrees.



- Farmers with playtrees removed cheetahs
- No playtree no removal



Bushnell

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Understanding cheetah biology

Long-term health studies – over 900 individuals > 2500 samples



- Prevalence of disease, stress factors
- Reproductive Research – Development of GRB



Cheetahs are genetically uniform

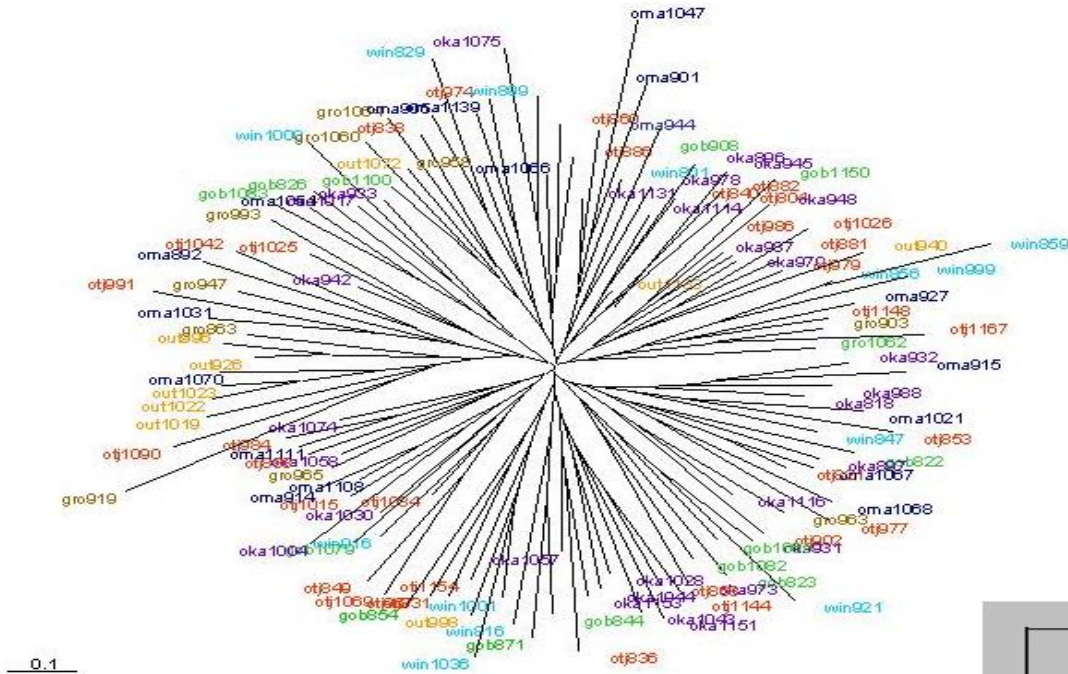


- Reduced adaptability!
- Greater risk to environmental and ecological changes
- 2015 – sequenced the cheetahs genome

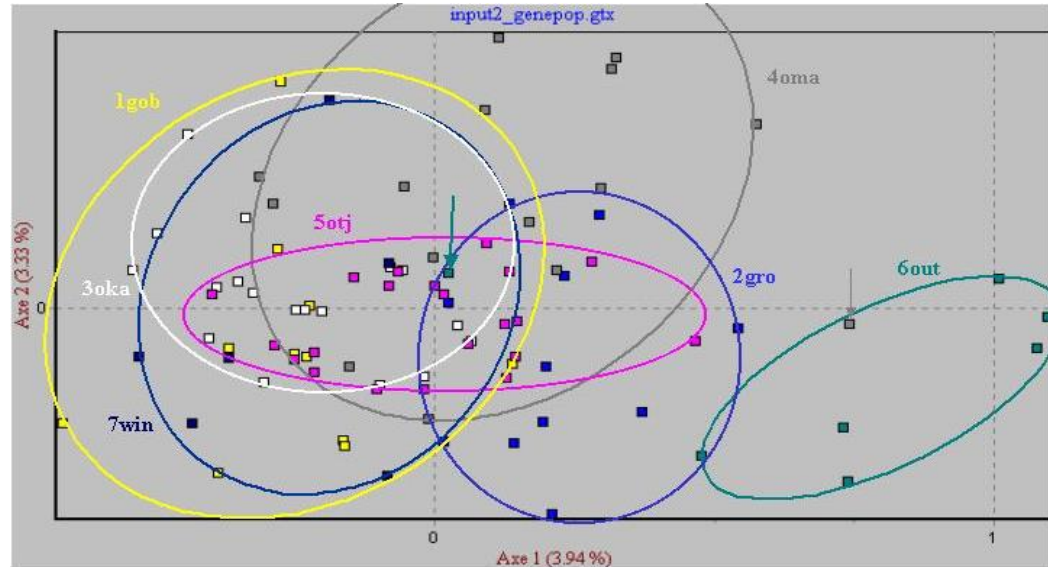


Namibia: Panmictic (Random mating) structure

- Cheetah from different regions are intermixed



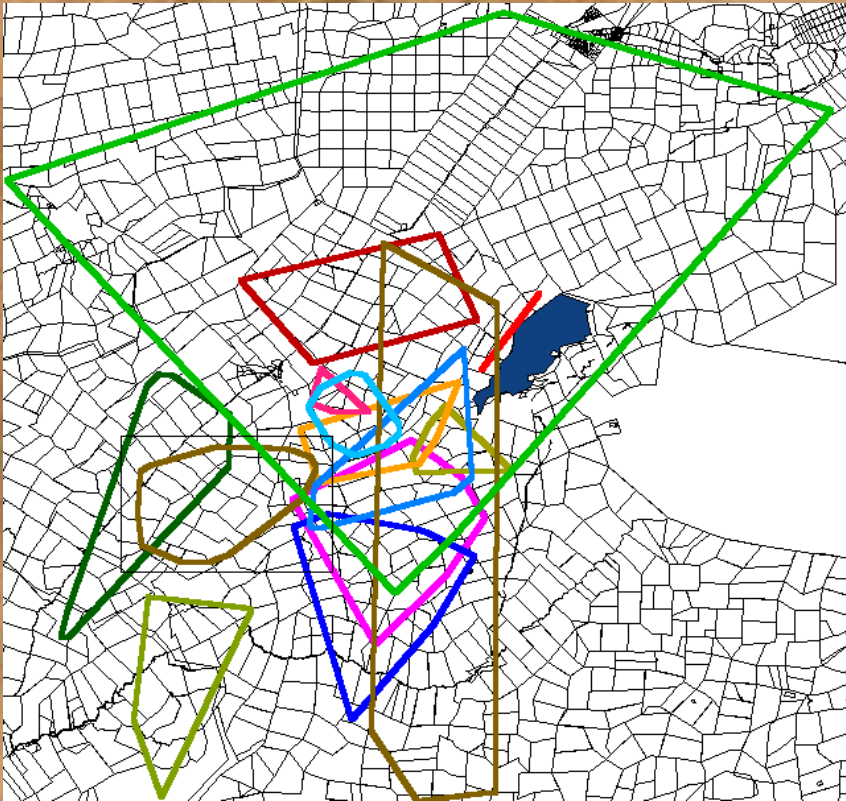
- Allele drop out in 2 areas:
- North west/east
- Due to intensive removals





Cheetah Ecology

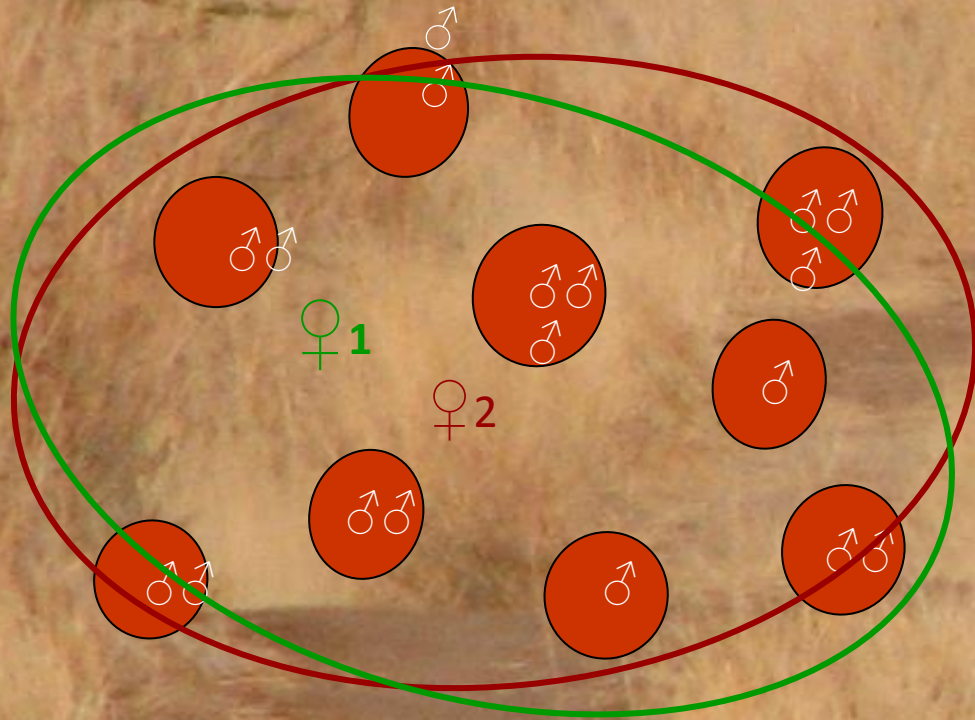
- Home ranges $> 1600 \text{ km}^2$
- Travel ~ 20 farms (5,000 ha each)
- Removals creates a sink effect where other cheetahs are drawn in to the newly vacant area from over a wide area.

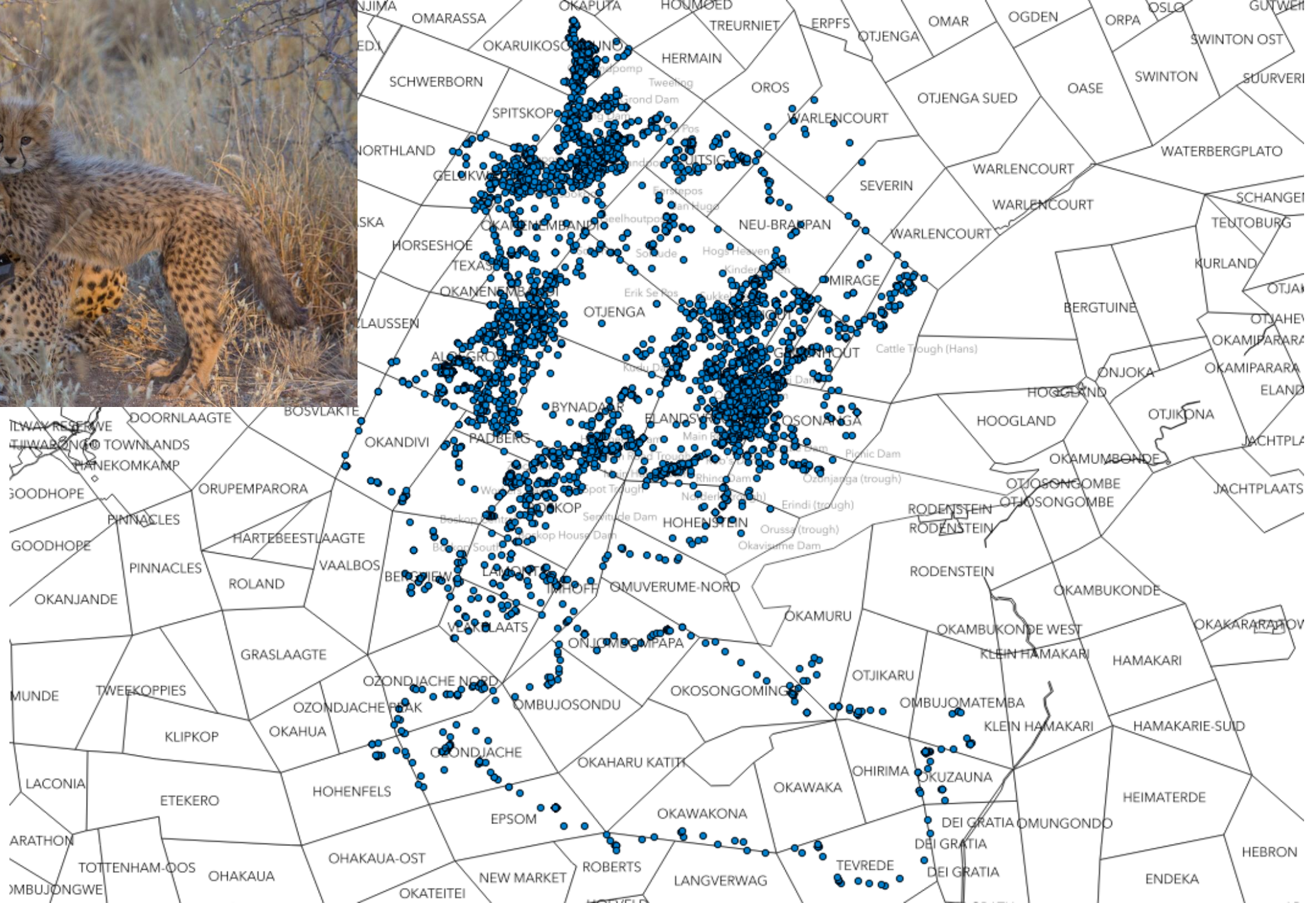


- 50% core ave. 14% of the home range,
- not exclusive, ave. overlap of 16%.

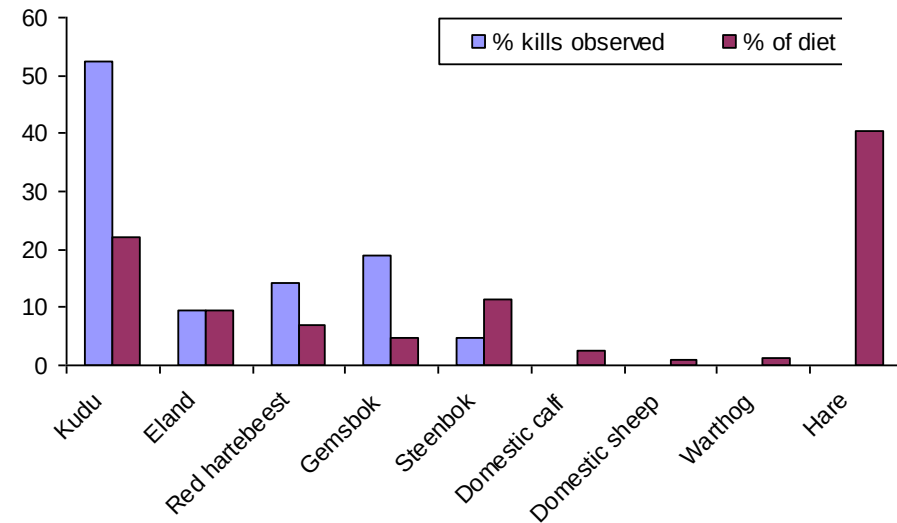
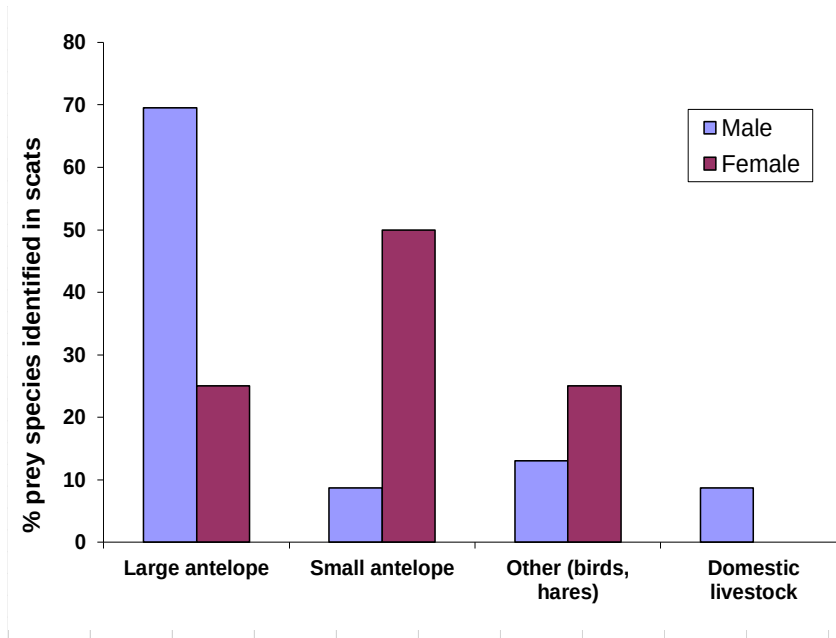
Cheetah Ecology

- Females cover multiple male areas





Cheetah diet - Usually medium-sized antelope: 10-35kg



- 71 species - from mole rats to wildebeest. 17 species in Namibia.
- 59% of farmers reported kudu calves as the primary prey.
- 77% of the cheetah's diet included hartebeest, kudu and gemsbok calves.
- Females prefer steenbok & duiker.
- Can prey upon livestock if unmanaged.



CCF Ecology Team

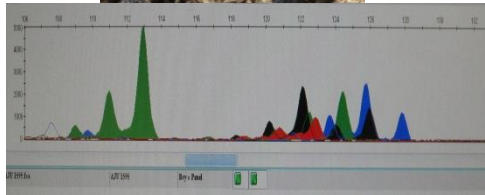


2 - 12 cheetahs per 1000 km²

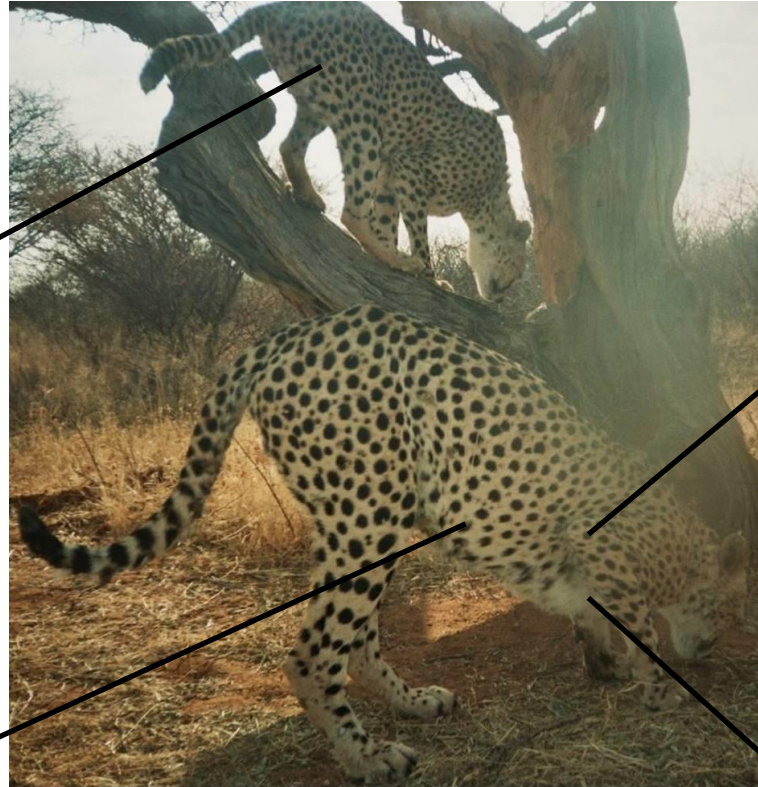
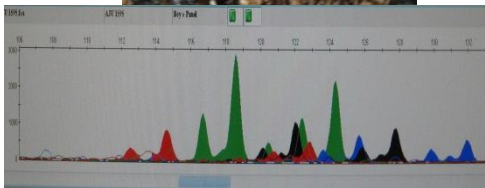


Matching pictures with genetic ID

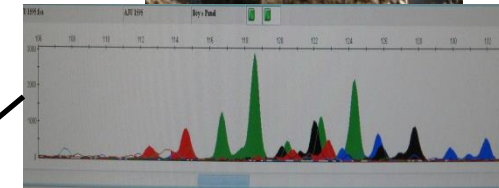
22 Sept



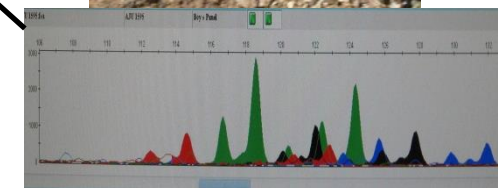
11 Nov



20 Oct



7 Dec

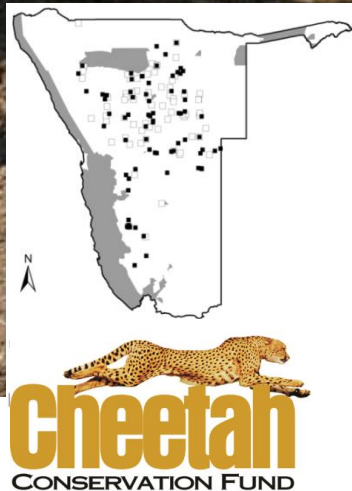


Cheetah conservation requires large landscapes



Research leads to Conservation

Dogs Saving Cats



More than 80% reduction in livestock loss

Prey and Habitat are Critical to Cheetah Survival

Change in land use a threat for cheetah



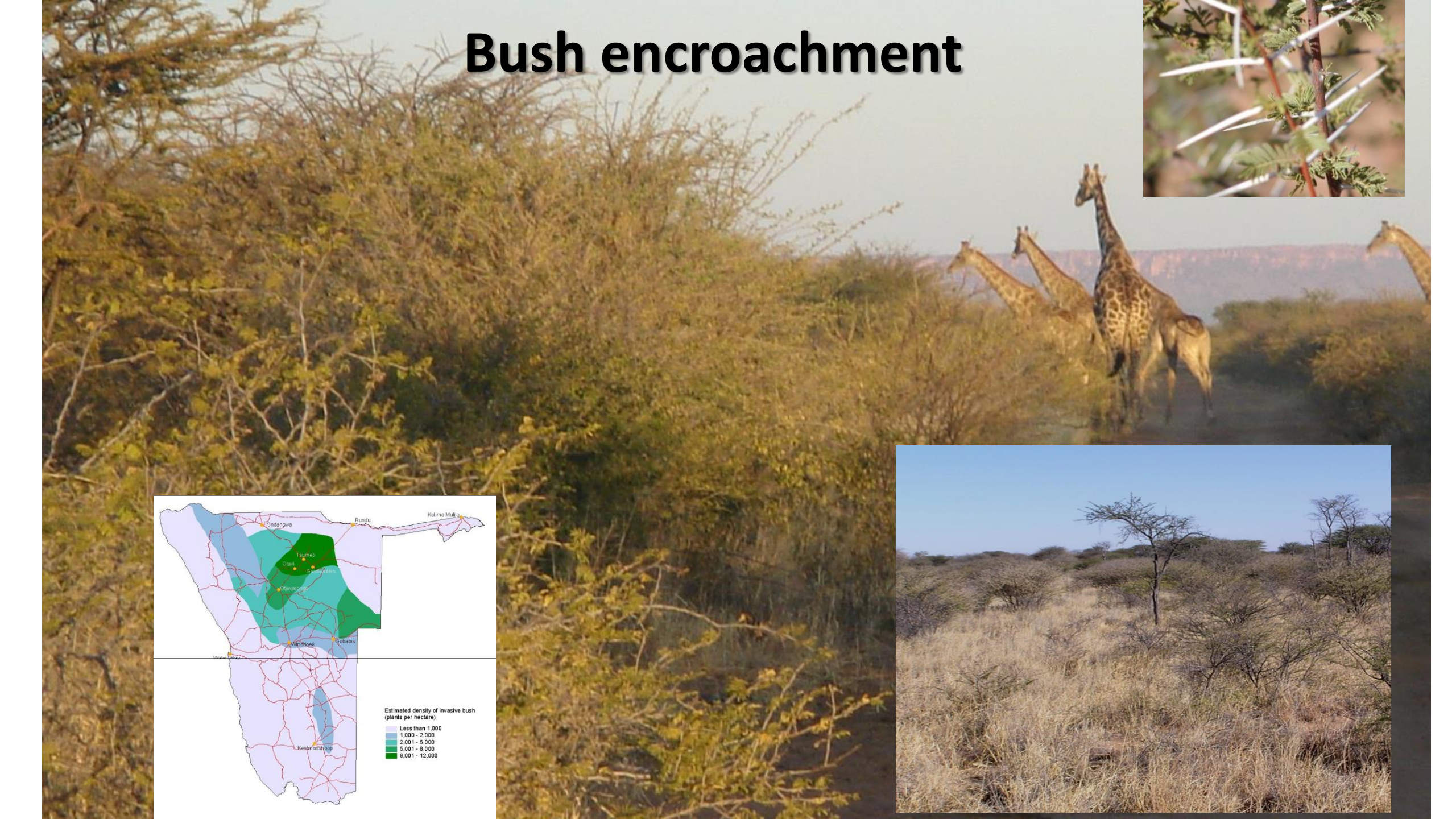
Future Farmers of Africa Training

integrated livestock + wildlife management + habitat restoration

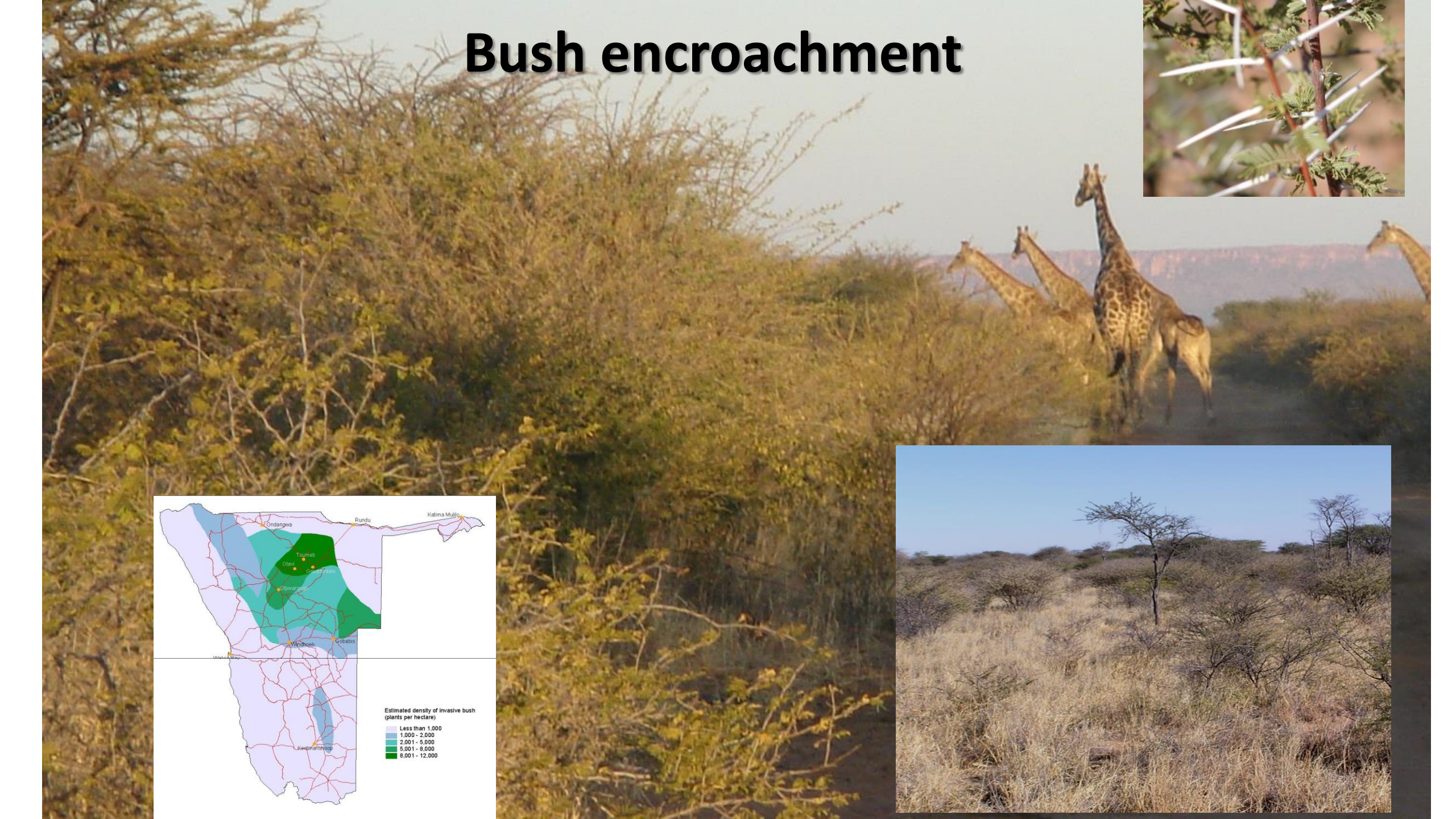


- By studying cheetahs CCF is now dealing with habitat restoration.
- CCF does training and national research – on rangeland management.

Bush encroachment



The collage consists of four images illustrating bush encroachment. The top-left image shows a dense thicket of tall, yellowish-green bushes. The top-right image is a close-up of a thorny branch with green leaves. The bottom-left image is a map of Namibia showing the estimated density of invasive bush plants per hectare, with a legend indicating five density ranges from less than 1,000 to 8,001-12,000. The bottom-right image shows a savanna landscape with tall, dry grass and scattered trees, with a giraffe visible in the background.

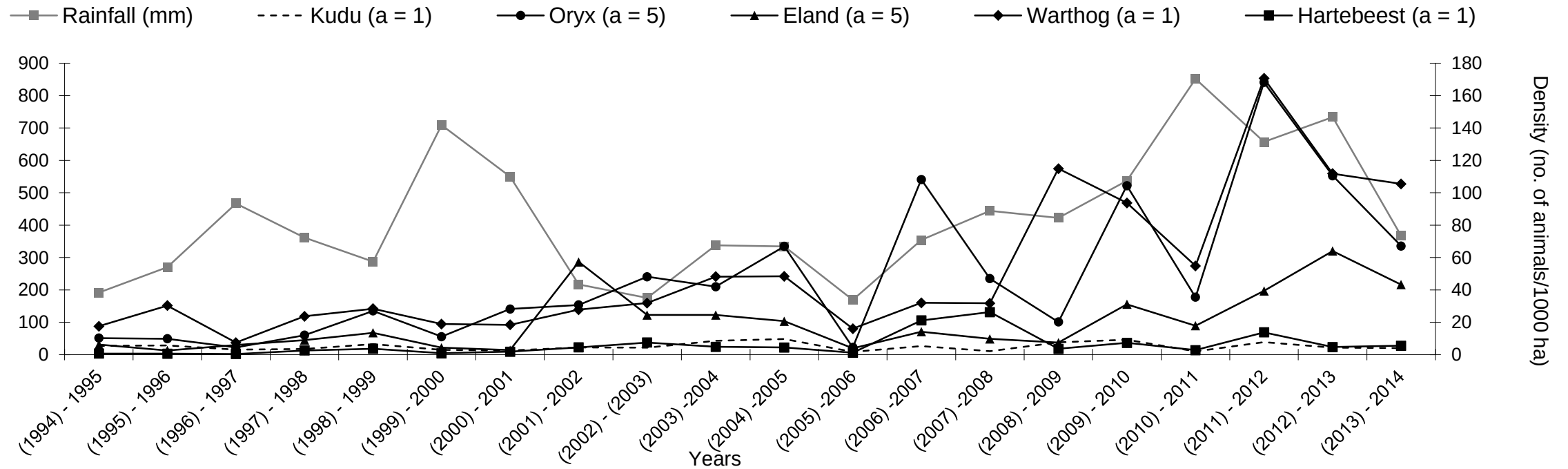


10 tons per ha =Job potential Biomass power potential



CCF's Game Farm

Monthly game counts



Solutions to keeping predators out of game farms

- Electrification has been used as a method to exclude predators from fenced game areas.
 - Land owners consider electrification to be 70-80% effective at excluding predators, but installation and maintenance costs are expensive (Schumann et al. 2006).
- Swing Gates - Reliable and cost effective alternative compared with electric fencing.

Swing gates – reducing holes



Marker, L., 1996; Schmann *et al.*, 2006; Rust *et al.*, 2014

Per km	Swing Gate	Electric Fence
Installation	\$111	\$593
Maintenance	\$828	\$1,683
Total	\$939	\$2276

- Digging animals have free movement and reduces their holes.
- Does not leave visible openings in the fence that can be detected by predators.
- Can exclude cheetahs and leopards from farms.





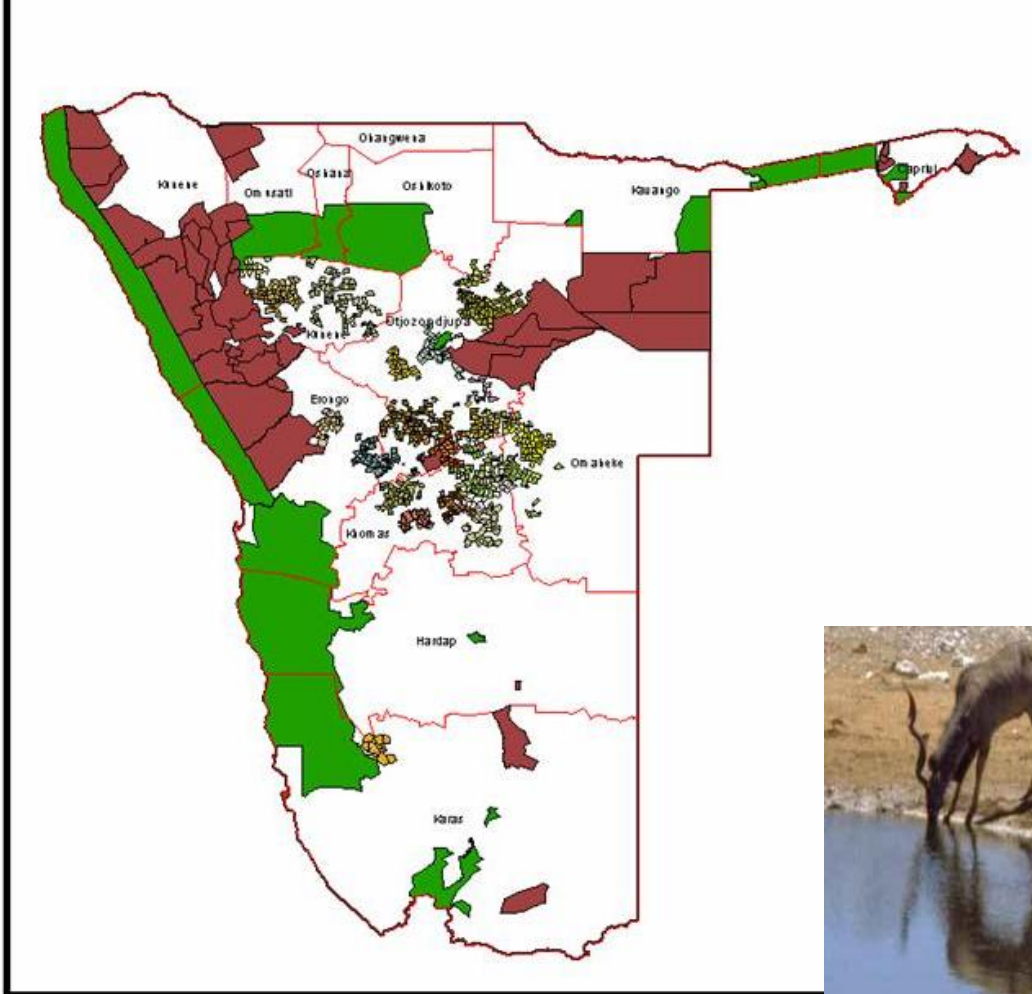
Conservancies

Large connected lands supporting
integrated wildlife and livestock



40% of Namibia is in Conservancy lands

Communal and Commercial Conservancies in Namibia



**Wildlife is
free-range**

Not game fences



Sources of returns to conservancies and their members in 2013

By Helge Denker NACSO10 September 2015

Source of cash income or in-kind benefits	Value in N\$	Percentage of total cash income and in-kind benefits
Conservation hunting (includes all cash income to conservancies and members)	20,968,823	31%
Conservation hunting meat	6,260,112	9%
Own-use game harvesting meat	3,500,928	5%
Shoot-and-sell game harvesting	990,744	1%
Other hunting or game harvesting (e.g. problem animal control)	459,810	< 1%
Live game sales	17,200	< 1%
GAME USE SECTOR TOTALS	32,197,617	47%
Joint-venture tourism (includes all cash income and in-kind benefits to conservancies and members)	29,272,088	43%
Community-based tourism and other small to medium enterprises	1,974,079	3%
Crafts	1,162,764	2%
TOURISM SECTOR TOTALS	32,408,931	48%
Indigenous plant products	2,655,874	4%
Miscellaneous (e.g. interest)	938,993	1%
OVERALL TOTALS	68,201,415	100%





Conclusion

- Game fenced farmers catch more cheetahs than that of livestock farmers.
- As more game fences are erected, the rate of human-wildlife conflict will increase, which is an issue for cheetah and all large carnivores across Namibia.
- Ecological relationships
- Removals make a vacuum effect bringing in more animals.
- Meso predators will expand – reduces game calves.
- Carnivores regulate each other – males keep other males out.
- By understanding these relationships it is possible to share information on how these influences affect cheetahs on game ranching farms and in turn how farmers can farm in co-existence.



Questions?

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