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How can cheetahs and farmers get along better?

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Abstract

Sometimes humans and animals come into conflict with each other. This can threaten people's livelihoods and also threaten the animals' lives.

In central Namibia, farmers have a problem with cheetahs. The cheetahs prey on their baby cows (calves). In turn, the farmers often try to kill the wild cats in order to protect their cattle!

Wouldn't it be great if we could study the situation and find a solution that suits both the farmers and the cheetahs? This is what we did. We tracked the cheetah's behavior. We figured out how farmers could manage their cattle so that cheetahs don't eat the calves. This could prevent farmers from losing their valuable livestock and stop them from trying to kill the cheetahs.

Introduction

Have you ever come into conflict with an animal? For example, a woodpecker may loudly tap on your bedroom wall when you're trying to study, or a squirrel may make its home under your roof. This kind of situation is called a *human-wildlife conflict*.

One such conflict is happening in central Namibia in Africa. Both cattle farmers and cheetahs live in the *thornbush savanna* there. The farmers move their cattle between different plots of land so they always have fresh grass to eat (graze). The cheetahs hunt the calves (because the adult cows are too big for them to hunt). In turn, the farmers kill the cheetahs to try to protect their livestock. This is one reason cheetahs have become endangered.

But we are confident that there are other ways to save the calves without the need to kill the cheetahs. We decided to study these wild cats in their natural habitat. (Studying animals like this is called *behavioral ecology*.) We hoped learning more about them could give us an answer that could work for farmers, their cattle, and the cheetahs!

Did you know that cheetahs can't roar but they do purr like cats? And of course, they are the fastest land mammal. It is thought they can get up to speeds of 128 km/h.

(Photo: IZW Berlin)

Methods

To study the cheetahs in the wild, we captured them and then put GPS collars on them before releasing them. This allowed us to track them wherever they went.

Individual cheetahs have different roles in the areas where they live. There are:

- *Territory holders* - the big bosses of the cheetah world. They are big and very strong males that claim ownership of a certain area and the resources in it (like food).
- *Floaters* - males who roam around in big areas, known as their 'home range'. This home range includes the territories of some territory holders, who allow them to pass through but not to stay.
- *Females* - They also live in big areas which include several territories and the spaces between them.

We put tracking collars on all the territory holders in the area, most of the floaters, and some of the females (Fig. 1). The collars allowed us to see where exactly the cheetahs' territories were. We could also see where animals met up and communicated with each other. We used these data to recommend some changes to the farmers. We thought that if the farmers kept their groups of cattle (herds) with calves in certain areas, and not in others, they could avoid cheetah attacks.

The farmers followed our advice. They then compared the number of calves killed by cheetahs before and after these changes.

Figure 1:
We captured, sedated, and put GPS collars on 106 free-ranging cheetahs in Namibia between 2007 and 2018.
(Photo: IZW Berlin)

Results

We found that there were certain places where cheetahs spend most of their time and interact with each other. We called these spots 'communication hubs' (Fig. 2). The hubs are the core area of the territory holders' territories, in which the males mark big trees, rocks, or termite mounts by urine, feces, or scratch marks (similar to dogs). These special places are not used only by territory holders. Floaters visit them regularly and sometimes females do, too. This is their way of sending messages to each other.

Since all cheetahs from the region visited these hubs a lot, we thought that these areas were especially dangerous for calves. Therefore, if a farmer had a grazing area that included a cheetah hub, we asked them to move any herds with calves to another area. Although there are no cheetah-free areas, the new locations are much safer for the calves.

Please see Figure 3 on Page 3

There is still a potential risk everywhere but the probability of losing a calf to a cheetah is much lower away from the communication hubs.

So, did our advice work? Yes! The farmers observed a significant reduction in calves killed by cheetahs (Fig. 3).

Figure 2:
A female cheetah with cubs visiting a communication hub. This photo was captured by a motion-activated automatic camera we had installed.
(Photo: IZW Berlin)

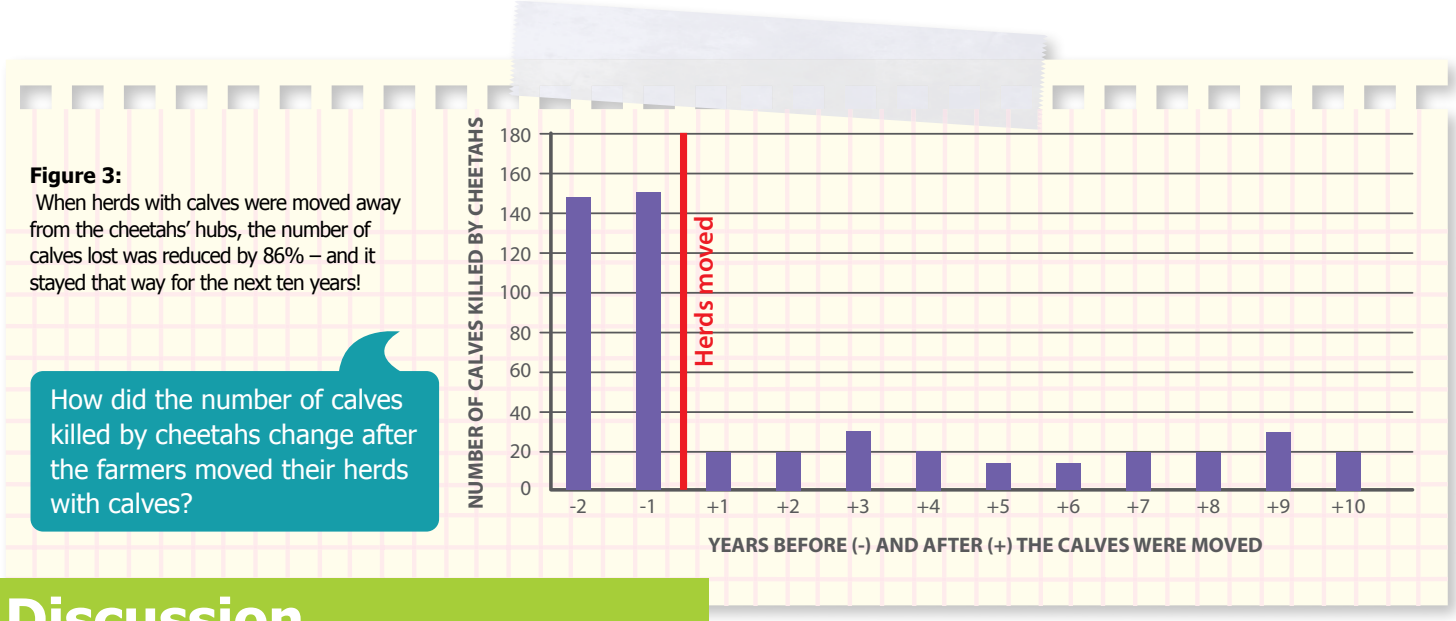

Figure 3:
When herds with calves were moved away from the cheetahs' hubs, the number of calves lost was reduced by 86% – and it stayed that way for the next ten years!

How did the number of calves killed by cheetahs change after the farmers moved their herds with calves?

Discussion

We kept track of how many calves cheetahs killed over the following years. We noticed that the cheetahs did not move their hubs to go after the calves – they kept them where they were. This means that we found a long-lasting way of saving both calves and cheetahs – just by moving the calves away from the hubs!

Our research shows that cheetahs are not really problem animals for the farmers, but there are problem areas. That means farmers should always make sure to use land near hubs only for adult cattle (without calves). But sometimes farmers might not have enough space to keep calves away all the time. Another possible solution to this problem could be that neighboring farmers work together. They could share their land in such a way that the calves are kept safe but all of their cattle have enough fresh grass to eat.

Conclusion

Solutions to human-wildlife conflicts are found only when all sides - animals and humans - join forces, work together and find ways to coexist. Looking for solutions based on animal behavior could work for other species too. Can you think of any human-wildlife conflicts in your area? And do you think they could be solved without the animals being harmed or killed? It's important to raise awareness of peaceful solutions that can help humans and animals get along. There are always better solutions than endangering animals.

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https://doi.org/10.1073/pnas.2002487117

IZW: Cheetah Research Project
https://www.cheetah-research.org/

WWF: Human-wildlife conflict
https://wwf.panda.org/discover/our_focus/wildlife_practice/problems/human_animal_conflict/

Glossary of Key Terms

Behavioral ecology – the study of the relationship between animal behavior and the environment.

Floaters – adult cheetah males, often younger than territory holders. They live in large home ranges which overlap both with female home ranges and the smaller territories of male territory holders. They usually wait for one of these territories to become vacant or sometimes fight the current territory holder for it.

Human-wildlife conflict – any interaction between humans and animals that has some kind of negative effect (mostly for both sides).

Territory holders – male cheetahs with their own area, usually older, bigger, and stronger than floaters. Their territory is smaller than the large home range of floaters but contains much more valuable resources – like, for example, the hubs and also access to female cheetahs.

Thornbush savanna – a type of plain with patches of grass, bushes, and trees. Most photos of cheetahs are taken in East Africa, where the savanna is full of grass, but farmers in central Namibia's thornbush savanna need to move their cattle around to make sure they have enough grass to eat.

Check your understanding

1. Territory holders have smaller territories compared to the bigger home ranges of floaters. But what advantages do these territories have?

2. This article explains one reason why cheetahs are endangered animals. What is it and can you think of any other reasons?

3. Where did we do our study on cheetahs and why do you think we chose this region?

4. How did we reach the conclusion that cheetahs are not really problem animals for cattle farmers?

5. Can you think of any other cases where a change helped resolve a human-wildlife conflict in a way that was good for both humans and animals? (You could look one up if you are not sure!)

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