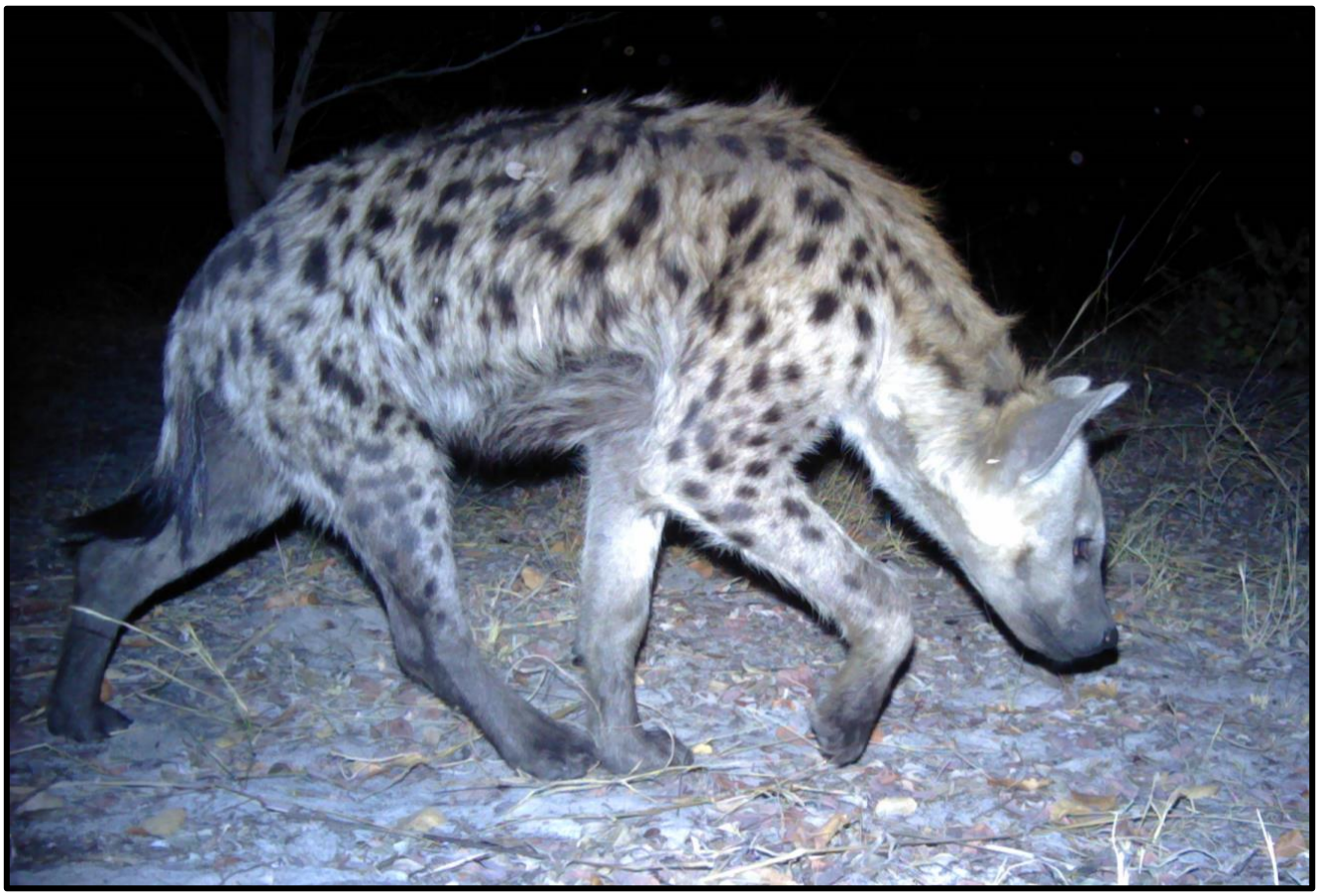
Conflict with Spotted hyaenas in the Conservancies of the Zambezi Region

Report June 2020



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Summary

Three years of Event Book data from 2017 to 2019 on spotted hyaena attacks on livestock from 13 Zambezi Region conservancies was analysed. The records catalogued 161 head of livestock killed by spotted hyaenas in 138 events. Drought, human settlement in relation to hyaena occurance, cattle density and kraal quality were considered with respect to their role as drivers or considerations in spotted hyaena attacks on livestock. Attacks were seasonal along the Chobe Floodplain, but occured relatively consistently throughout the year in the Mudumu Complexes. The majority of spotted hyaena attacks took place in Lusese, Mashi and Kwandu Conservancies. Due to the preponderance of spotted hyaena attacks at kraal the obvious recommendation is to upgrade all kraals in hotspots of attacks. However, this may be too expensive an undertaking. Simply reinforcing existing kraals with chain link fencing is a possibility as well as implementing mobile kraals in areas where cattle numbers increase due to seasonal herding. Unfortunately livestock owners are resistant to communal kraaling and herding so building a number of large predator-proof kraals at each village would not be accepted. Due to the relatively high number of attacks while grazing it is important to reinforce both herding practices and securing all livestock in secure kraals at night.

Cattle predation statistics

A total of 161 head of livestock in thirteen conservancies were lost to spotted hyaenas over a period of three years from 2017 to 2019 (Event book data). In the Mudumu Landscape, 109 livestock were killed in 99 separate incidents, whereas 52 livestock were killed in 39 incidents along the Chobe Floodplain. It appears that spotted hyaena attacks on livestock are a fairly consistent feature in the landscape, especially in Kwandu, Mashi and Lusese conseravancies (Figure 1). Attacks seemed to be opportunistic likely to be driven by human density in proximity to hyaena occurance and availability of livestock. Agricultural practices in response to environmental conditions are likely to be an important contributing factor such as more grazing livestock killed during dry years when livestock are kraaled less often and more kraal attacks when less livestock are left unattended (Figure 2).

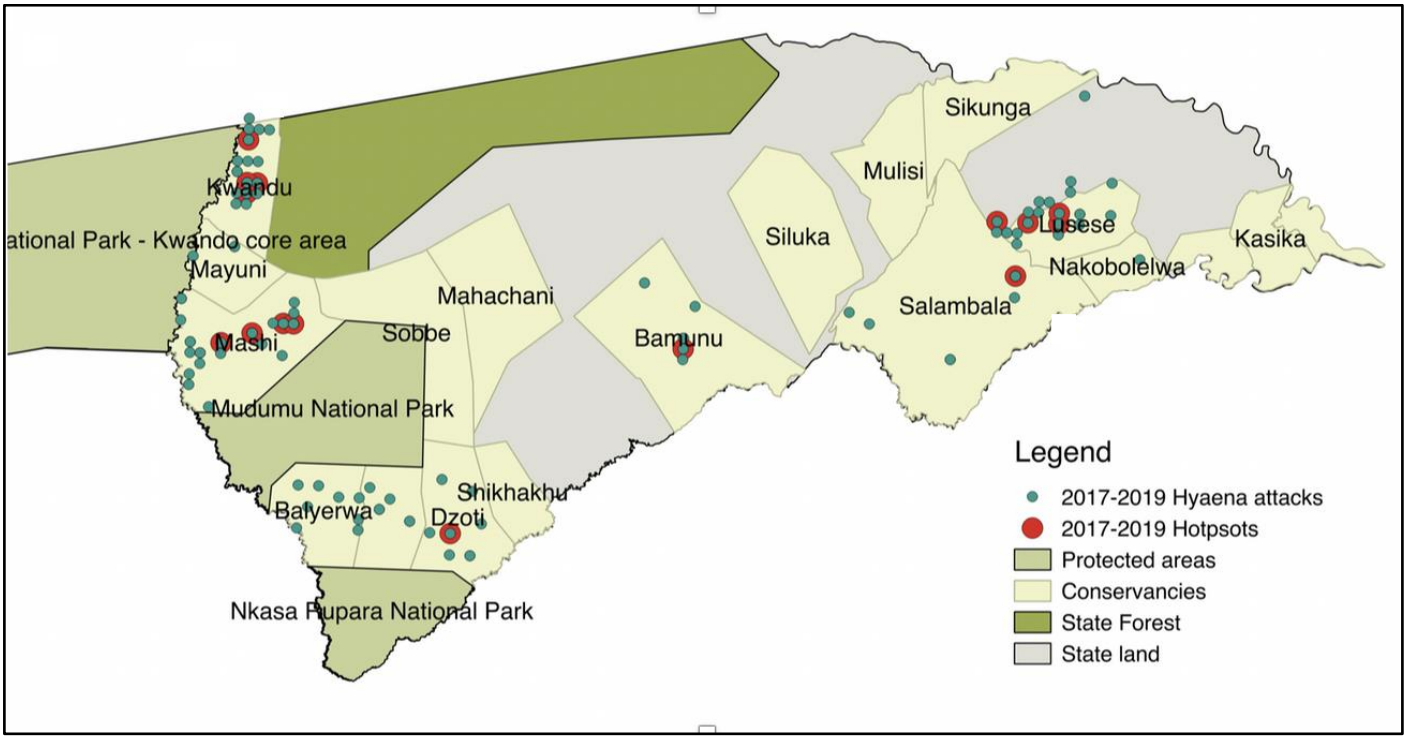

***Figure 1**: Map of the east Zambezi Region showing single spotted hyaena attacks on livestock as well as conflict hotspots in the conservancies from 2017 to 2019.*

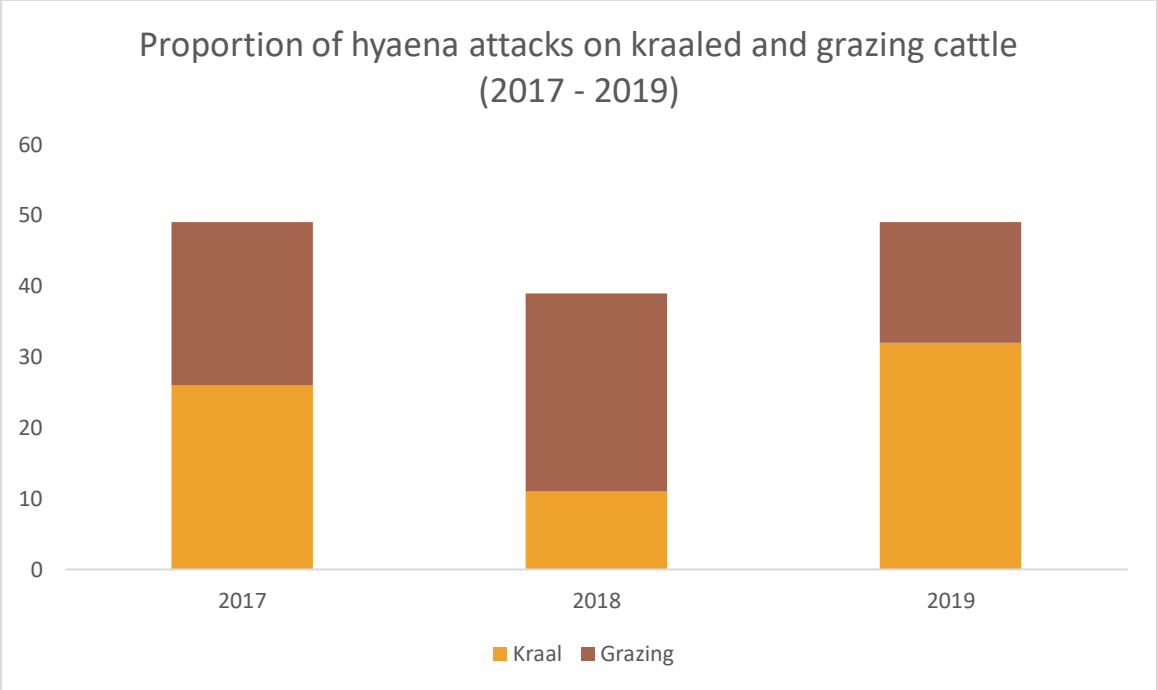

***Figure 2**. Number and relative proportions of spotted hyaena attacks on livestock while kraaled and while grazing in the Zambezi Region Conservancies recorded in Event Books from 2017-2019.*

In Lusese Conservancy, all spotted hyaena attacks on livestock took place at kraals, which suggests that small, inadequate kraals facilitate livestock attacks and that hyaenas will actively seek out penned livestock in accessible kraals. Adult cows were taken by hyaenas more so than other livestock (Figure 3). This is likely due to cows making up the majority of livestock in the landscape. Adult cattle are easily killed by a single hyaena, which makes them ideally suited to hyaena foraging behaviour, where hyaenas mostly forage alone or in pairs. Out of the 138 hyaena attacks on livestock in the Zambezi Region from 2017 to 2019, 113 were carried out by single spotted hyaenas.

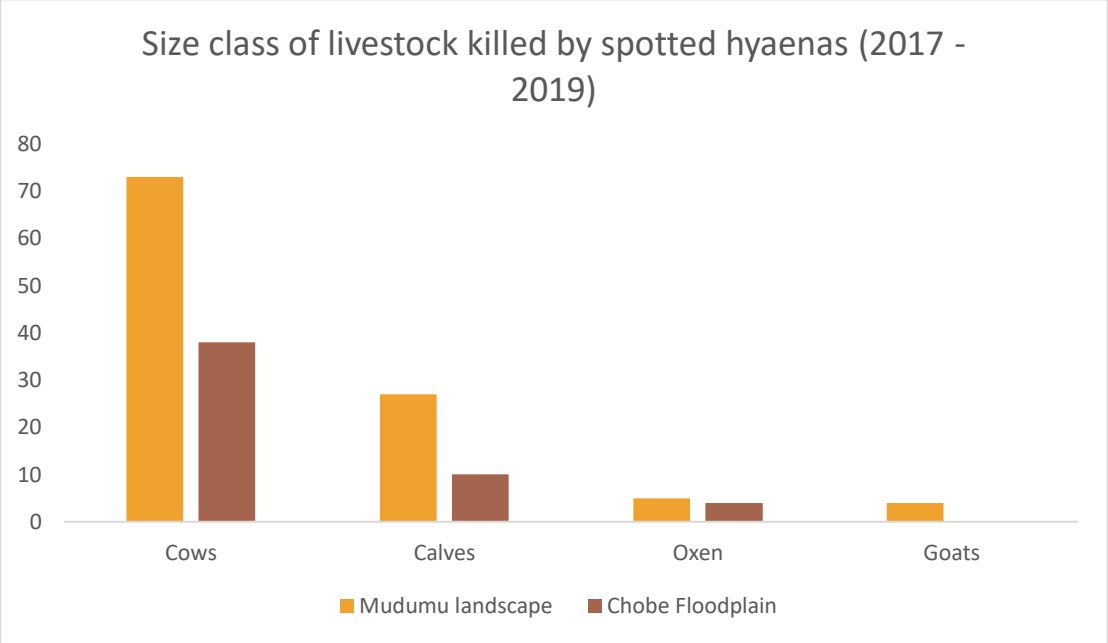

***Figure 3**. Adult cattle made up the majority of livestock that were killed by spotted hyaenas in the Zambezi Region conservancies from 2017-2019.*

Hotspots and seasonality of conflict

Although there were ongoing attacks on livestock by spotted hyaena throughout the year, some conservancies had far more attacks than others. For example, the Kwandu Conservancy had 29 spotted hyaena attacks over two years and Mashi and Lusese conservancies had 27 and 18 attacks respectively in a single year (Figure 4). Both Kwandu and Mashi Conservancies lie adjacent to the protected areas of Mudumu National Parks (Mashi) and Sioma Ngwezi National Park in Zambia and the State Forest (Kwandu). Resident hyaenas in these parks and the State Forest have been known to den close to human settlement areas and even inside a village in Kwandu Conservancy on one occasion.

Lusese Conservancy lies close to the Chobe Floodplain and most of the hyaena attacks take place during the flooding season (Figure 5), a period of time when lion attacks on livestock are virtually non-existant due to the flooding of the Chobe River. Livestock are herded away from the floodplains during the flooding season and higher numbers of cattle occur further inland. It is likely that resident spotted hyaenas take advantage of the higher density and presence of livestock during this time of year.
Interestingly, when prey species disperse from the Chobe Floodplain in the early wet season causing lion attacks to increase substantially, spotted hyaena attacks decline to almost zero (Figure 4 and 5). During 2019, the Chobe River did not flood and cattle were not herded away from the floodplain. This is reflected in Figure 5 where only two hyaena attacks took place. Group size of spotted hyaenas involved in attacks on livestock in the Salambala (n=5) and in Lusese (n=6) indicate the presence of resident spotted hyaena clans. Livestock depredation patterns by hyaenas are also due to where hyaenas occur in the landscape.

While most spotted hyaena attacks occur during the wet season on the Chobe floodplains (Figure 5) in the Mudum Landscape, spotted hyaena attacks on livestock occured throughout the year, with only a slight increase during the cold dry season (Figure 6). It is likely that this increase in attacks on cattle is related to cattle being left out to graze on harvested fields and to take advantage of the last of the green grass before the hot dry season sets in where cattle rapidly lose condition. Lion attacks on livestock increase dramatically during this time of the year.

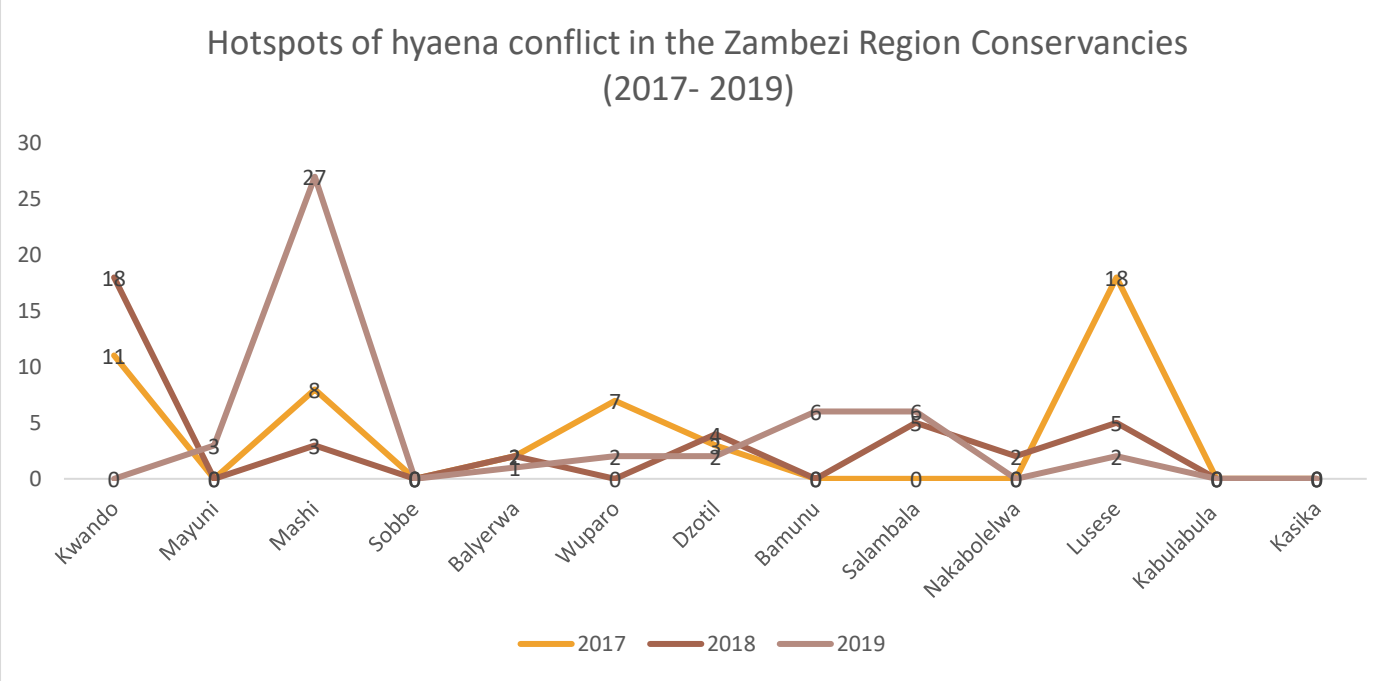

Figure 4. *Total number of spotted hyaena attacks recorded in Event Books for each conservancy from 2017-2019 in the Zambezi Region conservancies.*

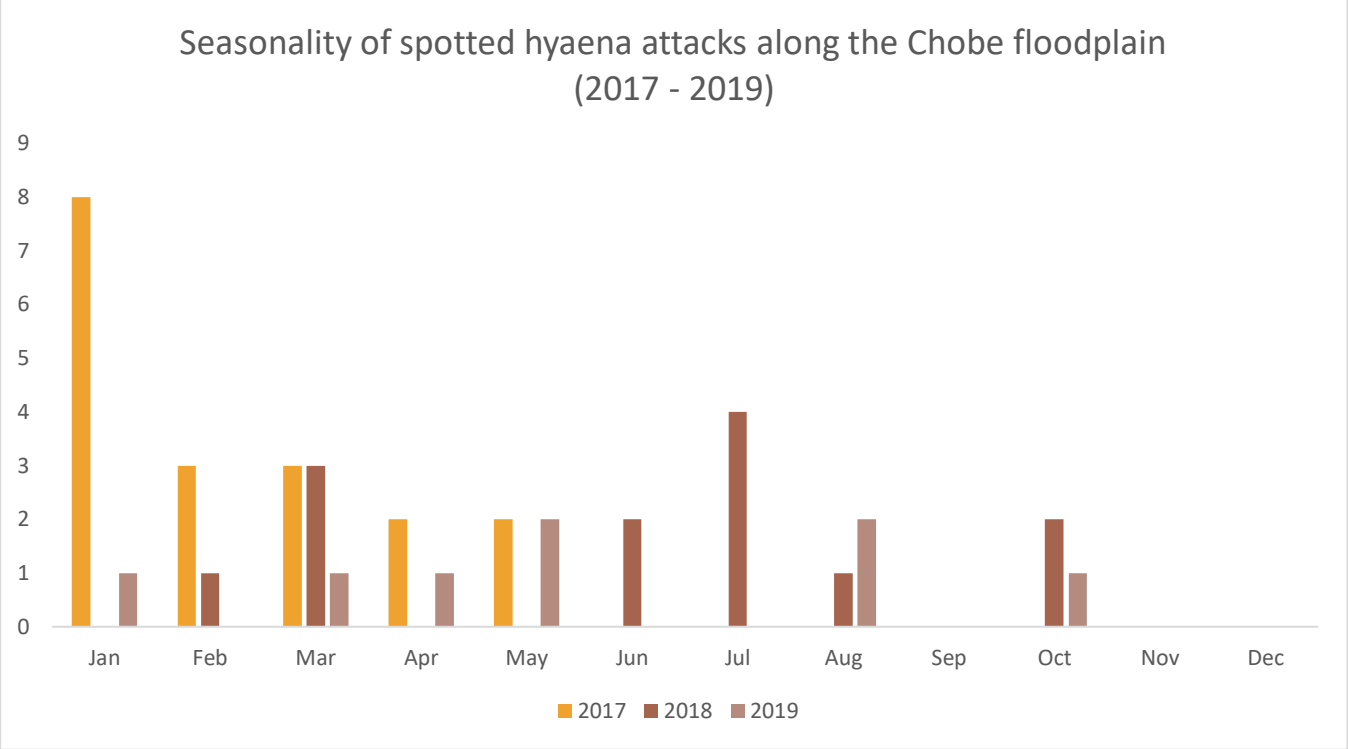

Figure 5. *Seasonality of spotted hyaena attacks along the Chobe floodplain from 2017–2019.*

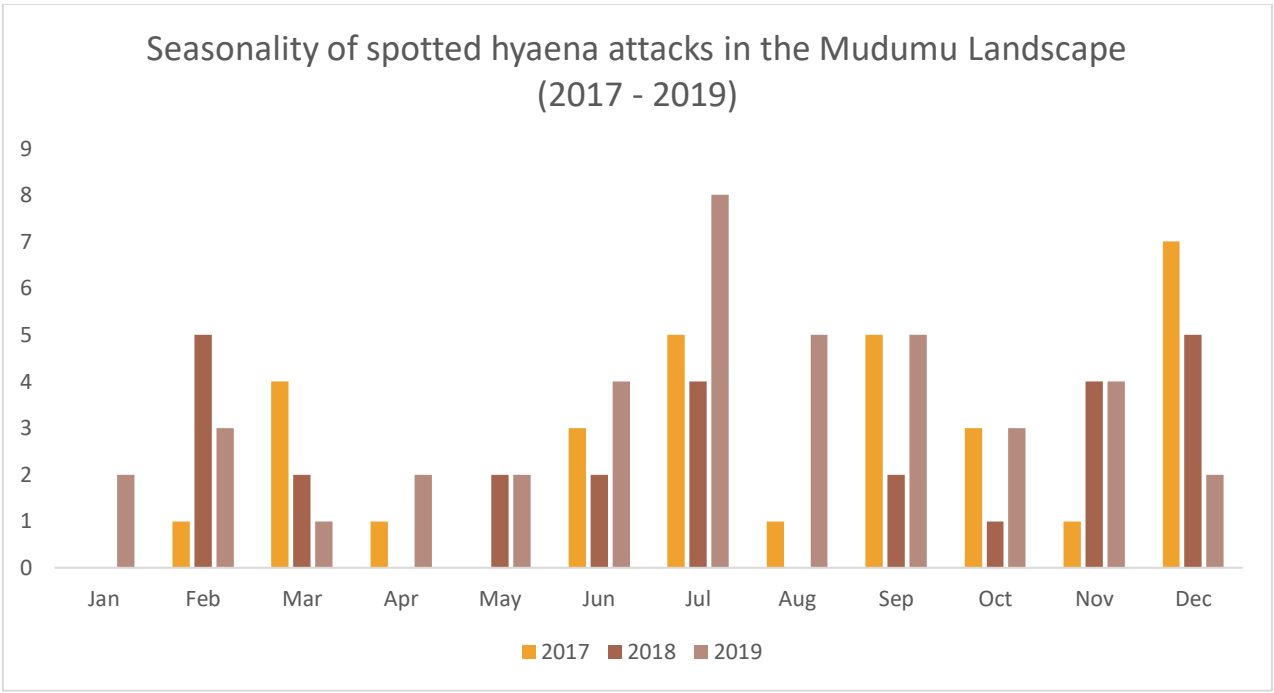

Figure 6. *Seasonality of spotted hyaena attacks in the Mudumu Landscape from 2017-2019.*

Measures to mitigate conflict with spotted hyaenas

As spotted hyaenas forage at night and are capable of covering long distances actively searching for food, it is likely that they could visit multiple kraals in a single night. For this reason it would be necessary to upgrade all kraals that fall in close proximity to conflict hotspots if attacks are to be prevented. It is unknown whether this would alleviate hyaena attacks on cattle or whether the problem would shift to a different area, but initiating a pilot project in a conservancy such as Lusese would be worthwhile, especially here where all attacks on cattle take place at kraals.

Upgrading all individual kraals in the landscape would be very expensive and this expense would substantially exceed the value of the livestock killed by spotted hyaenas. Ideally if cattle owners were willing to communally kraal their cattle, a number of large strong kraals could be constructed in each village to protect cattle at night, however, this scenario is unlikely to succeed as cattle owners are resistant to communal kraaling and herding. A cheaper option would be to adapt existing kraals by surrounding them with mesh wire which would prevent hyaenas sticking their heads in or accessing kraals.

Mobile kraals could play a role in reducing cattle losses to livestock in Lusese Conservancy and others areas where livestock density increases seasonally. Mobile kraals could be an important conflict prevention measure in rangeland management projects where livestock is moved to different grazing areas in the landscape.

Acknowledgements

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