Livestock

&

Predation Management

PMSA

Predation Management South Africa

2008 - 2021

MONITOR FARMS TO ASSESS MANAGEMENT TOOLS IN SUPPORT OF

PREDATION MANAGEMENT TRAINING IN SOUTH AFRICA

Niël Viljoen

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Foreword

Decades have passed and still, in this modern world of today, one of mankind's biggest anxieties is the growing concern of ever-increasing numbers of the human population against the continued struggle for survival. The demand for space has forced all life on earth into a race, a race for space, and inevitably, conflict will be an unavoidable outcome. Human wildlife conflict and co-existence are definite concerns and a major challenge.

With approximately five billion hectares (38%) of the global land surface occupied by commercial farming, farmers will most definitely be in the forefront of experiencing conflict with wildlife. Ecosystems uninterruptedly endeavour to balance themselves (a natural phenomenon ensuring stability) towards a good and healthy biodiversity.

Commercial farming is unavoidably the experimental grounds for resolving wildlife conflict, where farmers are challenged in respect of food security, financial survival and most definitely to protect and preserve biodiversity. Farmers therefore play a leading role on how to handle and manage human wildlife conflict and co-existence.

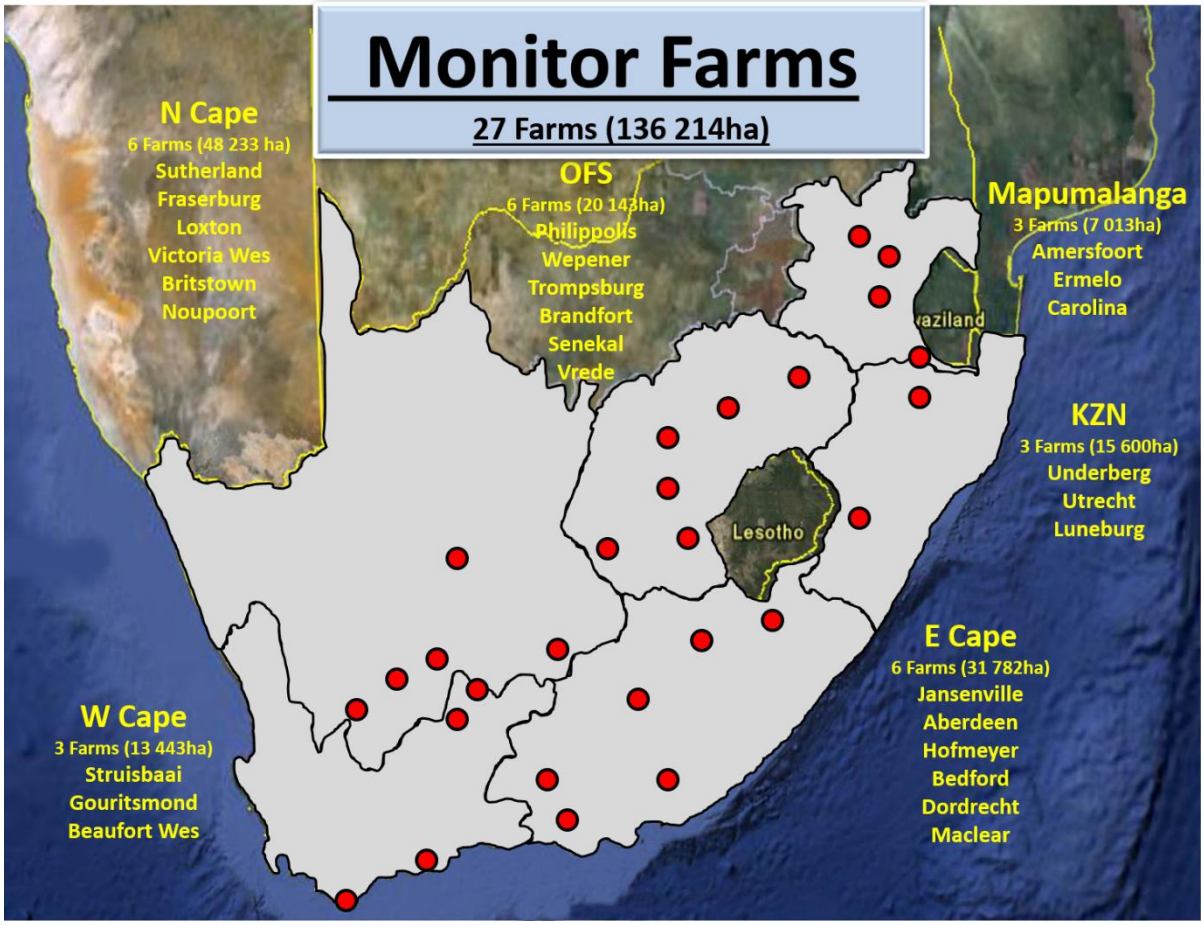
In South Africa, the total land use for commercial agriculture is approximately 46.4 million hectares, which represents 37,9% of the total area of the country. In 2008, 27 farms with a total area of 136 214 hectares were identified where monitoring and experimental approaches were assessed for adaptive management strategies that are sustainable and workable for unique South African commercial farming conditions.

This report (longest continuous predator research and monitored project in South Africa's history) will give feedback on the findings and results formulated over the past fourteen years.

Monitor farms

These experimental grounds, or farms, are referred to as monitor farms and date back to 2008 when this project was initiated by the National Woolgrowers' Association of South Africa (NWGA). 27 monitor farms are situated across six of South Africa's provinces, covering a total area of 136 214 hectares. These monitor farms include areas of different rainfall, vegetation, and ecosystems, thus providing a diverse platform for developing, initiating, and experimenting with sustainable management strategies for the commercial livestock as well as the wildlife industries.

This is truly a research project for farmers supported by farmers, structured under the PMSA (Predation Management South Africa) and funded by mainly the Red Meat Producers' Organisation of South Africa (RPO) and National Woolgrowers' Association of South Africa (NWGA). These associations form the backbone of funding support towards this national research project.



Provincial Results

Each farm represents its own identity with its own unique livestock predation management programme developed for prevailing conditions.

These twenty-seven different farms follow different management strategies and cover almost all the lethal and non-lethal controls available in the toolbox of methods relating to unique South African conditions.

Although a network of support and a combination of control methods, together with different management strategies are implemented at grassroots level, a standardized process of data capturing is used to evaluate the outcome of all the different livestock and predation management methods.

To formalize the outcome of the study and experimental developments over the past fourteen years, the results will be shown by means of graphs on a provincial level.

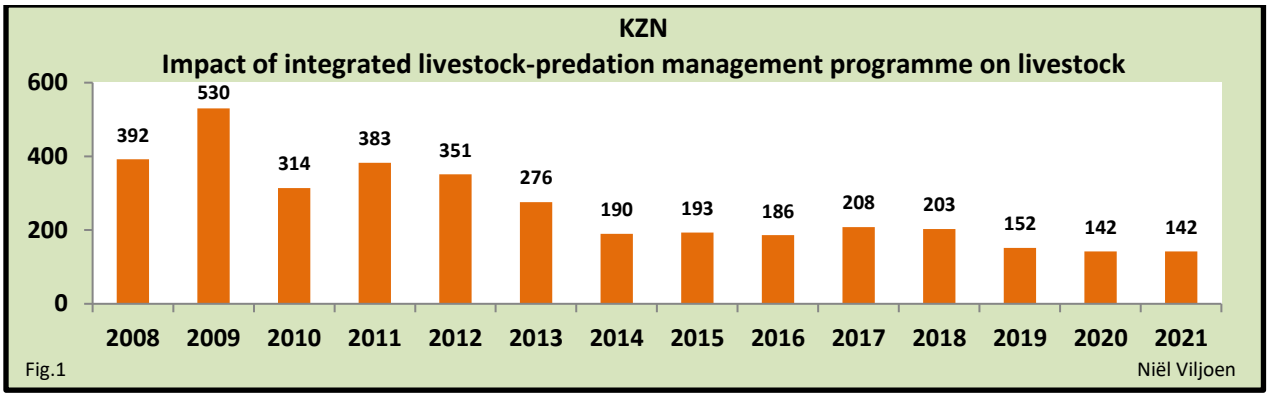
The following graphs will be used to show the results:

- Impact of integrated livestock-predation management programme on livestock;
- Impact of integrated livestock-predation management programme on predators; and
- Comparison of value of livestock losses versus the cost of the management programme.

Impact of integrated livestock-predation management programme on livestock

1. KwaZulu-Natal

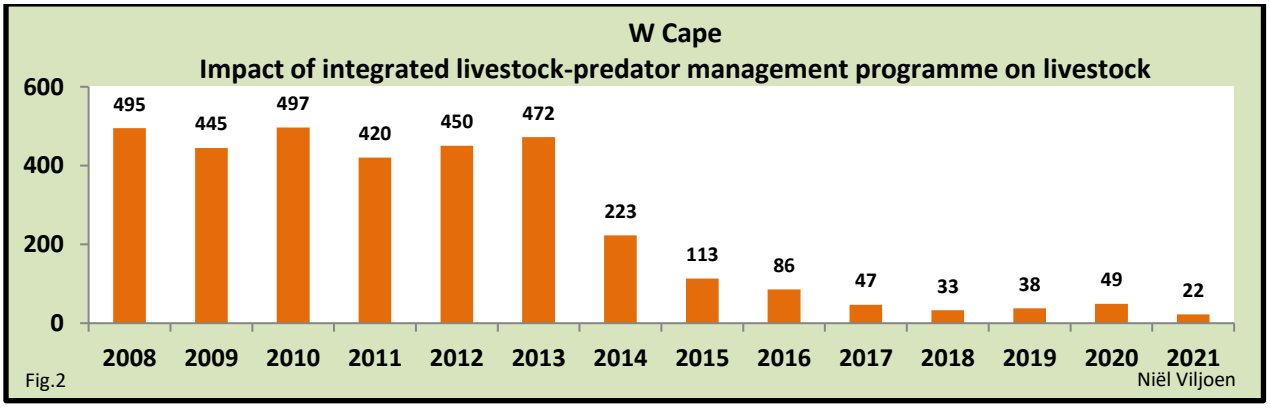
- Summer rainfall (Late November through December extending into January)
- Lambing season - September/October – March/April
- Livestock management – Lambing pens/camps



(Fig.1) KwaZulu-Natal recorded 392 losses of livestock during 2008. This number decreased to 142 in 2021, representing a reduction of 250 less animals caught by predators, giving an 63.8% improvement in the livestock management programme.

2. Western Cape

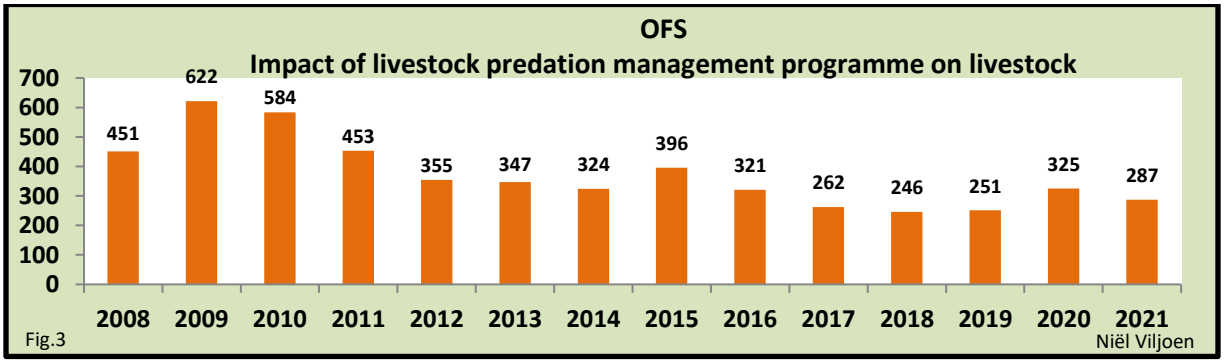
- Winter rainfall (May to August)
- Lambing season - September/October – March/April
- Livestock management – Kraal at night/lambing camps



(Fig.2) The Western Cape recorded 495 livestock losses due to predators during 2008. This number decreased to 22 losses in 2021, giving a reduction of 473 less animals caught by predators and a 95.6% improvement due to the livestock management programme.

3. Orange Free State

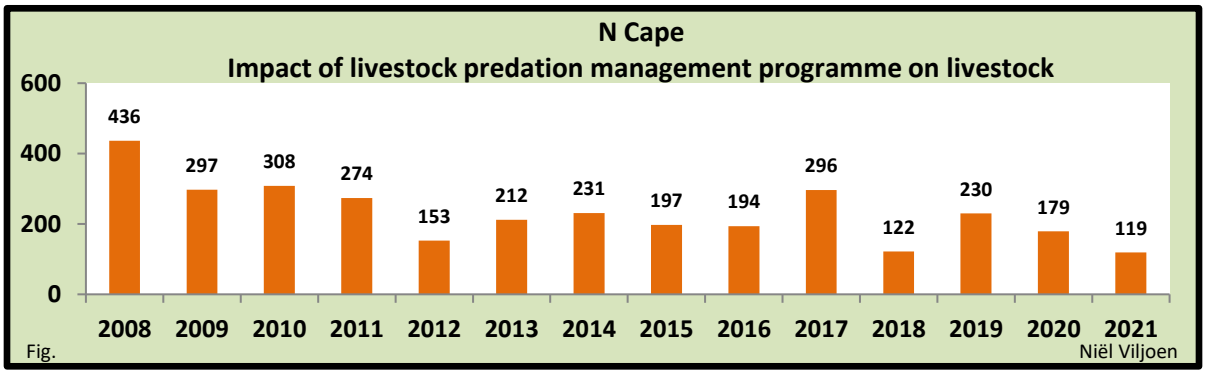
- Summer rainfall (October to April)
- Lambing season - September/October – March/April
- Livestock Management – Lambing pens/lambing camps



(Fig.3) During 2008 a total of 451 livestock were caught by predators, this number has decreased to 287 animals during 2021. A reduction of 164 animals less caught the last year giving an 36.4% improvement because of the livestock management programme.

4. Northern Cape

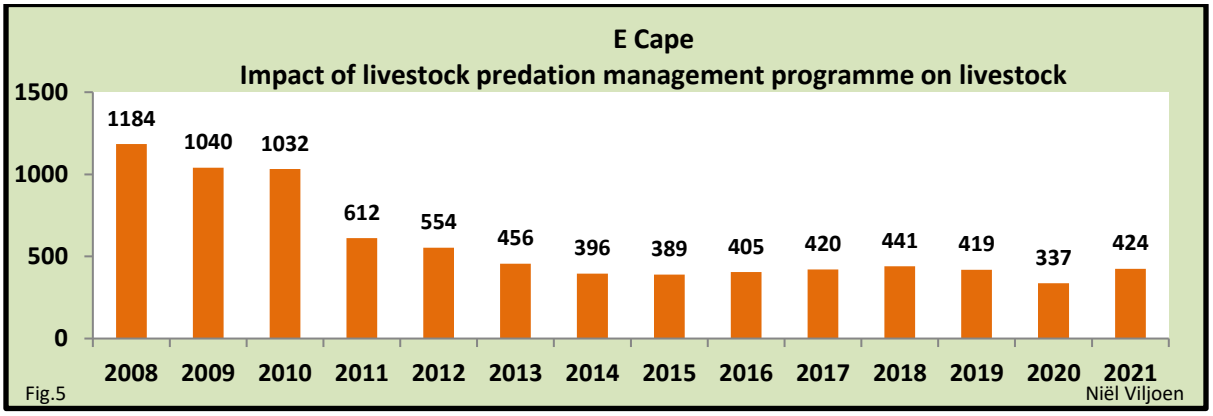
- Summer rainfall (November to April)
- Lambing season - September/October – March/April
- Livestock Management – Lambing pens/camps/extensive lambing



(Fig.4) A total of 436 livestock were caught by predators during 2008. This number decreased to 119 animals during 2021. This is a reduction of 317 animals less lost due to predation, or an improvement of 72.8% because of the livestock management programme.

5. **Eastern Cape**

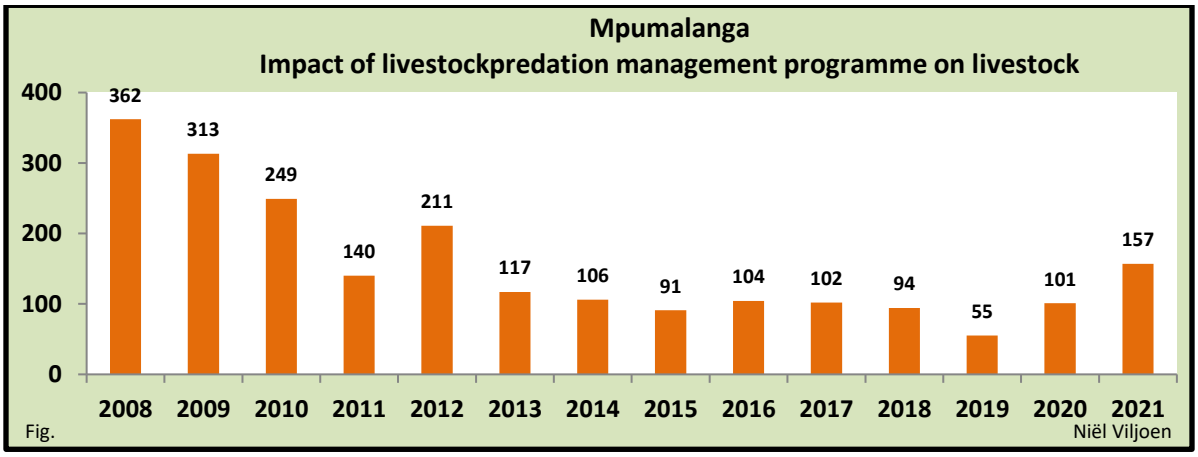
- Rainfall distributed evenly throughout the year
- Lambing season- September/October – March/April
- Livestock Management – Lambing pens/camps/extensive lambing



(Fig.5) A total of 1184 animals were lost due to predators when the project started in 2008. This number decreased to 424 animals lost for the year 2021. The reduction equals 760 less animals lost, giving a total improvement of 64.2% in the overall livestock management programme.

6. **Mpumalanga**

- Rainfall season (October to March)
- Lambing season- September/October – March/April
- Livestock Management - Lambing pens and lambing camps

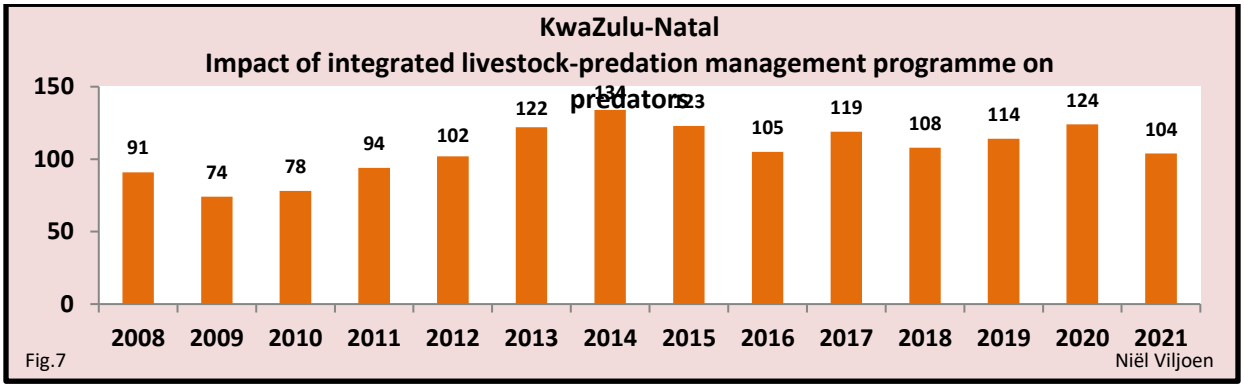


(Fig.6) 362 Livestock were lost due to predation during 2008. This number decreased to 157 animals for 2021. The reduction equals 205 animals or a 56.6% improvement due to the livestock management programme.

Impact of integrated livestock-predation management programme on predators

1. KwaZulu-Natal

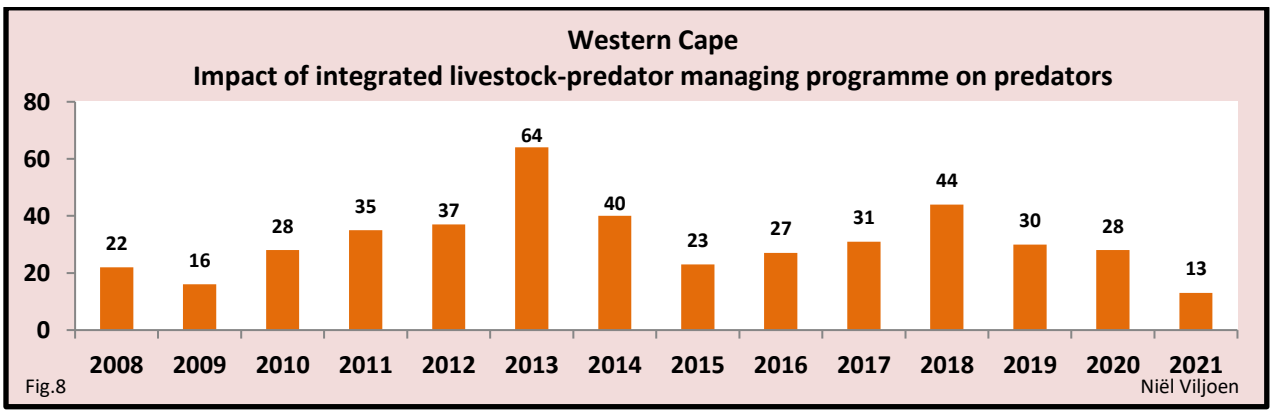
- Predator management programme – Combination of lethal and non-lethal control methods
- Non-Lethal control methods - Electric fencing/Jackal proof fencing/Guards at night
- Lethal control methods - Call and shoot/leghold devices/cages



(Fig.7) When the project started in 2008 a total number of 91 unwanted predators were eliminated. During 2021 a total number of 104 predators were eliminated. That is an increase of 13 more predators or 14.3% because of the predation management programme.

2. Western Cape

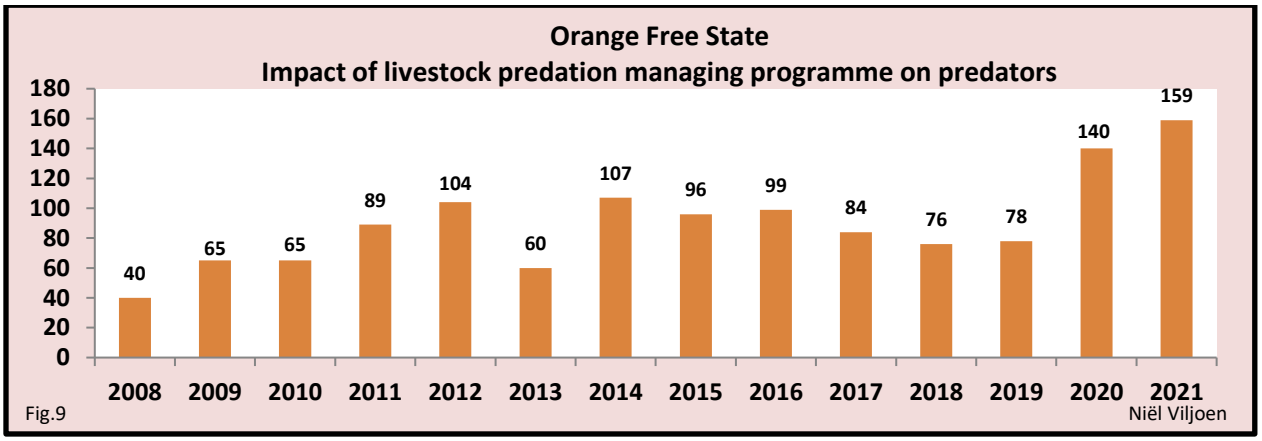
- Predator management programme – Combination of lethal and non-lethal control methods
- Non-Lethal control methods – Alpaca guarding/Kraal at night/Jackal proof fencing
- Lethal control methods – Call and shoot/leghold devices/cages



(Fig.8) During 2008 a total number of 22 unwanted predators were eliminated. This number decreased to 13 in 2021, representing a decrease of 9 predators or 40.9%.

3. Orange Free State

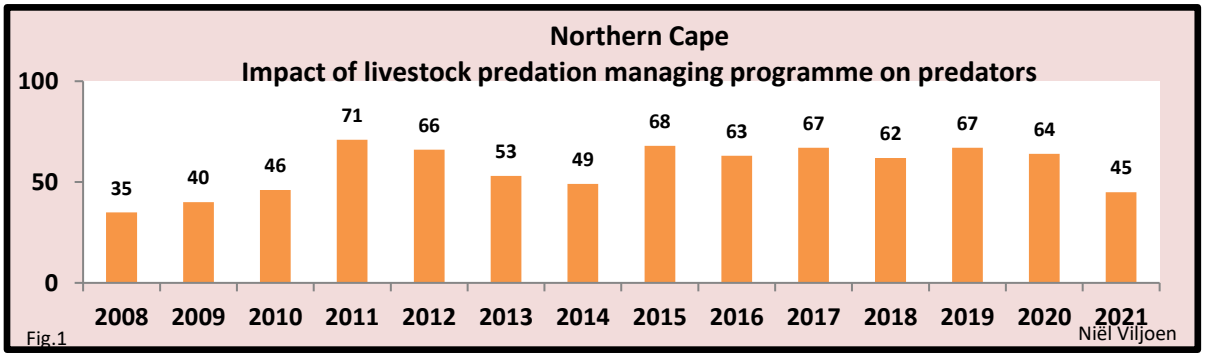
- Predator management programme - Combination of lethal and non-lethal control methods
- Non-Lethal control methods – Jackal proof fencing/Electric fencing
- Lethal control methods - Call and shoot/leghold devices/cages



(Fig.9) During 2008 a total number of 40 unwanted predators were eliminated, which increased to 159 in 2021. This represents an increase of 119 predators or 297.5% .

4. **Northern Cape**

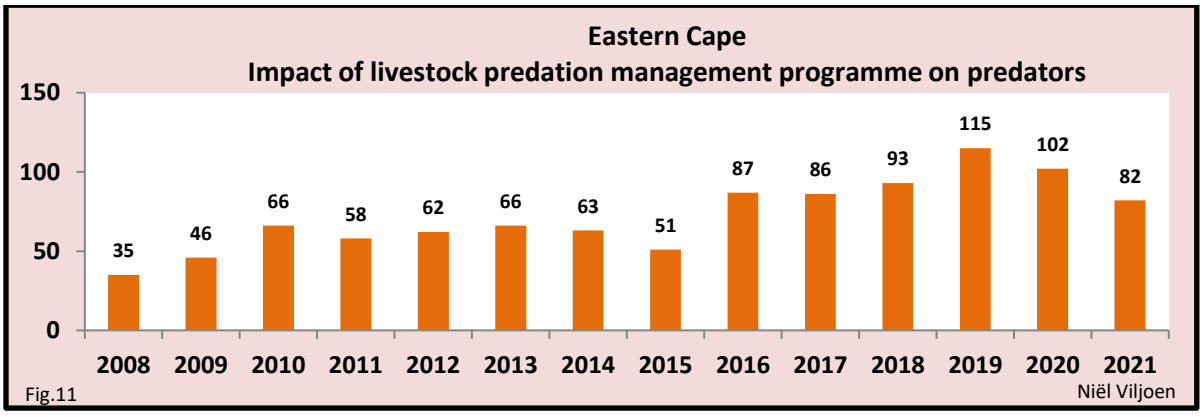
- Predator management programme - Combination of lethal and non-lethal control methods
- Non-Lethal control methods – Lambing pens and camps/Jackal proof fencing/Electric fencing
- Lethal control methods - Call and shoot/leghold devices/cages



(Fig.10) When the project was initiated in 2008 a total number of 35 unwanted predators were eliminated, increasing to 45 in 2021, representing 10 more predators or 28.6%.

5. **Eastern Cape**

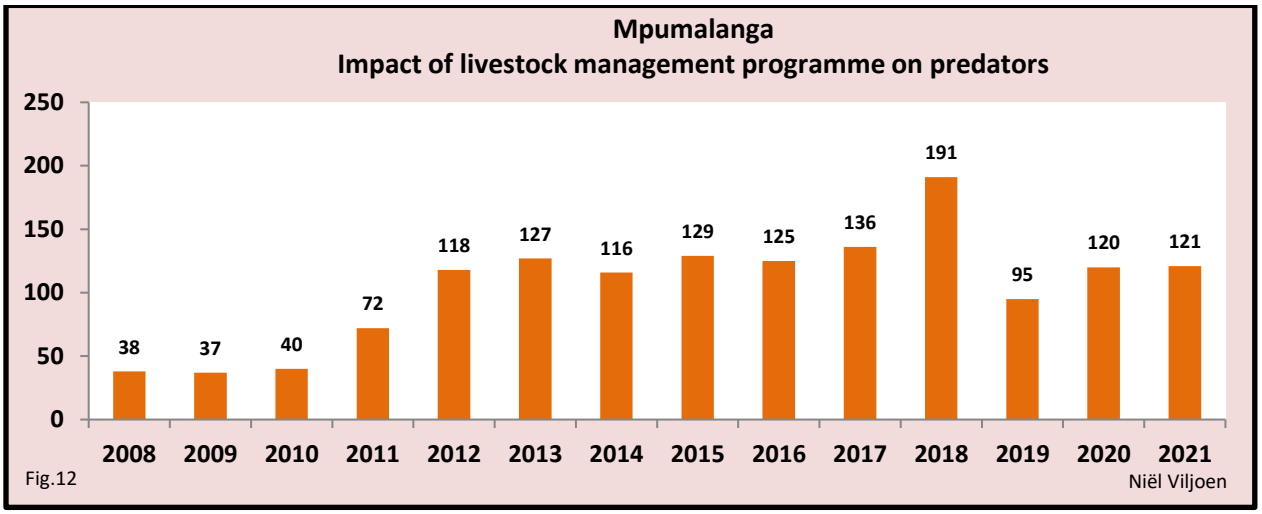
- Predator management programme - Combination of lethal and non-lethal control methods
- Non-Lethal control methods - Lambing pens and camps/Jackal proof fencing/Electric fencing/Anatolian guarding dogs
- Lethal control methods - Call and shoot/leghold devices/cages



(Fig.11) During 2008 a total number of 35 unwanted predators were eliminated. This number increased to 82 in 2021, a total of 47 more predators or 134.3%.

6. Mpumalanga

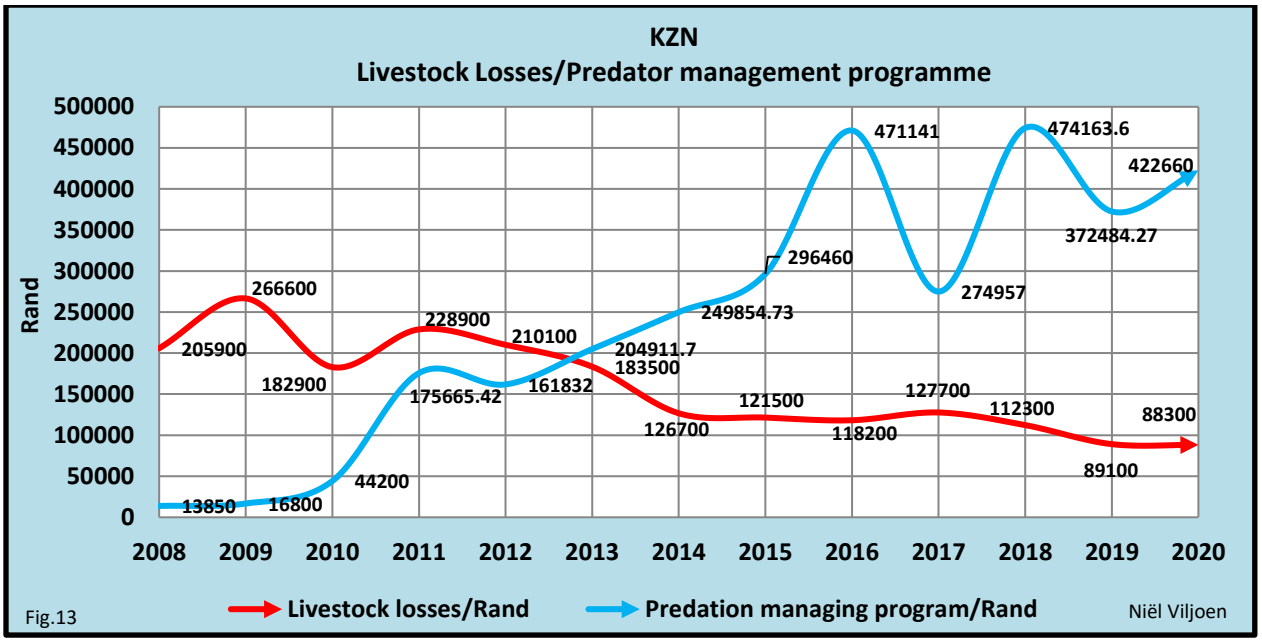
- Predator management programme - Combination of lethal and non-lethal control methods
- Non-Lethal control methods - Lambing pens and camps/Electric fencing
- Lethal control methods - Call and shoot/leghold devices/cages



(Fig.12) During 2008 a total number of 38 unwanted predators were eliminated, an increase of 121 in 2021, representing 83 predators or 218.4%.

Comparison in value of livestock losses to cost of the management programme.

1. KwaZulu-Natal

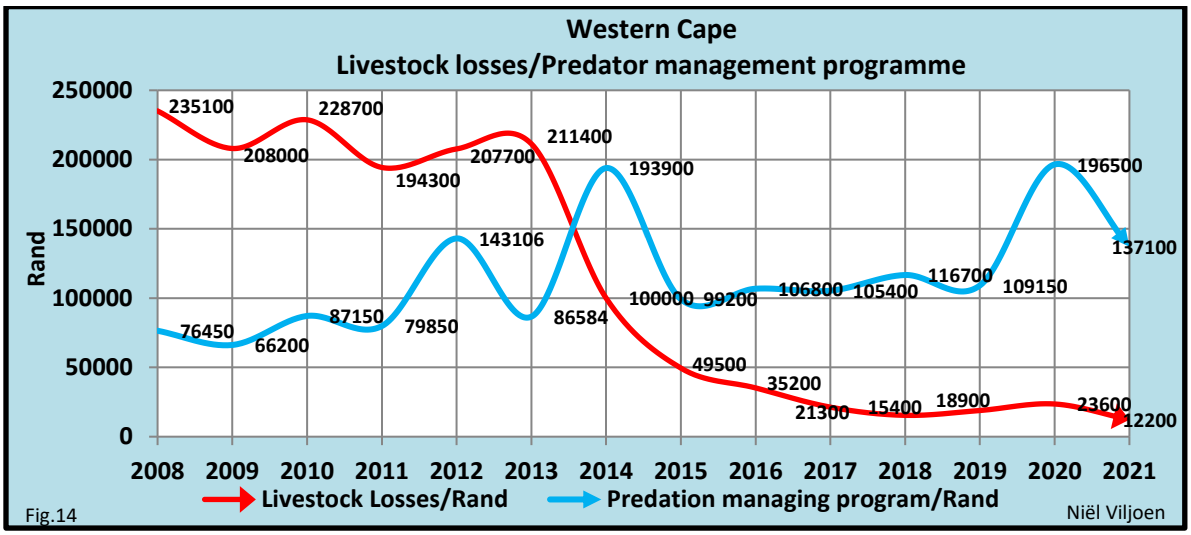


(Fig.13) The steady decline in the value of livestock losses due to predation over the past fourteen years supports the principle that a stable, workable management programme is in place.

Livestock losses of over R 200 000-00 a year were reduced to less than a R 100 000.00 a year. The stability in the financial losses during the past seven years also indicates that management has improved. The concern on the other hand, must be the huge financial increase in expenses in order to achieve the stability of losses over the past seven years.

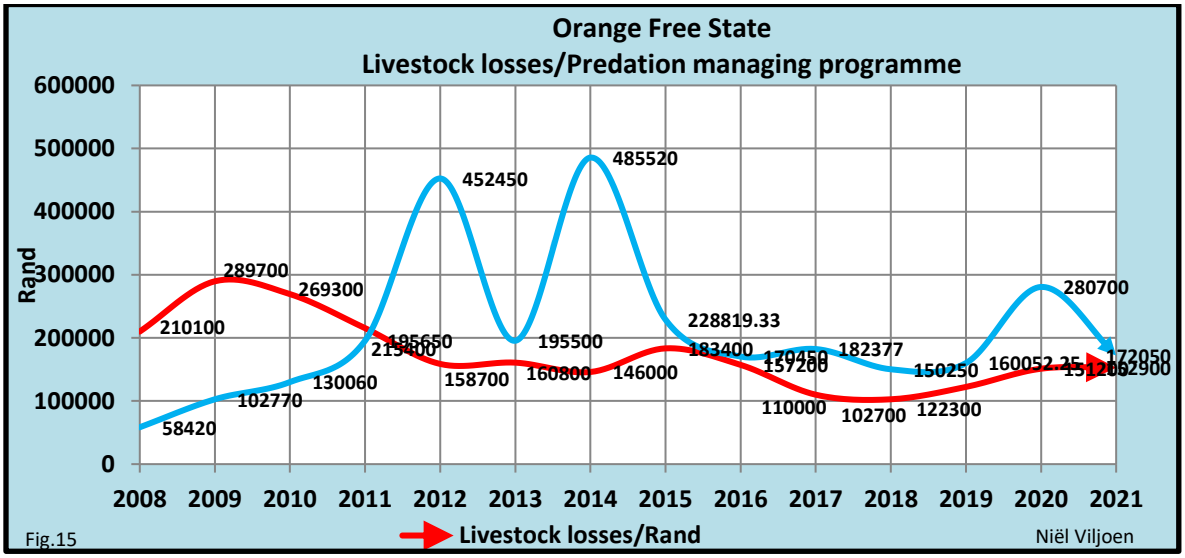
The main contributor to this huge financial increase was the implementation of a non-lethal control method, making use of human livestock guards at night to protect the livestock. Unfortunately, this control method's cost is directly linked to the minimum wage, with the annual wage increase having a huge negative impact on the affordability of this control method. The gap between the value of livestock losses and the financial obligation to sustain this control method increases on an annual basis. The sustainability of sheep farming on this farm is a source of serious concern.

2. Western Cape



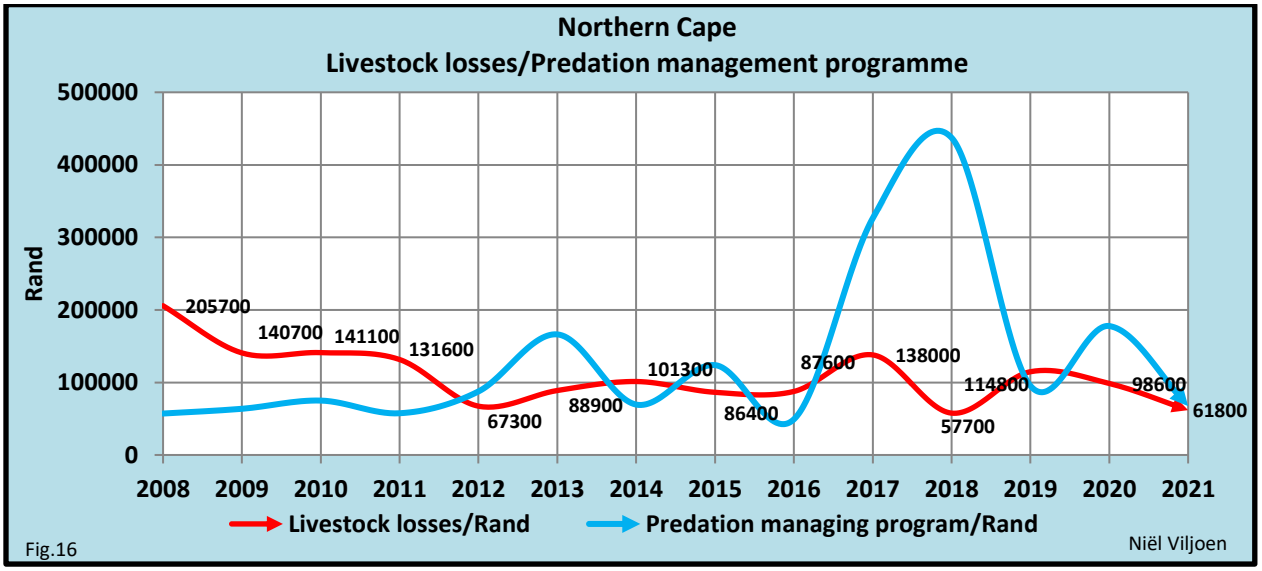
(Fig.14) This is the province with the most outstanding results for managing livestock and predators. Driving these successes are a combination of non-lethal as well as lethal control methods. This involves protection during the day (Alpaca) and night (Kraal) and elimination of problem predators by means of call and shoot.

3. Orange Free State



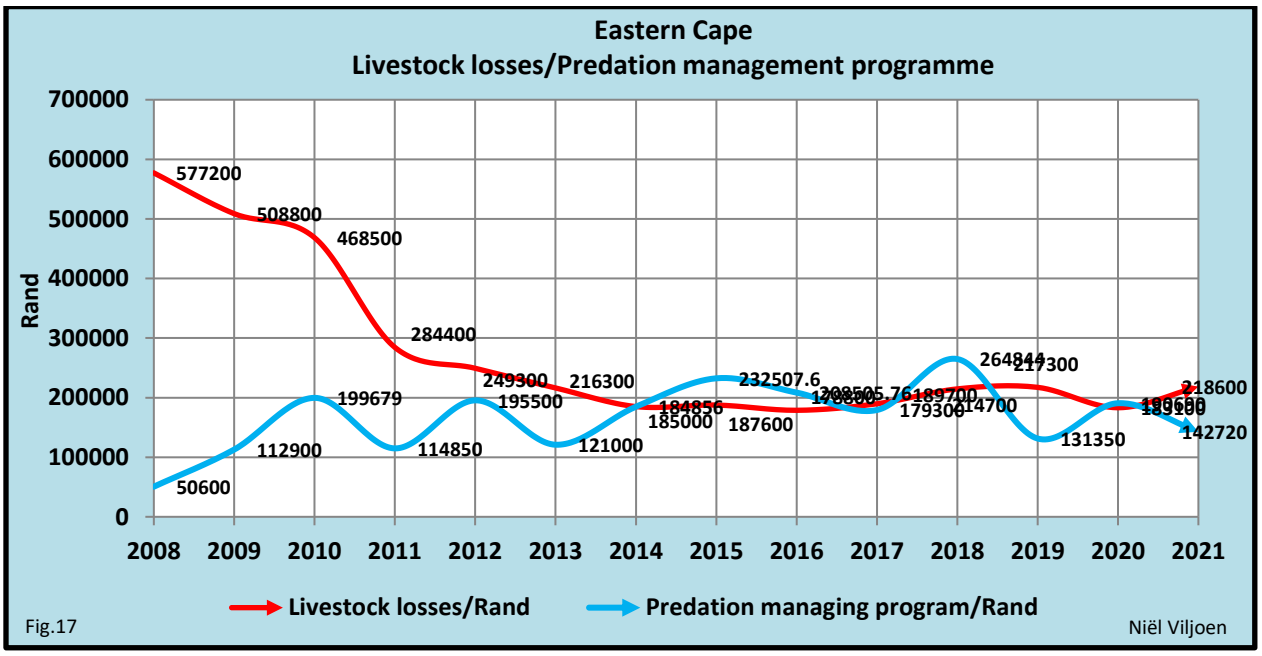
(Fig.15) Constructive adaptive management securing a stable financial cost, with minimal livestock losses.

4. Northern Cape



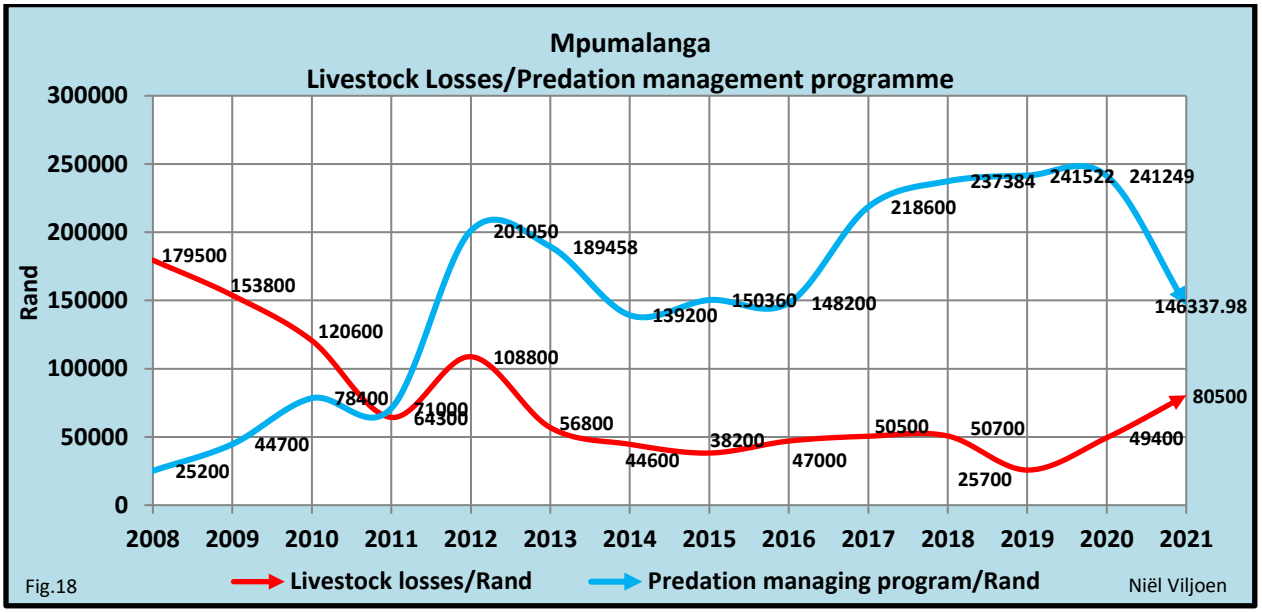
(Fig.16) The stability between losses and cost over the past ten years, the learning experiences and proactive management secure this province in being one of the best examples of successful livestock and predation management.

5. Eastern Cape



(Fig.17) Running neck to neck with the Western Cape, the Eastern Cape is one of the provinces with the most outstanding and sustainable results.

6. Mpumalanga

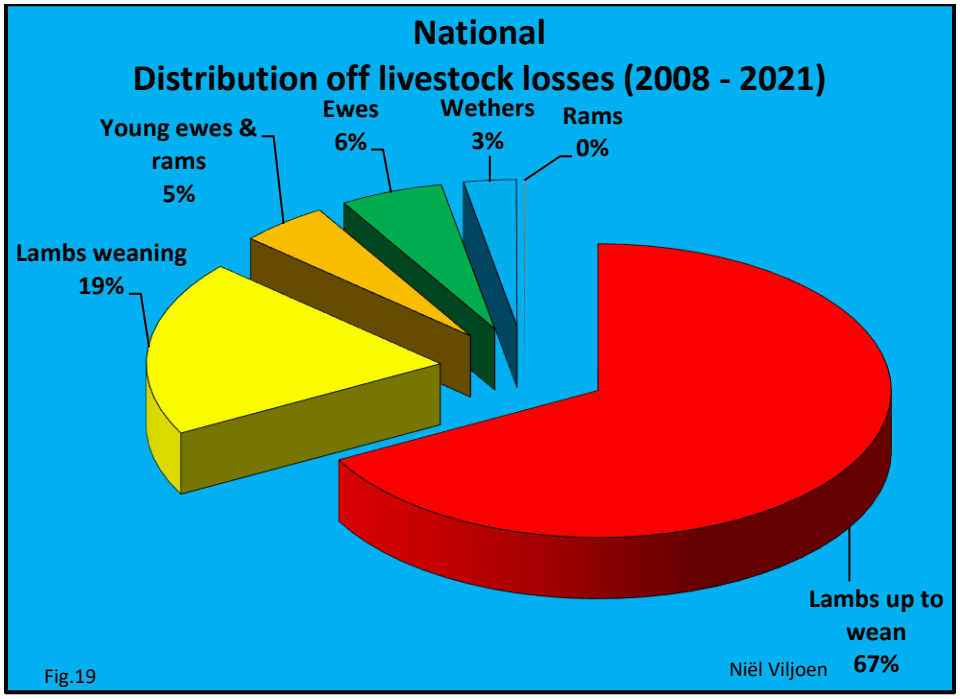


(Fig.18) The average financial investment to keep livestock losses down and as stable as possible is clearly visible.

National Results

Summarising the provincial results will give a clear indication on the improvement made on a national level regarding livestock and predation management approaches. Considering the work done in the respective provinces, with different rainfall seasons, different lambing seasons and a considerable variation in vegetation and topography, all these factors have a significant influence on management strategies. Interesting to see the progress and successes that have been accomplished during the past fourteen years by livestock farmers to secure a healthy, financially stable industry established within a healthy biodiversity.

In the diagram below (Fig.19) the prey source differentiations in livestock from the two main damage causing predators, Black backed jackal and Caracal in South Africa is clear.



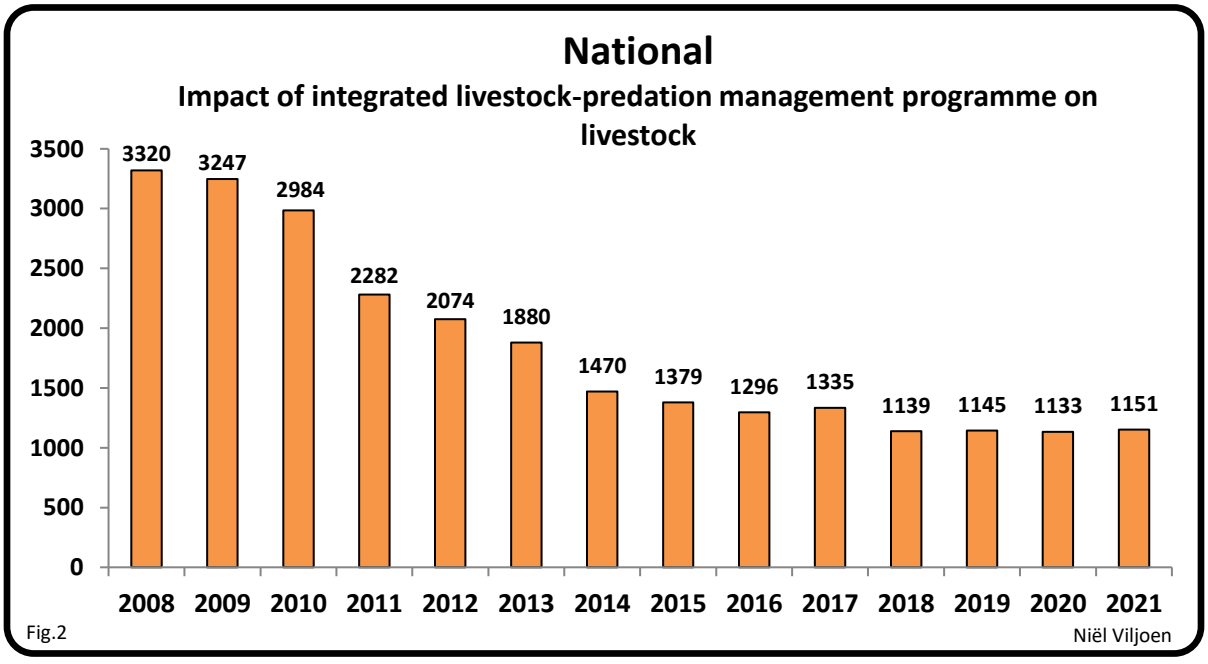
New-born lambs up to a weight of approximately thirty-five kilograms is the main source of prey these predators prefer. Figure 19 above shows that 67% of all livestock losses fall in this category. As lambs grow bigger and heavier the tendency of falling prey to jackal and caracal decreases, although weaners are second in line with 19% losses due to predators. Once adulthood has been reached the predation is respectively 5% in young ewes and rams, 6% in adult ewes and 3% in fully grown wethers. It is important to mention that predator numbers play a significant role, specifically highlighting the black back jackal in this case.

A Brief explanation with the insights of charts, will explain the following categories on a national level in more detail.

- Livestock
- Predators
- Livestock losses compared to predators eliminated
- Balance between different unwanted predators eliminated
- Predation percentage
- Financial implications

Livestock losses

In the diagram below (Fig.20) the results of the past fourteen years of intensive livestock predation management is clearly visible from the drastic decrease in livestock losses. Livestock losses due to predators were drastically reduced from 2008 when the total number of losses on all the monitored farms equalled 3320. This number of losses was reduced over the fourteen-year period to 1150 in 2021. This indicates a decline of 2169 less livestock losses or an improvement of 65.3%.



Notable is the number of livestock losses over the last four years (2018 to 2021). It will be interesting to see if this phenomenon will continue over the next few years or could there be more room for improvement?

Predators

Fig.21 below shows the impact the livestock predation management programme had on unwanted predators that were eliminated. These numbers come from predators that have persistently been problematic and were removed by means of lethal control methods. The call and shoot method is preferred by most farmers because this method is predator specific and immediate relief is experienced.

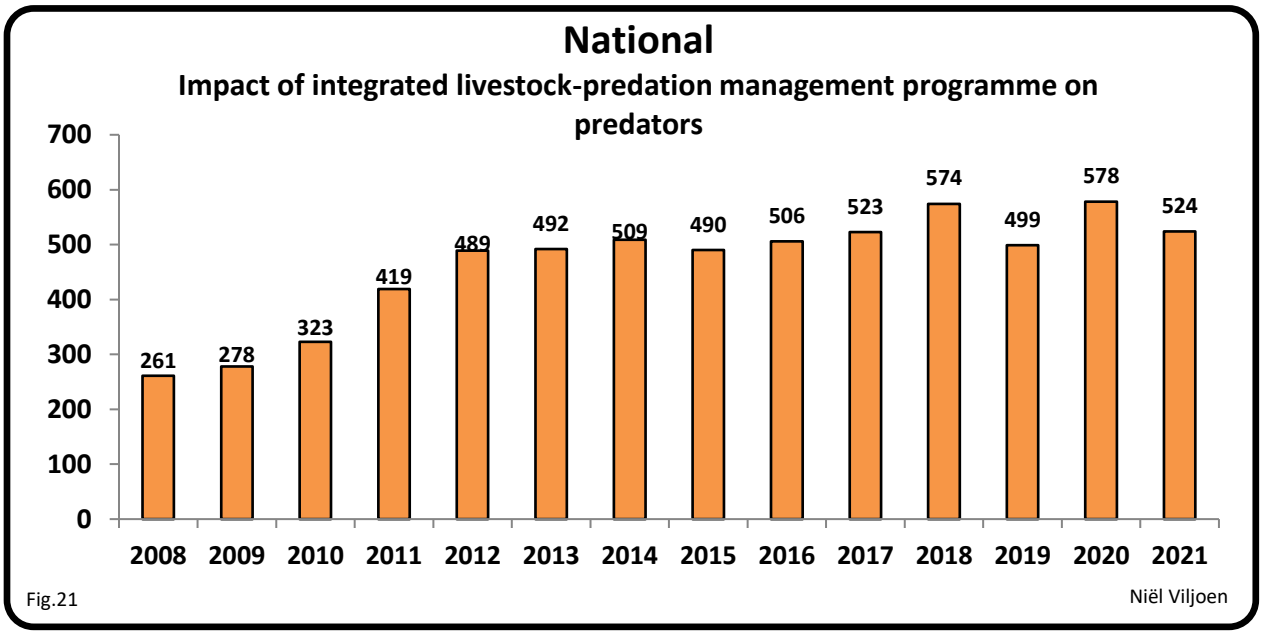
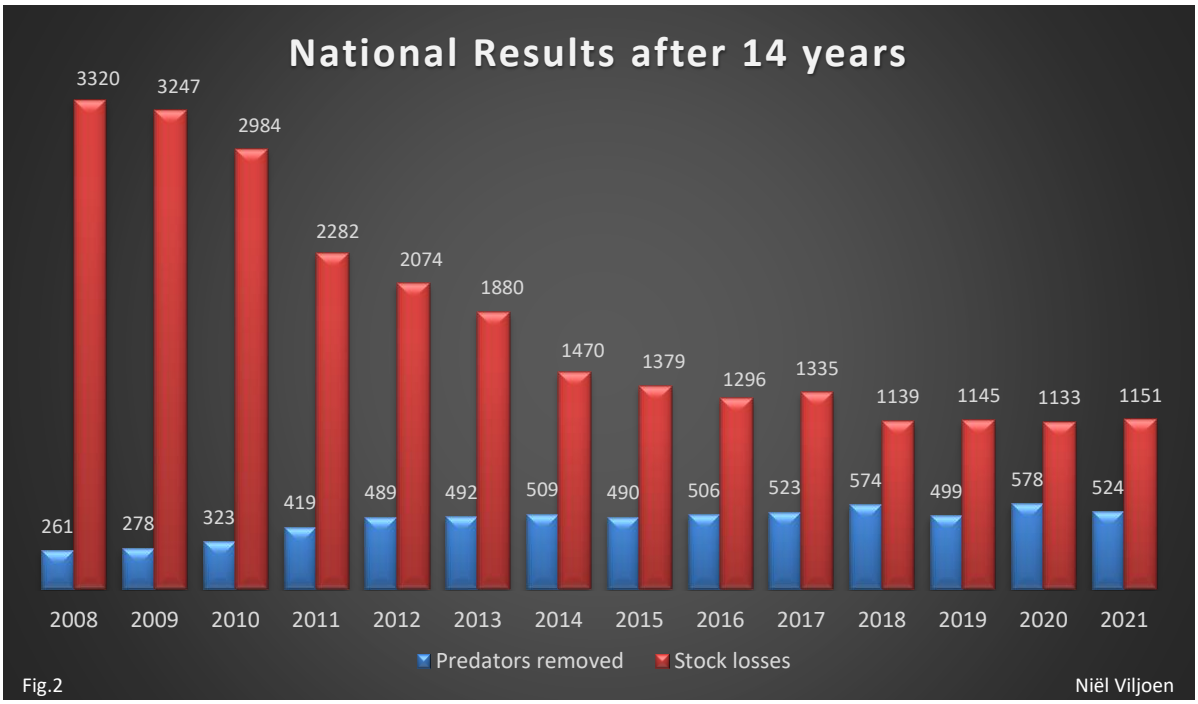


Fig.21 Niël Viljoen

There was an initial increase in predator removal for the first five years. Future research will indicate if the level of predator elimination over the past 10 years is directly responsible for the more stable, decreased number of livestock losses for the last four years.

Livestock losses compared to predators removed

Fig.22 below is a combination of the two previous graphs (Fig. 20) and (Fig. 21) and shows the impact of the implementation, duration, and outcome of the predation management programme for the fourteen-year period.



Interesting about this graph (Fig. 22) is the outcome for the past four years (2018 – 2021):

- ✓ Average livestock losses = 1142
- ✓ Average number of predators removed = 543
- ✓ For four consecutive years the percentage predators removed is around 50% of the number of livestock losses.

Fig.23 reflects the annual livestock losses compared to Black backed jackal and caracal numbers removed.

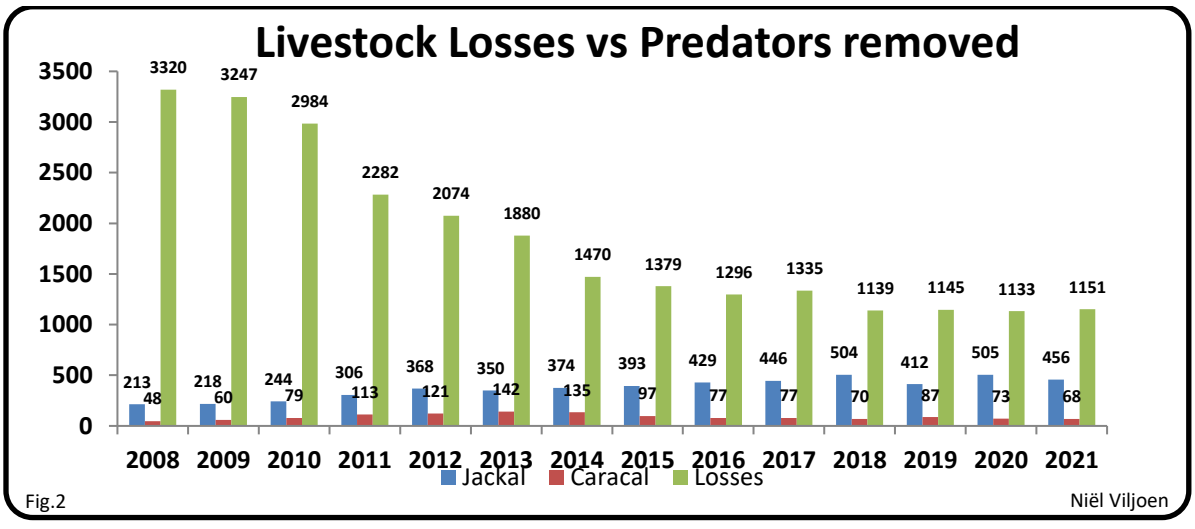
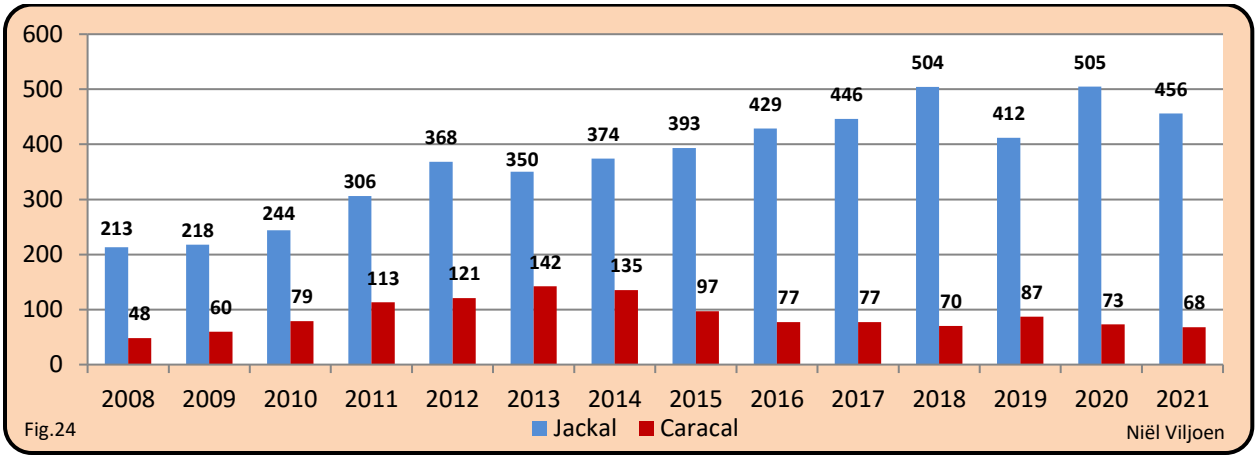


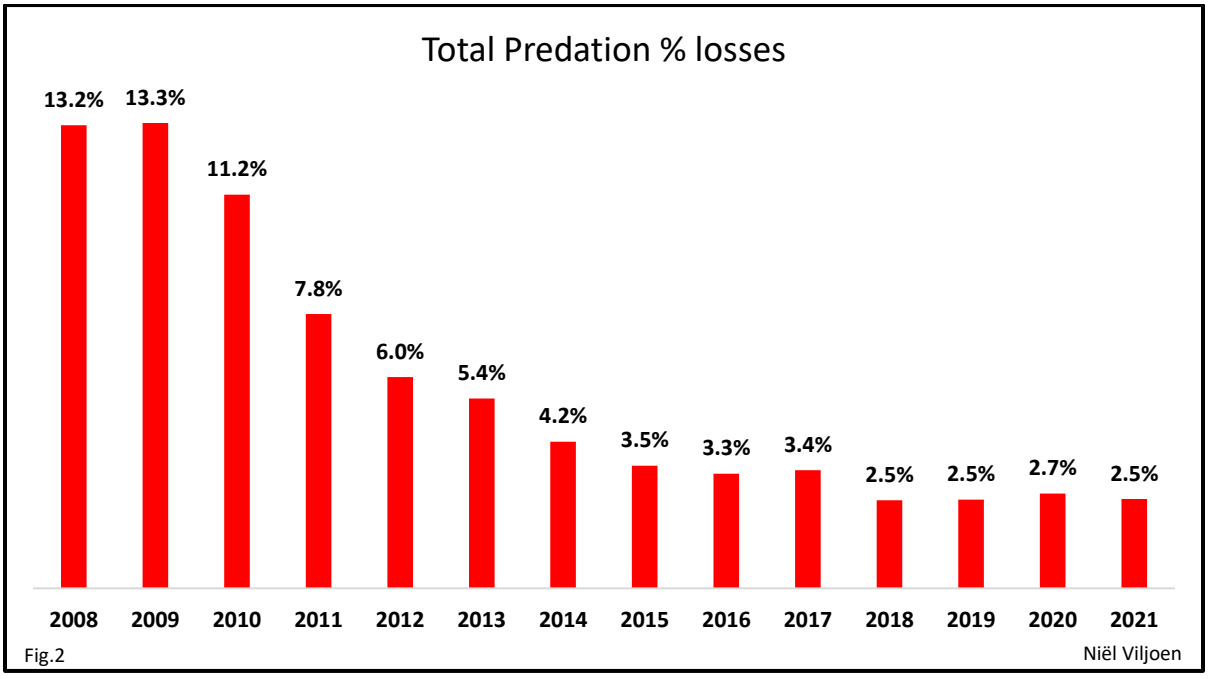
Fig.24 shows the Black backed jackal numbers versus that of Caracal.



This graph confirms that the primary predator responsible for the biggest number of livestock losses in South Africa is the Black backed jackal. Another interesting fact is the number of caracals removed over the past six years have been relatively stable and much lower than for jackal. The intense drought of the past number of years could be the main reason for this.

Predation percentage

The diagram below (Fig.25) represents the percentage predation losses when the project was initiated in 2008 and how livestock losses were reduced on an annual basis.



The programme started with a total national average loss of 13.2%. The implementation of sound predation management practices through this programme have resulted in average livestock losses of below 2.5%.

Fig.25 is unquestionably the crux of this research initiative and studies over the past 14 years. Predators and predation are certainly manageable.

The programme contributed towards:

- ***improved knowledge regarding predator behaviour;***
- ***correct application of control methods;***
- ***informed training content;***
- ***improved skills; and***
- ***promoted an adaptive management outlook.***

Although 13.2% livestock losses is unacceptable; most livestock farmers will agree that 2.5% livestock losses due to predators is much more acceptable.

Financial implications

The graph below (Fig.26) indicates the value of the number of livestock been lost due to predators, as well as the cost to implement a workable livestock predation management programme.

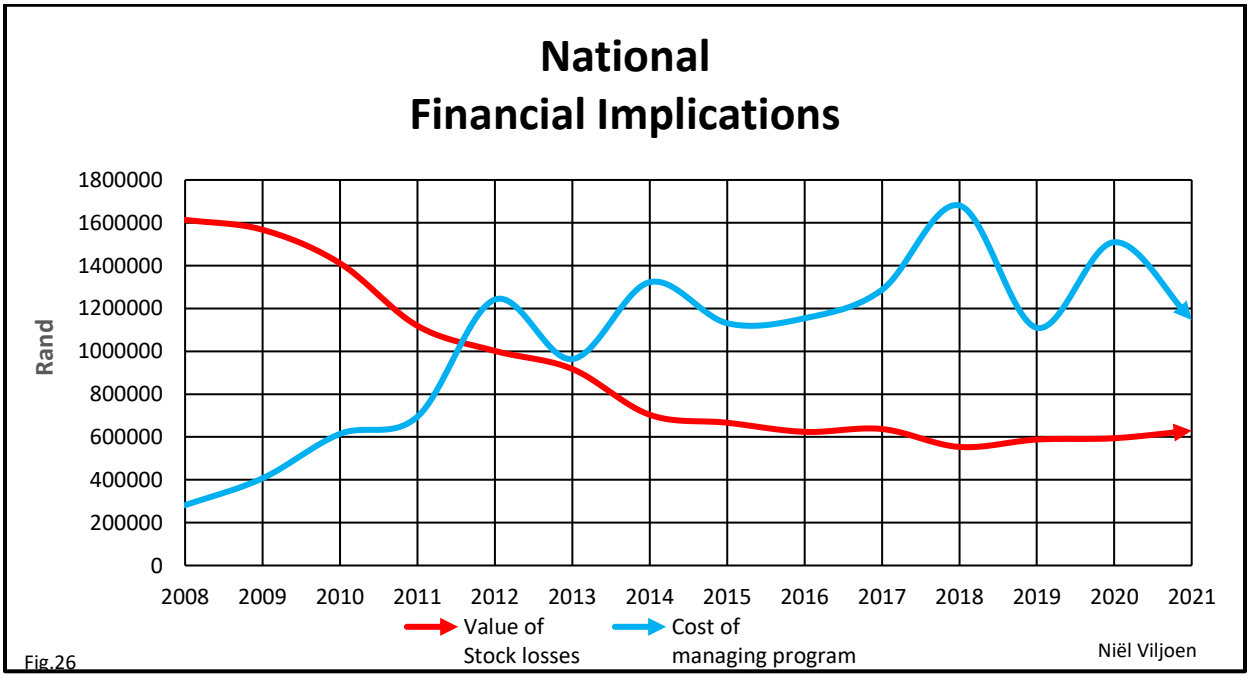


Fig.26

Fig.26 indicates the decline in value of livestock losses due to predation compared to the cost to implement a predation management programme. In 2008 the value of livestock losses was just over R 1,6million and has declined to around R 600 000-00 over the last six years.

Jackal proof fencing is the best investment against livestock losses due to predators. This is a long-term investment which will secure continued positive results in the years to come.

Summary

The past fourteen years have been a very informative journey involving farmers, livestock, predators, the broader society, and the quest to strive for an improved co-existence for all. The bigger picture remains that those strategies we invest in, must always consider biodiversity.

Farmers are the most important role players to stock the food storerooms of the world. The responsibility of food security is in the hands of every farmer, with ongoing challenges to improve quality, and at the same time, doing so sustainably. Thus, farmers will always be in the frontline when conflict situations appear. Handling, managing, and solving these challenges is the trademark of the South African agricultural industry.

The initiative to introduce monitor farms to address the problem of livestock predation under the leadership of the National Wool Growers' Association of South Africa (NWGA) dates to 2008. This programme aims to assist all livestock farmers in understanding the importance of sound predation management practices, to gain the necessary knowledge and to manage workable, financially viable solutions for every unique situation. Today this programme is managed under the auspices of Predation Management South Africa (PMSA) and is supported financially by the Red Meat Producers' Organisation of South Africa (RPO) and the NWGA.

The training of farmers and farmworkers plays an important and leading role in securing a well-balanced and workable livestock predation management programme. The adaptive behaviour of predators to always outsmart different control practices is however a concerning fact and needs continued attention and innovative intervention.

Acknowledgement

All twenty-seven monitor farms with their farmers, managers as well as their co-workers.

Predation Management South Africa (PMSA) – Supporting the project

Red Meat Producers' Organisation (RPO) – Funding

National Woolgrowers' Association of South Africa (NWGA) - Funding

Signed at Loxton, Northern Cape, on 12 May 2022.

Neil Viljoen
Predation Specialist

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