

## Challenges in predation management – South African historical milestones

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### Abstract

South Africa has a long history of human wildlife-conflict; predators and some other wildlife kill and maim domestic and wild animals on livestock farms and wildlife ranches. Predation losses are mostly attributed to Black-backed jackals *Lupulella mesomelas* and Caracal *Caracal caracal*, but vagrant Dogs *Canis familiaris* also cause losses, specifically near human settlements. This paper explores the history of predation management strategies in South Africa over the last 35 years, looking at key advances in combating this problem and highlighting those areas that can be improved. During the previous century, predation management was governed with varied levels of official support by provincial ordinances. A process was started in July 1987 to strategise predation management; the National Problem Animal Policy Committee (NPAPC) was established in November 1989 and the Problem Animal Control Forum was founded in May 1993. Since 27 April 1994, progress was slowed down by major geopolitical changes in South Africa. The initiative of predation management was rekindled in March 2005 when the National Forum for Damage Causing Animals was convened to continue the activities that were initiated by the NPAPC. In 2006 momentum accelerated with the Ganzekraal Workshop. Lessons learnt abroad on coordinated predation management by the Federal Wildlife Services (USA) in 2010, were promoted in South Africa. In a separate process, PredSA was launched in November 2018. Predation Management South Africa (PMSA), a legal entity focusing on training, legislation, and communication, evolved in 2019 from the PMF. Strategies to mitigate predation losses were developed over decades, but few were implemented, often because of financial limitations. Several initiatives came and went in a way best characterised as an ebb and flow. Despite major advances, predation management remains fragmented and uncoordinated.

**KEY WORDS:** coordinated predation management, damage-causing animals, human-predator conflict, institutional memory.

### BACKGROUND AND EARLY HISTORY

South Africa has a long history of human-wildlife conflict and there should be no illusion about the negative impact of predation losses; predators and some other wildlife kill and maim animals on livestock farms and wildlife ranches, and wild animals are killed in various ways (De Waal 2009). Black-backed jackals *Lupulella mesomelas* (previously known as *Canis mesomelas*, Hilzheimer 1906; Atickem *et al.* 2018; Alvares *et al.* 2019) and Caracal *Caracal caracal* are most commonly implicated for predation losses, but vagrant Dogs *Canis familiaris* also cause substantial losses (Van Niekerk 2010; Badenhorst 2014), specifically near human settlements. Losses are also attributed to Cape foxes *Vulpes chama*, Leopards *Panthera pardus*, Cheetahs *Acinonyx jubatus*, Brown hyaenas *Hyaena brunnea*, Baboons *Papio ursinus*, Honey badgers *Mellivora capensis* and Bushpigs *Potamochoerus larvatus*. Non-target mammal, bird and reptile species are frequently killed unintentionally during predation control (De Waal 2021).

In 1652 the Dutch East India Company (“*Vereenigde Oost-Indische Compagnie*”, VOC) established a refreshment post for merchant seafarers at the Cape of Good Hope. According to Stadler (2006) “*The first records of human-wildlife conflict experienced in southern Africa date back to the establishment of the*

*first European settlement in the Cape Colony in 1652 and are recorded in detail in the dairies of Governor Jan van Riebeeck.*” Predators such as lion *P. leo*, spotted hyaena *Crocuta crocuta* and brown hyaena “... (called ‘wolves’ in those days) killed livestock within a stone’s throw of the Fort and these animals were even considered a threat to the safety of the inhabitants of the settlement.” Wild animals destroyed crops and livestock and in June 1656 Jan van Riebeeck, the VOC Commander at the Cape, introduced a bounty system; successive bounty systems were used to address human-wildlife conflict by promoting extermination of so-called vermin (Stadler 2006).

Vermin commonly referred to any damage-causing living creature and, although it was eventually abolished from provincial legislation, it persisted colloquially (De Waal 2021).

Despite historical records of predation covering on 370 years (Beinart 1998; 2003; Stadler 2006; Du Plessis *et al.* 2015; Carruthers & Nattrass 2018; Kruger *et al.* 2021; De Waal 2021), South Africa still lacks institutional memory on predation management (Bergman *et al.* 2013); especially predation on livestock farms (Strauss *et al.* 2021), communal land and wildlife ranches. Ideally an institutional memory, namely recorded and verbal information on predation management, should inform the way forward in South Africa.

From the 1950s to the 1990s predator control systems and official financial support were in place, but when these were withdrawn, activities stopped or decreased; therefore, official recording of predator control activities became non-existent. Some private predator control initiatives were retained as lucrative business opportunities for skilled hunters (De Waal 2009).

Provincial ordinances governed predation management in the four erstwhile provinces, Cape, Orange Free State, Natal, and Transvaal, but the approach and levels of official support varied markedly between provinces.

### Cape Province

An ordinance to exterminate vermin in the Cape Province first came into effect in 1917, and until 11 October 1957, was followed by a further three ordinances, with 22 amendments (Anonymous 1977/1978). Early ordinances provided for bounties paid on so-called vermin and subsidies to maintain the packs of hunt hounds.

A committee investigated vermin extermination in 1955, because of increasing dissatisfaction with the bounty system and with the large sums paid to exterminate so-called vermin. Acting on their recommendations, the Ordinance on the Extermination of Vermin, No. 26 of 1957, was proclaimed to abolish bounties in favour of subsidised hunt clubs, supervised by the Department of Nature Conservation, Cape Provincial Administration (CPA).

In May 1958, the CPA acquired Vrolijkheid (a farm of 2 570 ha, 12 km south of Robertson near McGregor) to develop the Vermin Research Farm and Hound Breeding Station, Division Problem Animal Control of the Department of Nature Conservation. The Director, Dr. Douglas Hey, insisted facilities at Vrolijkheid must meet relevant requirements, such as those used by the Transvaal (TPA) and Orange Free State Provincial (PAO) Administrations.

Dr. Hey conducted a four-month tour of the USA in 1959, which led to the introduction of the coyote getter in South Africa. This was followed by a visit to the Cape Province in 1961 from Mr. Allison, a USA predator specialist who assisted in adapting American predator control techniques, including use of the coyote getter, to South African conditions. When an animal pulls on the baited-trigger mechanism of a coyote getter, it is activated, and a lethal dose of sodium cyanide is ejected in its mouth. The first Black-backed jackal *“killed by the coyote getter in South Africa was on the Douglas Gardner ranch, Warwickford, on 21 April 1961. The jackal had evidently pulled the getter the first night after it was set, as the carcass was practically decayed”* (Allison 1961).

As part of the services provided, the CPA trained hunters, conducted research, developed methods

to exterminate vermin, advised farmers on those methods, subsidised the hunters of registered private hunt clubs and assisted them with maintaining their packs of hunt hounds. The CPA also remunerated personnel and maintained three predation management centres, Vrolijkheid and two smaller facilities at Adelaide (established in 1966) and Hartswater (established in 1973).

Dissatisfaction with activities and outcomes of predation management in the Cape Province increased and predation control was reviewed in 1983 in order to develop a prioritised research programme in line with the provincial mandate. According to Lensing & Vorster (1983) *“a total of 39 problem animal hunters, Secretaries of Divisional Councils, hunt club officials and individual farmers were consulted”* to draft the Development Programme for Problem Animal Research. The report highlighted: (i) Conflict of interest in problem animal control policy, namely to *“exterminate vermin”* and the *“conservation of nature”*. (ii) Conservation and control were inseparable and should not affect each other; the Department should eliminate undesirable practices, namely non-selective control methods, injudicious use of chemical control methods and payment of bounties. (iii) Legislation, perceptions and poor communication created a dichotomy in the effective and controlled use of chemicals such as strychnine, sodium cyanide and sodium monofluoroacetate (Compound 1080). (iv) The Ordinance stated *“subsidy is payable to a hunt club if it employs an approved hunter and according to the opinion of the Director of Nature and Environment Conservation is executing its obligations satisfactorily”*; thus, by killing several problem animals, a hunt club was considered to execute obligations *“satisfactorily”*. (v) The Department had no legal authority to determine the need to form a hunt club; therefore, expenditure on subsidies was outside its legal control. (vi) Hunt reports were not submitted regularly; hunt clubs or hunters were not obliged to submit information and the Department had to rely on the goodwill of persons. (vii) Hunt reports reflected on the activity of hunters, but were not a useful means to supervise and ascertain if satisfactory services were rendered. (viii) The report format should provide more meaningful information on predators, selectivity of methods and efficacy of hunting. (ix) Hunters were poorly paid and less literate persons were employed over time, recruited from farm workers with similar low salaries. (x) The Department only allowed white hunters to be trained to use coyote getters, because the firing mechanism was considered a firearm. (xi) Hunt clubs used the small subsidies as basic salaries for hunters and were unwilling to top them up from their own funds. (xii) Poor literacy of hunters impeded training in new techniques and advanced technologies; therefore, the value of the hunters was questionable. (xiii) Poor literacy of hunters impeded insight into the ecological value of control versus extermination

of predators. (xiv) Lacking transport, hunters were ferried by farmers to their next assignments; and many hunters worked on foot to set traps on farms. (xv) Hunters worked in isolation with little contact with other hunters, and there was limited interaction, exchange of experience and transfer of skills. (xvi) Kennels of hunt clubs were often inappropriate and the condition of some hounds poor, but without specific instructions to hunters and hunt clubs, little could be done. (xvii) Experienced and skilled hound trainers were increasingly fully engaged at Vrolijkheid and Adelaide and not inspecting the kennels and handling of hounds by hunt clubs; the officials inspecting the hunt clubs were therefore often less experienced and competent than those they were inspecting and supervising. And (xiii) The hound breeding stations had served their purpose and hound sales had declined; ascribed to changes in hunting methods after introduction of coyote getters (1960s), cage traps for caracal, and hunt clubs breeding their own hounds.

The report's recommendations (Lensing & Vorster 1983) were heeded, and informed the Problem Animal Control Amendment Ordinance, 1984 (Ordinance 19 of 1984). Essentially the primary responsibility for predation management was shifted to the livestock farmers. It is not certain if the outcomes of such a major change in predation policy were assessed.

### Orange Free State Province

Organised predator control in the Orange Free State (OFS) Province and adjacent area stemmed from recommendations made by the Drought Investigating Commission of 1922 (Van Rheenen 1935, cited by Ferreira 1988). During the drought of 1919, livestock mortalities were attributed to poor veld and animal husbandry practices, especially the condition of small livestock being kraaled every night. The Commission recommended that Black-backed jackals should first be exterminated before farmers would be willing to adopt different grazing practices. In some areas, jackal-proof fencing became compulsory; subsidised farmers were responsible for erecting and maintaining the jackal-proof fences (Ferreira 1988). Livestock farms were fenced over large areas, but with little recorded evidence of its efficacy. However, anecdotal views suggest that jackal-proof fences played a major role in mitigating livestock predation.

Despite this, the damage caused by Black-backed jackals persisted and was of great concern, as demonstrated in the 1950s by the official subsidising of three large hunt associations that had been formed by livestock farmers in the eastern, southern, and south-western districts of the OFS. Another 34 smaller private hunt associations were also active in the southern OFS, operating without official subsidisation (Ferreira 1988).

Persistent lobbying by farmers for government intervention and more assistance eventually paid off. On 6 August 1962, the PAO resolved (with effect from 1 April 1963) to: (i) abolish bounties for exterminating vermin; (ii) stop subsidising existing hunt associations; (iii) only subsidise hunt associations operating over an area greater than 856 700 ha and considered by the Administration to function efficiently; (iv) increase the penalty for the use of poison; (v) control the use of coyote getters and poison to kill vermin and vagrant Dogs; and (vi) impose penalties for killing Servals *Leptailurus serval*, Honey badgers, Cape foxes and African wildcats *Felis silvestris lybica*.

When official subsidising of the three large hunt associations was stopped, the clubs could not survive financially (Ferreira 1988). Furthermore, on 31 December 1965, the Administrator cancelled the registration of all hunt clubs in 36 OFS magisterial districts. By the same authority, the establishment of Oranjejag ("*Oranje-Vrystaatse Ongediertebeheeren Wildbewaringsvereniging*") was proclaimed (starting 1 January 1966) and the remaining 12 OFS magisterial districts were included from 1 April 1967.

All landowners had to join (as members) Oranjejag, the only statutory predator control association in the OFS (Ferreira 1988). However, membership fees only covered part of Oranjejag's expenses and the PAO had increasingly to subsidise its activities. The PAO also funded improvements and maintenance of Bathurst, Oranjejag's main centre and only permanent facility, near Bloemfontein.

Since 1966, Oranjejag was managing all the damage caused by predators to small livestock in the OFS and according to the Ordinance for Nature Conservation (No. 8 of 1969), the PAO Directorate Nature and Environment Conservation was providing for "*the conservation of animals and plants and the hunting of animals that cause damage and for matters related to it.*" Therefore, the PAO had to ensure that its predator control policy was based on accepted ecological principles (Ferreira 1988).

Compulsory membership of Oranjejag by all landowners peaked at 15 904 in 1970. It applied a policy of intensive control with preventative and reactive follow-up predator control and employed 20 hunters with 1 000 hounds (Ferreira 1988). Landowners soon became dissatisfied with compulsory membership and started lobbying politicians again. In April 1971, membership became voluntary and declined rapidly to 5 200 (1973) and then slower to 2 796 (1987/88). Despite increases in tariffs, the voluntary subscriptions covered only 31.8% of Oranjejag's expenses from 1972/73 to 1987/88. With fewer members and less revenue, Oranjejag had to reduce the numbers of its hunters and hounds (to 10 and 250, respectively) and

from 1973, Oranjejag only conducted reactive follow-up control (Ferreira 1988).

Despite good intentions, Oranjejag did not realise all its goals. According to Ferreira (1988) the farms of members covered 43% of the OFS in 1973 and with declining membership, the coverage dropped to 21%. Members also complemented Oranjejag's control activities by using greyhounds (23.5%), cage traps (32.3%), foothold traps (23.5%), and moving small livestock to safer areas (11.8%).

Oranjejag did not only underperform financially, but members complained about long intervals between reporting predation and response by hunters to attend to complaints. According to Ferreira (1988) Oranjejag's hunt reports also appeared spectacular on paper but was quasi-scientifically analysed and misleading; for example, it did not mention that over a period of eight years, only 25% of cases (60 of 267 complaints) were resolved satisfactorily.

Being cognisant of Oranjejag's recurring financial dilemma and frequent requests for more funding, the PAO decided to limit the annual subsidy to 70% of Oranjejag's budget; the 1979/80 expenditure serving as a baseline, with an annual increase of 10%.

Ferreira (1988) concluded: "*A fundamental error in judgement was made in 1965 by the Administration when it created a milieu for the small livestock owner to shift the responsibility for predator control on his farm to a hunt association, namely Oranjejag*" and, "*Over the past 20 years the landowner in the Province was not taught techniques to reduce part of the predation losses on his farm himself*" and, "*It is clear that the current system of predation control is not effective in spite of the large sums of money and available expertise, therefore, a more effective control system must be found.*" Ferreira (1988) made several recommendations: (i) encourage private initiative with limited subsidising of small private hunt clubs and guiding legislation; (ii) provide good training to landowners, with practical demonstrations of control techniques and of cost-effective control principals; (iii) implement a shift in Oranjejag's function from total responsibility for predation control to support and assistance; (iv) provide attractive basic salaries for Oranjejag's hunters; (v) improve Oranjejag's image among the public; and (vi) establish an advisory committee representative of scientific nature conservationists, organised agriculture and the National Museum.

The PAO heeded of Ferreira's (1988) recommendations and undertook major changes in its predation management policy as outlined below.

### Natal Province

In Natal, the Problem Animal Control Ordinance

1978 (Ordinance 14 of 1978), was devised to facilitate the control of problem animals through a system of hunt clubs. The Natal Parks Board, the statutory conservation authority, played an important role in advancing the agenda of the Natal Provincial Administration (NPA) by advising farmers on predation management.

According to Miller (1993), the Administrator of Natal Province was mandated to "*declare any defined area situated within a problem animal area as a hunting area, in which one hunt club may be established*" and "*A hunt club may be established upon application being made to the Administrator by six or more occupiers of land in a hunting area. Membership of a hunt club is open to any owner or occupier of land within the hunting area.*" Furthermore, hunt clubs were allowed "*to recover expenses, in respect of their actions taken to pursue the control of problem animals in their area, from those occupiers of land who are not members of the club. Where membership of a hunt club is compulsory, the members are protected against criminal or civil action should unintentional damage to persons or property be perpetrated by the member during the course of any act done that is authorised by the Ordinance.*"

The NPA assisted hunt clubs with cash subsidies (about 80% of annual expenses, up to a maximum of R2 000). Subsidies were supplemented by a bounty of R40 per problem animal killed, payable to clubs and individuals. Thus, providing an incentive to the public to destroy problem animals. Only Black-backed jackals and Caracals were declared problem animals that qualified for the bounties (Miller 1993).

The Administrator could appoint an Advisory Committee on Problem Animal Control "*to advise him, the hunt clubs, farmers and other interested persons in regard to problem animal control and to institute, conduct, co-ordinate and control research into the scientific and technical aspects and habits of problem animals or animals likely to be declared problem animals, in order to determine the most efficient methods of problem animal control*" (Miller 1993). As with other provinces very little information is available on the effectiveness of this initiative.

### Transvaal Province

The Transvaal Provincial Administration (TPA) implemented its own variation of predation management. The Transvaal Federal Problem Animal Control Association (TFPACA; "*Federale Probleemdiër Bestrydingsvereniging*") was a voluntary private organisation, based in Ermelo which specialised in the control of problem animals. The TPA Nature Conservation Division subsidised the TFPACA and hunt clubs were encouraged to join and to operate over larger areas. These private hunt clubs were affiliated to the TFPACA but operated independently.

In Transvaal, it was “*everybody was for himself*”, be it private initiatives or the government, although cooperative actions appeared to yield better results. The TPA Ordinance apparently allowed farmers and hunt clubs to implement effective controls. However, funding of research in Transvaal was a provincial responsibility. It was alleged that problem animals were breeding in nature reserves and on farms. Therefore, the problem had to be jointly addressed by affected parties, who would liaise with the TFPACA and the TPA’s problem animal unit (based at Groblersdal). Individual farmers could control predators, but the TPA only allowed organised hunting by institutions (such as the TFPACA) that were recognised by the Administrator.

### REPORTING OF INFORMATION

Predation management and its challenges was handled markedly differently between the erstwhile four provinces. Furthermore, livestock predation was occurring on livestock farms and the responsibility of predation management had fallen to the provincial conservation authorities rather than the departments of agriculture. This tension was further exasperated as the killing of wild animals (indigenous fauna) conflicted with the provincial conservation mandates.

Information on predation is not readily available in the public domain (De Waal 2009; 2021). Invariably the reported number of animals killed will be less than the actual number, because predation losses and

predators killed frequently go unreported. Apparently, the Cape and the Orange Free State Provinces reported regularly on predation management (De Waal 2021). However, the limited information available from the Transvaal and Natal Provinces does not imply less predation losses, but merely the unavailability of reports.

Given its vast geographic area, the Cape Province was divided into Western, Eastern and Northern Regions. Feedback from these regions varied, but an annual report (Anonymous 1979/80) mentioned good cooperation from the 26 registered hunt clubs in the Western Cape. Some typical predation management information for this region is provided in Table 1.

It was reported (Anonymous 1979/80) that 1 981 head of livestock (unspecified) were killed by Black-backed jackals (614), Caracals (940), vagrant Dogs (174), Cape foxes (35), Honey badgers (3), Marsh mongooses (*Atilax paludinosus*) (24), African wildcats (49) and Leopards (142). Furthermore, 101 permits were issued to hunt Leopards across 18 Divisional Councils following claims that 665 small livestock and 44 cattle were killed by Leopards (Anonymous 1979/80). Only 29 Leopards were killed (that is one Leopard caught or killed for every four permits issued), 23 were killed privately, while officials killed a further six. Leopards were caught with foothold traps (20), cage traps (5) and packs of hunt hounds (4). Although foothold traps were not recommended to catch Leopards, mountainous terrain in some areas of the Cape Province excluded the use of other methods.

**Table 1.** Statistics on the control of damage-causing animals in the Western Cape Region of the Cape Province (1979/80 annual report of the Cape Province; Anonymous 1979/80).

Animals	Total damage-causing animal killed	Coyote getters	Foothold traps	Cage traps	Hounds	Shot
Black-backed jackals	163	130	4	1	28	
Caracal	229	2	141	46	40	
Vagrant dogs	60	31	10	11		8
Baboons	222		1	212	2	7
Rock hyraxes	744				744	
Cape foxes	37	24	12		1	
Bat-eared foxes	92	85	5		2	
Honey badgers	2	1			1	
Cape grey mongooses	75	53	5	6	11	
Yellow mongoose	1	1				
Marsh mongooses	10	1		5	4	
Genets	9		3	3	3	
African porcupines	15	4	3	3	5	
African wildcats	58		16	5	37	
Leopards	10		8	2		
Crows	11	11				
Aardwolves	4	1	3			
Otters	3			3		
Totals	1 745	344	211	297	878	15

**Table 2.** Problem animal statistics for 1987, adapted from reports by Divisional Councils and hunt clubs in the Cape Province (De Waal 2021).

Divisional Councils	Number of small livestock killed					Number of problem animals killed				
	Black-backed jackal	Caracal	Dogs	Other	Total	Black-backed jackal	Caracal	Dogs	Other	Total
Bredasdorp/Swellendam	8	597	24	26	655	2	51	25	52	130
Caledon	0	44	42	1	87	0	9	4	57	70
Calvinia	186	139	3	4	332	46	35	0	6	87
Cederberg	15	250	5	64	334	0	85	1	150	236
Dias	191	255	0	0	446	No statistics				0
Drakensberg	755	225	29	68	1 077	No statistics				0
Gordonia				2	2	No statistics				0
Grootrivier	38	79	0	0	117	No statistics				0
Humansdorp	20	256	49	51	376	No statistics				0
Kaffraria	556	133	0	0	689	No statistics				0
Kareeberg	375	127	0	77	579	76	100	38	443	657
Klein Karoo-Langkloof	79	14	0	10	103	56	2	2	41	101
Langeberg	194	246	4	6	450	9	75	0	9	93
Matroosberg	24	12	23	11	70	7	3	27	44	81
Midland		2 548			2 548	No statistics				0
Namakwaland	813	56	13	6	888	230	27	15	252	524
Nuwe Roggeveld	300	14	0	59	373	50	7	0	256	313
Outeniqua	186	323	21	145	675	24	68	12	20	124
Prieska	No statistics				0	149	52			201
Smaldeel	75	580		48	703	No statistics				0
Stormberg		98			98	No statistics				0
Swartland	9	200	38	8	255	5	112	3	1	121
Vaalrivier	3				3	4				4
Witzenberg	24	156	56	48	284	1	24	4	25	54
<b>Total</b>	3 851	6 362	307	634	11 144	659	650	131	1 356	2 796

Typical statistics regarding problem animals in the Cape Province, showing the differing situations for livestock killed, predators killed and especially the absence of reporting in nine of the 24 Divisional Councils, are presented in Table 2. These statistics do not provide a full picture regarding problem animals and their effect on livestock, because some records kept by Divisional Councils were incomplete and no statistics were available for farmers conducting their own problem animal control.

Oranjejag, the only statutory hunt association in the OFS, annually provided detailed information on predation management, as well as on hunters and their activities (Table 3).

Very few reports on predation are accessible for the Transvaal. A predation specialist official for Transvaal, Mr. Rex Janse van Rensburg, participated in the field trials with coyote getters in the Cape Province in 1961. Later he also conducted field trials at the S.A. Lombard Nature Reserve, near Bloemhof,

Transvaal. A preliminary report showed considerable sheep losses in the Transvaal over a ten-year period (Janse van Rensburg 1965).

Similarly, few official reports are available for Natal. However, Lawson (1988) conducted a survey and concluded that predators had a marked effect on the sheep industry with most respondents indicating that predation increased and “*direct losses of stock are conservative and estimated at over R3 000 000 with indirect losses also being potentially high.*”

Hard-earned practical experience, as well as manuals such as Bowland *et al.* (1993), allow farmers and predator hunters to identify the cause of predation losses. However, Carruthers & Natrass (2018) noted that it is impossible to determine from stomach content if Black-backed jackals had killed or merely scavenged sheep carcasses. Nevertheless, it seems underreporting of losses may be a more important consideration that misidentification of predation.

**Table 3.** A summary of the situation in the Orange Free State Province, adapted from information provided in the Annual Report of Oranje-jag's Director regarding 'Harmful animals killed & kilometres driven Jan-Oct 1987' (De Waal)

Month	km <sup>1</sup>	Caracal		Black-backed jackal		Cape fox		African wildcat		Vagrant dog	Total
		Hound	Getter <sup>2</sup>	Hound	Getter	Hound	Getter	Hound	Cage <sup>3</sup>		
Jan	39 440	6	2	61	47	16	90	2	-	2	226
Feb	34 806	11	-	32	66	13	106	3	-	8	239
Mar	50 802	7	4	37	88	22	141	11	1	6	317
Apr	49 497	10	-	18	61	22	264	5	-	23	403
May	53 704	10	2	20	53	20	304	5	-	13	427
Jun	59 213	15	1	16	54	9	237	1	-	17	440
Jul	49 652	8	3	19	47	9	238	3	1	12	340
Aug	43 491	9	5	19	47	4	233	7	1	14	339
Sep	56 378	18	3	125	51	17	160	7	1	16	398
Oct	43 546	15	1	100	40	24	140	15	-	11	346
<b>Total</b>	<b>480 529</b>	<b>109</b>	<b>15</b>	<b>447</b>	<b>554</b>	<b>156</b>	<b>1913</b>	<b>59</b>	<b>3</b>	<b>122</b>	<b>3475</b>

<sup>1</sup> Main Station (**Bloemfontein**): 1 Chief Inspector, 1 Inspector & 7 Hunters; **Boshof**: 1 Inspector & 1 Hunter; **Ventersburg**: 1 Inspector & 1 Hunter; **Warden**: 1 Inspector & 1 Hunter [plus Administrative distances travelled by the Chief Inspector = 28 035 km].

<sup>2</sup> Coyote getter – poison ejector

<sup>3</sup> Cage trap

<sup>4</sup> A brown hyaena was killed in January 1987 - unknown location.

## COORDINATED PREDATION MANAGEMENT

### National Problem Animal Policy Committee (NPAPC)

Despite the activities of a substantial number of hunt clubs in the four erstwhile provinces and the varied official assistance alluded to previously, predation losses persisted. Small livestock farmers, in particular members of the National Wool Growers' Association of South Africa (NWGA), were calling at congresses for intervention in the issue.

In response to these persistent calls, the NWGA launched a national initiative to coordinate predation management and established a Problem Animal Subcommittee. On 23 July 1987, a meeting was held in Harrismith (eastern OFS Province) with the focus on problem animals. Representatives of the PAO, NPA, Natal Parks Board, Oranjejag, NWGA and Free State Meat Committee were in attendance.

The initiative was developed following several meetings and involving broader representation. Discussions between representatives of the NWGA, RPO, four provincial MEC's, provincial nature conservation divisions and Oranjejag, reached consensus and on 27 November 1989 the National Problem Animal Policy Committee (NPAPC) was established in Bloemfontein with Mr. Peter Kingwill (President: NWGA) as the Chairman. In a press release the NPAPC (De Waal, 2021) stated, "*The committee will endeavour among others to determine overarching policy regarding research, training, communication, development of methodologies, legislation and funding, as well as other issues*

*referred to it. The establishment of the committee enjoyed the full support of the provincial authorities. They emphasised the Committee would not have executive powers because the respective provinces will decide how to implement the recommendations of the Committee. Mr. Kingwill said although small livestock farmers regard it a primary responsibility to protect their flocks and control problem animals, all institutions involved should make it easier for the farmer to assume the responsibility.*"

Mr. Theuns Botha (Manager: NWGA) was appointed the first Secretary of the NPAPC. In this dual role, he was ideally positioned within the South African livestock sector. He meticulously managed the minutes and correspondence, recording the input of livestock farmers, wildlife ranchers and other role players and using this information to gain official support for coordinated predation management in South Africa.

Striving for coordination countrywide, the NPAPC started developing a National Problem Animal Control Policy and Strategy for South Africa in October 1990. At the request of the NPAPC, the Natal Parks Board got the ball rolling with a 4-page draft proposal, focusing on four specific aspects, namely communication, control, training, and research. Other aspects were also addressed over time, but these four topics remained the core focus areas of predation management in South Africa.

The NWGA was instrumental in founding the NPAPC, and since 1989 provided secretarial services and covered the expenses. This administrative obligation taxed the finances of the NWGA, which derived its funding from member (namely wool

sheep farmers) contributions. In April 1993, the NWGA approached the RPO, its red meat producer's counterpart, to negotiate the sharing of secretarial costs. It was suggested that if the NWGA were to continue managing the NPAPC's secretariat, the RPO should contribute equally. However, if the RPO would choose to assume responsibility for managing the secretariat at a lower cost, the NWGA would share the cost. Apparently, this suggestion to share the financial burden was based on informal discussions between colleagues in the two producers' organisations.

In May 1993, the idea to share costs led to a proposal that the NWGA and RPO would contribute equally to the budget of the NPAPC's secretariat. Furthermore, it was suggested that the provincial governments and regional services councils represented on the NPAPC should also contribute, because the NPAPC was providing a service in the public interest and for the benefit of the broader community. However, as always happened when financial contributions were requested, nothing came of this noble suggestion.

#### **Problem Animal Control Forum – Golden Gate Highlands National Park**

In December 1991, Mr. Theuns Botha was succeeded by Mr. Nico Vermaak as the NPAPC Secretary (Anonymous 1993). Vermaak played a key role in organising and documenting the proceedings of the Problem Animal Control Forum, which was held from 4-5 May 1993 at the Golden Gate Highlands National Park, in the eastern OFS.

In the opening address to the Problem Animal Control Forum, Mr. Peter Kingwill (Chairman: NPAPC) alluded to the long process of engaging with role players and stakeholders on predation and predation management to establish the NPAPC and which culminated in the Problem Animal Control Forum: *“The purpose of this committee is to act as a liaison and co-ordinating forum to utilize the abilities and expertise of the authorities and interested parties within agriculture to effectively reduce losses caused by problem animals, using ecologically and ethically acceptable methods.”* Four key areas to advance strategies were identified, namely: (1) communication; (2) control; (3) training; and (4) research and development. Kingwill concluded: (i) *“Much is known and a great deal of experience exists about effectively restricting losses, but the effective communication of this information is very much lacking. This Forum is a major step forward in addressing this problem. You will find suggestions for a number of other ways to solve this problem in the action plan; (ii) Good communication can inform people about what is known, but actual on-the-ground training on how to use the right methods effectively remains essential; and (iii) To my knowledge, every training course that has been organised has resulted in subsequent success by the trainees. Considering*

*that fact, it is amazing that there is not more enthusiasm amongst farmers to have many more courses”* (Anonymous 1993).

The Problem Animal Control Forum identified specific objectives and formulated strategies, culminating in a Strategic Action Plan. The NPAPC would continue to seek final approval, but it was hoped the Problem Animal Control Forum could start playing a vital role and getting many actions off the ground sooner.

Given Oranjejag's recurring poor financial situation, the inevitable happened and on 15 July 1993, only two months after the watershed Problem Animal Control Forum was held, Oranjejag was officially dissolved.

Concurrent to these activities to develop a strategy on predation management, major political changes in South Africa started rapidly evolving during the early 1990s. In anticipation of the dawn of South Africa's new geopolitical dispensation in April 1994, the NPAPC realised the importance of advancing its initiative and released the *‘National Policy and Strategy for Problem Animal Control in South Africa’* on 17 February 1994.

At the time, considerable competency on predation management still existed in South Africa. On 7 December 1993, the NPAPC requested the provinces for information on the instructors and individuals who may qualify for accreditation with the NPAPC. The Cape, Transvaal and Orange Free State Provinces responded as follow: (i) CPA (14 February 1994) - 51 hunters (private and those employed by hunt clubs), a private instructor and 30 nature conservators with knowledge of problem animal control; (ii) TPA (18 March 1994) - five hunters and instructors, 26 nature conservators that had completed the problem animal control course, and a private hunter; and (iii) PAO (29 March 1994) - seven hunters permitted to hunt with hounds, trap cages and poison ejectors and nine only hunting with hounds.

#### **Geopolitical reconfiguring of South Africa - April 1994**

On 27 April 1994, South Africa held its first democratic election. It changed South Africa in many ways including the establishment of nine new provinces (out of the previous four), namely Western Cape, Eastern Cape, Northern Cape, Free State, North West, Mpumalanga, KwaZulu-Natal, Gauteng, and Limpopo. For every national department, nine corresponding provincial departments were established, creating a scenario of “1-plus-9” for state functions. Livestock farmers and wildlife ranchers were affected by the competency levels of the new national department of agriculture and environmental affairs as well as the respective nine provincial departments. It also affected the safeguarding or archiving of documents. The geopolitical



reorganisation and redeployment of many officials inevitably resulted in a loss of institutional memory; therefore, the thrust and recommendations of the Problem Animal Control Forum mostly faded without being implemented (De Waal 2009; 2021).

However, some initiatives made progress. Prior to the geopolitical changes in April 1994, the NPAPC initiated a process to include training courses on problem animal management in the curricula of Colleges of Agricultural. It suggested a uniform national course manual, compiled by the Interprovincial Problem Animal Committee, could serve as guideline for the curriculum. The Grootfontein, Elsenburg, Glen, Potchefstroom and Cedara Colleges of Agriculture committed to including Problem Animal Control in courses (from 1994) and provincial conservation authorities were requested to assist the colleges.

The role, and activities of the NPAPC had been fading since April 1994 and on 29 May 1996, in line with its vision, the NPAPC undertook a review its future. It concluded the NPAPC was still relevant, but it was important to gain direct access to provincial MECs. Members of the NPAPC were requested to liaise directly with provincial MECs and obtain mandates regarding problem animal control. The outcome of these negotiations with provinces varied but there was little commitment overall (De Waal 2021).

The NPAPC's role and status remained unsatisfactory, which prompted Mr. Jannie Kemp (Chairman: NPAPC) to try and revive the initiative by inviting important role players to a meeting from 7-9 September 1998 at Jonkershoek Nature Conservation Station, Stellenbosch. Despite the best efforts of the meeting, the response, and commitments for much needed financial support to the NPAPC were vague.

### **Canis-Caracal Programme (CCP)**

The African Large Predator Research Unit (ALPRU) was founded on 13 February 2002, with a focus on all larger African predators. The paucity of information on livestock predation prompted ALPRU to launch the Canis-Caracal Programme (CCP) on 10 December 2004. The CCP's primary goal was to boost efforts and resuscitate the dormant, or non-existent, coordinated system of predator management in South Africa. De Waal (2009) advocated that predators such as Black-backed jackals and Caracals must be managed as a national priority and major role players must assume their specific responsibilities, namely: (i) the government was responsible for policy, coordination, training, extension, research, and monitoring; however, they must refrain from dominating the scene (as they did in the past); and (ii) the livestock farmers and wildlife ranchers were responsible to safeguard their animals and controlling predators; with appropriate assistance rendered by government.

ALPRU lobbied key role players and stakeholders to advance the CCP's objectives, namely: (i) collate and interpret all available data and information on these two predator species; (ii) initiate, support and conduct scientific studies on the ecology of these two predator species and their food base; and (iii) formulate new or update existing science-based management strategies to control these two predator species and relate it to provincial and national policies.

The NWGA was increasingly concerned about the persistent apathy among role players and called for a meeting to continue the activities that the NPAPC initiated. On 1 March 2005, the National Forum for Damage Causing Animals met in Bloemfontein and ALPRU introduced the CCP with the focus on predation losses and a system of coordinated predation management.

To advance the CCP's objectives, ALPRU liaised with Mr. Hannes Stadler (CapeNature, Western Cape Province) to visit Vrolijkheid, the site of the erstwhile Vermin Research Farm and Hound Breeding Station of the CPA. From 21-24 January 2006, old monthly hunt reports of hunt clubs and documents pertaining to predation management in the Cape Province were retrieved from Vrolijkheid and later more documents were received from Mr. Stadler's office in Porterville. Copies of documents were archived by ALPRU/CCP and Gunter (2008) and Kruger *et al.* (2021) have since reported on some of the information contained therein.

Ostensibly, the active and persistent lobbying by ALPRU/CCP for a system of coordinated predation management in South Africa played an important role in events to come.

### **Ganzekraal Workshop**

The Ganzekraal Workshop: Holistic Management of Human-Wildlife Conflict in the Agricultural Sector of South Africa convened from 10-13 April 2006 at the Ganzekraal Nature Reserve, near Cape Town. It was attended by 55 people, including farmers, the agricultural sector, conservation authorities and organisations, NGOs, animal welfare organisations, communities, and academic institutions (Daly *et al.* 2006). The input of role players was recorded in a draft document and presented at a follow-up workshop in August 2007.

Ostensibly prompted by the Ganzekraal Workshop, the Minister of Environmental Affairs and Tourism published draft regulations on '*Human-Wildlife Conflict Management ("Damage-Causing Wild Animals")*' in 2007, showing intent to issue regulations in terms of Section 97 of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).

Pursuant to the Ganzekraal Workshop, the Department of Environmental Affairs and Tourism (DEAT) waited for the Minister to publish the “draft regulations”, before convening a National Workshop for Provinces on Human-Wildlife Conflict Management on 27-28 August 2007 at the Ritz Restaurant, Sea Point, Cape Town. The agenda was broader than the Ganzekraal agenda and clearly intended to capitalise on important outcomes of the latter.

This separate, broader agenda appears to have been an attempt to circumvent the input provided by a broad spectrum of role players and stakeholders at the Ganzekraal and Ritz Workshops (De Waal 2021).

Growing concern about the NPAPC’s activities and its future surfaced at the annual meeting on 24 April 2008 in Bloemfontein, and speakers commented on “*the same agenda being tabled every year.*” Acknowledging the concerns, the Chairman, Mr. Petrus de Wet responded, “*What is the future of this group?*” and in simple terms, “*...are we going to tread water or are we going to embark on a more focussed route?*” The consensus was that the NPAPC’s future must change for the better and a delegation was mandated to meet with the relevant Minister.

The NPAPC’s delegation met in Pretoria on 31 July 2008 with Mr. Marthinus van Schalkwyk, Minister of Environmental Affairs and Tourism and other senior officials. The delegation comprised Mr. Petrus de Wet (Chairman: NPAPC/President: NWGA), Mr. Arnold Brand (President: RPO), Mr. Laurie Bosman (President: Agri SA), Mr. S.K. Makinana (Board Member: Cape Wools SA) and Prof. HO de Waal (ALPRU/UFS). The agenda included: (i) Presentation on problem animal control and DEAT’s involvement; (ii) Impact of predation illustrated with statistics; (iii) Different policies in provinces; a uniform predation management policy must be identified and implemented; (iv) Lack of a DEAT budget that reflects on the enormity of the problem and dedicated to conduct research and development in the field of problem animals, especially identified species; (v) Lack of a DEAT budget dedicated to effective training of producers and predator control operators to mitigate the impact; (vi) Shortages in skilled people to train producers and DEAT officials; (vii) Coordination and capacity to address the problem was the responsibility of two departments, DEAT and DoA; (viii) The development and implementation of a national predation management policy must be initiated with the participation of provincial and local governments; (ix) Perception that larger and dedicated budgets were allocated in the past to the problem and thus the impact of predation was smaller; (x) Permission granted by DEAT to move some wildlife species adjacent to livestock farming areas without sufficient consultation with organized livestock producers have a very negative impact on livestock farming;

and (xi) Some officials attended the NPAPC Forum, but some provinces were no longer represented. The DEAT policy should compel all provinces to attend the annual forum during April.

Time lapsed again before DEAT held a National Stakeholder Workshop on 27 January 2009 at the Colosseum Hotel in Pretoria to initiate the drafting of National Regulations to Manage Damage-Causing Animals (DCA) in South Africa. It was attended by officials and representatives of civil society, including the NWGA, SAMGA, RPO, WRSA and ALPRU. There were immediately issues as alluded to previously; one person objected, claiming he had been excluded from the National Workshop (Ritz, 27-28 January 2007). He insisted the draft document that was tabled must be ignored and the process should start afresh. The opening of the Workshop was delayed for two hours by a debate that was taking place in a backroom. However, one participant picked up on the obvious reason for the delay caused by this individual and, in an e-mail dated 5 February 2009, stated: “*The first point the Chairman made is that the draft norms and standards that were circulated last year were off the table. To use his words ‘the document does not exist.’*”

Clearly, somebody was pushing a separate agenda. To solve the impasse, the Stakeholder Workshop nominated a task team to edit the draft National Norms & Standard regulations by e-mail on 11 March 2009 and circulate it for broader participation and comments by the attendees. However, continued squabbling (around these underlying issues) persisted in delaying the opening of the National Stakeholder Workshop on 27 January 2009, and effectively ended the initiative.

Being visionary and aware of these recent developments, the NPAPC took the lead on developing a strategy for predation management and on 20 March 2009 convened an Open Forum in Port Elizabeth. It was attended by 50 representatives of producers’ organisations, organised agriculture, NGO’s, academic institutions, conservation authorities and agricultural media.

After the closing of the Open Forum, an official of a producers’ organisation questioned ALPRU’s recent request for funding from Cape Wool SA (“*The development and implementation of a coordinated strategy of predator management to reduce the impact of the black-backed jackal and the caracal on the livestock industry*”), alleging that ALPRU’s request conflicted with an initiative of the NWGA and NMMU (Nelson Mandela Metropolitan University). The latter initiative (“*Concept framework for a cooperative Stock Predation Research Programme in South Africa*” or the “*Co-operative Research Programme, CRP*”) was developed in closed sessions since 2009 and only became public knowledge in 2010.

### **Predation Management Forum (PMF)**

Responding to the input of key role players and stakeholders, the NPAPC retained the initiative and on 2 July 2009, founded the Livestock and Wildlife Working Group on Damage Causing Animals in Port Elizabeth. Thus, the NWGA, RPO, SAMGA and WRSA pooled efforts and presented a united front to liaise and to find solutions to mitigate the negative effects of predation. Being mindful of the importance of public perceptions, the group was renamed the Predation Management Forum (PMF) on 20-21 April 2010.

Concerns were repeatedly raised about the absence of the department of agriculture on matters pertaining to predation management. Therefore, on 28 September 2009, Mr. Koos van der Ryst (RPO), Mr. Coligny Stegmann (SAMGA), Mr. Petrus de Wet (NWGA), Dr. Gert Dry (WRSA) and Prof. HO de Waal (ALPRU/UFS) met with Ms. Tina Joemat-Pettersson, Minister of Agriculture, Forestry and Fisheries (DAFF) at the OR Tambo International Airport. The delegation alluded to the impact of drought, livestock theft and predation as major risk factors for the producers. It was emphasised that DAFF should commit to the development of a system of coordinated predation management in South Africa.

In a parallel process in a meeting on 27 July 2010 at the NWGA head office in Port Elizabeth, the Scientific Assessment was launched as a joint initiative with the NMMU (Co-operative Research Programme). It became known as the PredSA (Kerley *et al.* 2018a,b). Inevitably, information about the meeting was shared and the initiative was widely discussed; specifically, why separate processes, but with similar goals, were underway in South Africa. Although the detail of the discussions differed, it was alleged “the project” was launched under the auspices of the wool industry, that a university has been mandated to conduct the research and that a huge budget has been approved.

### **Scientific Advisory Committee (SAC)**

Towards the end of 2010, the chairman of the PMF started seeking input on how to broaden the scope of scientific advice available to the PMF. In response, ALPRU suggested a Scientific Advisory Committee (SAC) with the rationale of incorporating a network of scientists to advise the PMF.

On 10 November 2010, the PMF invited a number of scientists to attend the first SAC meeting in Pretoria on 24 February 2011; including scientists from the National Museum (Bloemfontein), universities (Stellenbosch, Rhodes, NMMU and Free State), Livestock and Welfare Coordinating Committee (LWCC), National Agricultural Marketing Council, DEAT, NWGA, RPO, SAMGA and WRSA. The University of Pretoria (UP) and DAFF offered apologies and the Agricultural Research Council (ARC) did not respond to the invitation. The PMF

Chairman, accompanied by six PMF Executives, explained the rationale and the Terms of Reference (ToR) for the SAC. The scientists were requested to debate the ToR, the SAC structure and present a work plan to the PMF. After the meeting and further deliberations by e-mail, a draft “*Discussion Document: First meeting of the Scientific Advisory Committee (SAC), Predation Management Forum (PMF)*” was submitted to the PMF.

On 20 April 2011, the SAC proposed to the PMF that a small committee should be established, comprising representatives of the (i) National Museum; (ii) NWGA; (iii) NMMU; (4) UFS; (5) UP; and (6) the SAC Secretariat would be administrated by Dr. Shirley Parker Nance, based at NMMU.

Internal conflicting issues could not be resolved, and the SAC was short-lived. On 30 August 2011, the PMF steering committee met *in camera* and resolved: (i) Close the SAC; (ii) Refer PMF research to the RMRD SA (Red Meat Research and Development, SA); (iii) Inform DAFF and DEA re the Scientific Assessment (SA) and that no decision or recommendation has been made regarding by whom the work will be done; a decision will be taken by the PMF and the RMRD SA informed accordingly; (iv) Mr. de Wet was stepping down as Chairman of the PMF, but remained available to be co-opted on the committee and reimbursed similar to the Chairman of the NWGA of SA; (v) The industries will be invoiced R10 000 for the functioning of the PMF; and (vi) Under no circumstances may hotel bookings, SMS and email correspondence be done as the NWGA – it must be done under the banner of the PMF.

As alluded to previously, efforts were ongoing since 1994 to involve both the department of environmental affairs and the department of agriculture in coordinated predation management; but the South African constitutional arrangement of a “1+9” scenario was not helpful in addressing fragmented approaches and uncoordinated predation management activities. Furthermore, predation management legislation was archaic and varied between provinces. Attempting to address discrepancies, DEAT published a General Notice on 29 November 2010, namely “*Draft Norms and Standards for the Management of Damage-Causing Animals in South Africa.*” Despite comprehensive input, the draft document has not been finalised yet and provinces claim they cannot finalise their own legislation unless the National Norms & Standards has been promulgated.

Despite the challenges ALPRU/CCP continued lobbying for a system of coordinated predation management. Since 2006, awareness has been created at national and international conferences and workshops about the challenges and the dearth of ecological information on specifically, Black-backed jackal and Caracal. To fill the knowledge gaps, postgraduate studies were conducted under the auspices

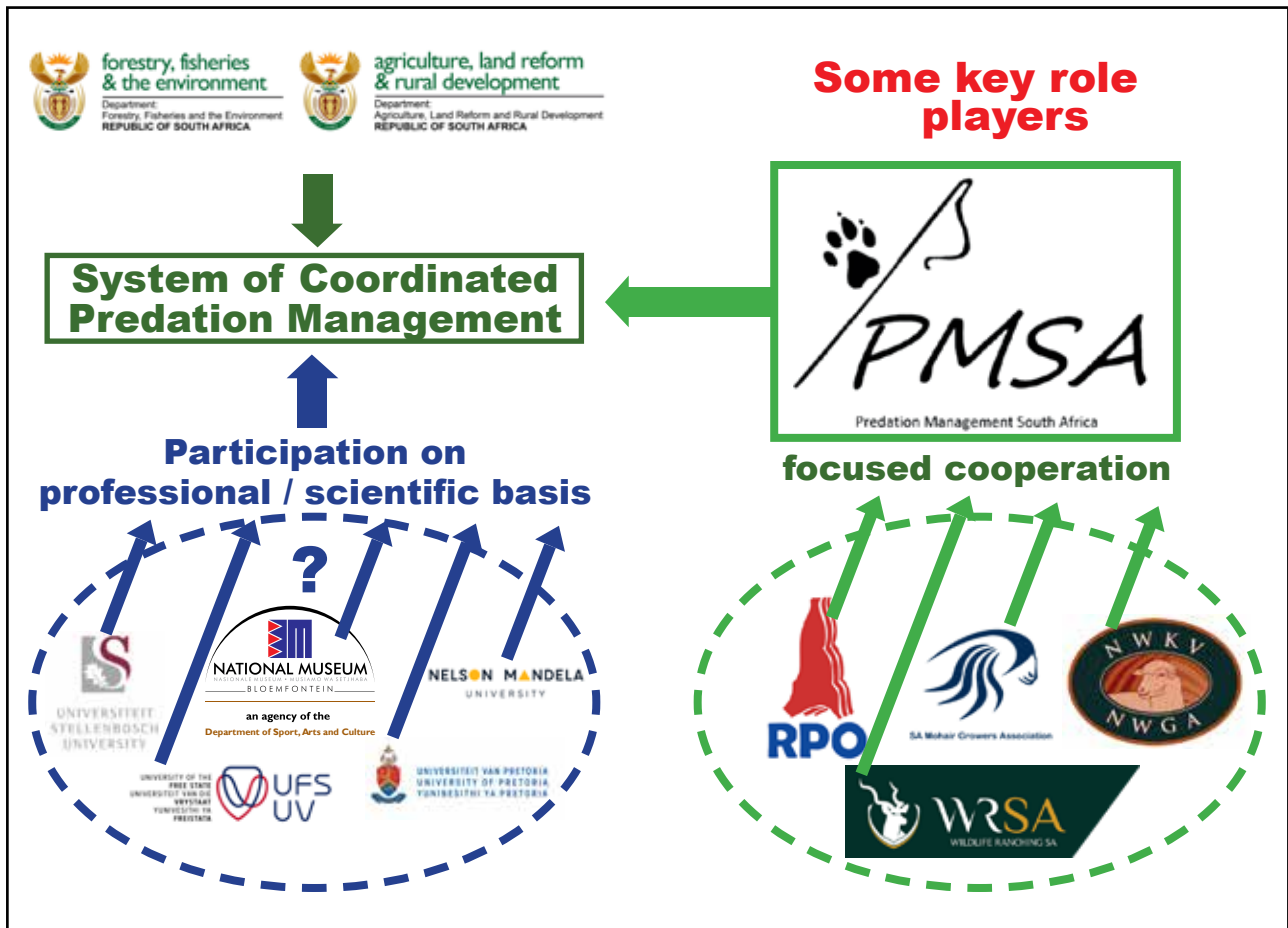


Figure 1. A proposed system of coordinated predation management in South Africa.

of ALPRU to determine the extent of predation in South Africa and define gaps in scientific information (Gunter 2008; Strauss 2009; Van Niekerk 2010; Du Plessis 2013; Badenhorst 2014; Schepers 2016; Kruger 2019).

#### Federal Wildlife Services, USDA/APHIS

In line with its objectives, ALPRU/CCP expanded insight on predation management and specifically searching abroad. On 13 April 2010, a meeting was held with colleagues of the Federal Wildlife Services, USDA/APHIS (United States Department of Agriculture/Animal and Plant Health Inspection Service) at the UFS. On 3 May 2010, the USDA/APHIS extended official invitations to Mr. Coligny Stegmann (PMF/SAMGA), Dr. Nico Avenant (National Museum, Bloemfontein), Mrs. Magdel Boshoff (DEAT) and Prof. HO de Waal (UFS/ALPRU) to visit the USA. A DAFF representative could not accompany the team. During a short, but well-planned itinerary of 10 days (15-31 May 2010), the structured system of coordinated predation management of the Federal Wildlife Services was experienced first-hand. Feedback was presented at different forums, including the PMF, with the focus on the need for a system of coordinated predation management as schematically presented in Figure 1. The names of several entities that were used in the original presentation have since changed, therefore the current names are used in Figure 1.

On 28 October 2010, Mr. Petrus de Wet (PMF Chairman/NWGA) was cordially invited by the Portfolio Committee on Agriculture, Forestry and Fisheries to make an oral presentation on the impact of predation in Parliament on 2 November 2010. It was a watershed event for the initiative of coordinated predation management. Mr. de Wet was accompanied by Lardus van Zyl (RPO), Coligny Stegmann (SAMGA) and HO de Waal (UFS/ALPRU). Since, at least for a while, it appeared the united front presented by the PMF caused politicians and officials to view predation differently.

At least one province endeavoured to advance official cooperation with the PMF. Dr. Kas Hamman (CapeNature) garnered support from key role players and stakeholders and concluded a co-operative agreement between the Predator Management Forum (Western Cape) and CapeNature, aiming to manage three wildlife species (Bush pigs, Black-backed jackals, and Caracals) responsible for agricultural losses in the Western Cape Province. It was the first, and apparently only, bold step to reach agreement on co-operative predation management in South Africa and was signed in March 2013 by the Western Cape MECs for Environmental Affairs and Development Planning, and Agriculture.

**Scientific Assessment (SA) cum PredSA**

The NMMU’s initiative proceeded and on 26 August 2016 it announced the launching of the Scientific Assessment (SA) (PredSA; Kerley *et al.* 2018a,b). As noted previously, the initiative dates to 2009 and later becoming known as the Co-operative Research Programme: Stock Predation Research (CRP:SPR), based in the Centre for African Conservation Ecology (ACE, NMMU). The initiative strived “*To conduct appropriate and strategically determined research, that takes into account the problems and needs of the small-stock industry, and environmental (ecological) requirements, and also the outcomes of acceptable research conducted to date, with a view to providing sound, scientifically-based directions (guidelines) to (a) the industry, and to (b) the policymakers, with the overall aim of appropriately mitigating the problems caused by predation on stock, especially by jackal and caracal.*”

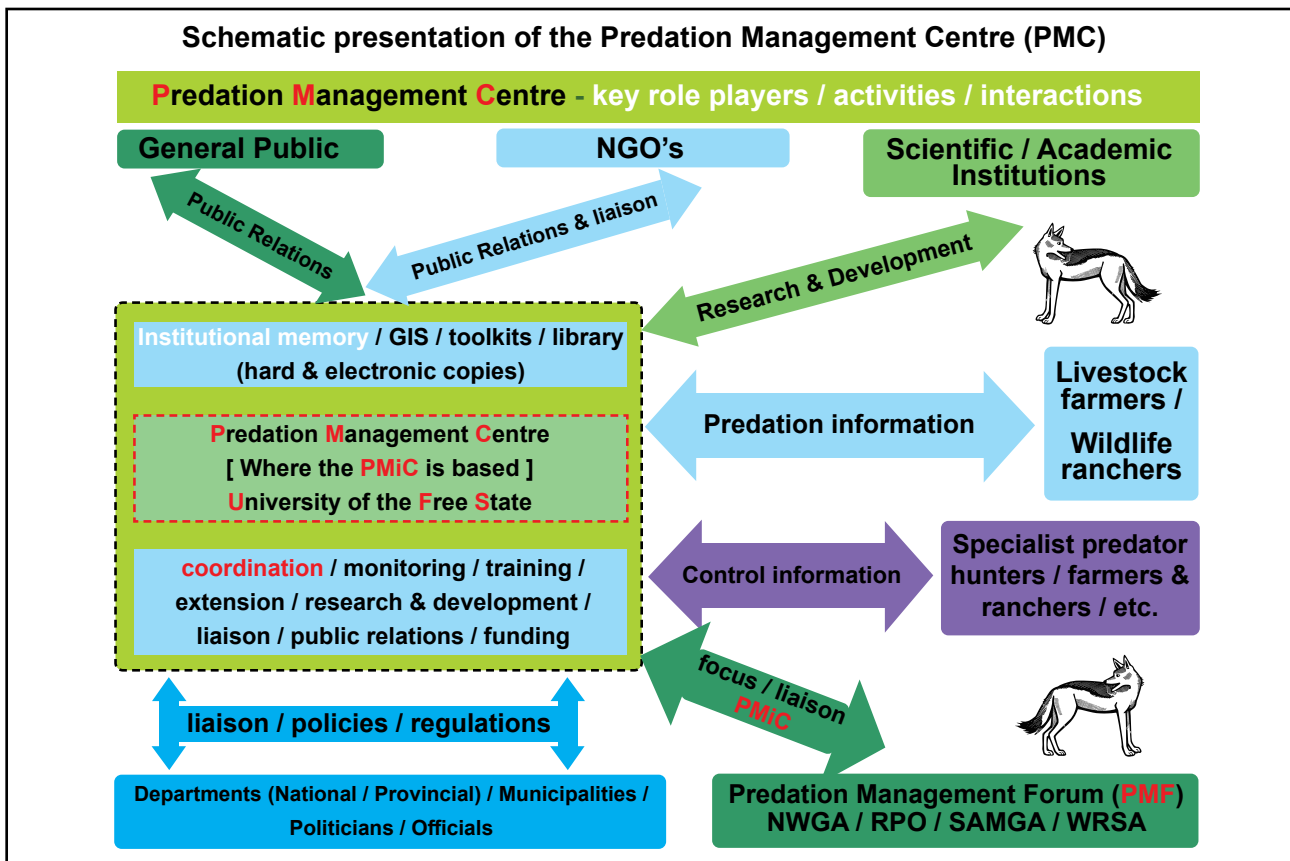
Selected lead authors accepted responsibility for specific core issues/chapters in PredSA and were assisted by contributing authors. Two scientists from the Free State team participated as contributing authors. The Process Custodians Group, comprising a chair and six individuals’ representative of the government (DEA & DAFF), industry (NWGA & SAMGA), research (CSIR), and NGO’s (Wilderness Foundation) oversaw the process (Kerley *et al.* 2018a,b).

Over time, and given the vision and objectives of ALPRU/CCP, a network of dedicated scientists from several entities have increasingly and *de facto* operated as the Predation Management Centre (PMC) since 2016.

**Predation Management information Centre (PMiC)**  
On 29 January 2016, the UFS responded to the “*Call for expression of interest*” by the PMF to establish a Predation Management Information Centre. The PMF Secretariat promptly acknowledged “*receipt of the Free State’s submission of an expression of interest to establish a PMiC*” and said that after the meeting of the PMF Steering Committee in February, the UFS would be informed of the outcome, namely to submit a formal proposal.

Despite being identified as a potential candidate for the establishment of the Predation Management information Centre (PMiC), it was a demanding process. After challenging deliberations, the NWGA, SAMGA, WRSA, RPO and UFS agreed on the details and signed four separate service agreements with the UFS, and on 1 March 2017 the PMiC, as graphically presented in Figure 2, became operational at the UFS.

As directed by the South African President, a high-level government initiative named ‘Operation Phakisa’ was convened in 2016 at the OR Tambo Conference Centre in Gauteng. ALPRU/CCP was



**Figure 2.** A schematic presentation of the PMiC (Predation Management information Centre), as part of the PMC (Predation Management Centre) based at the UFS.

invited to address a work session on 18 October 2016 regarding the impact of predation and the need for coordinated predation management in South Africa. An executive summary, “*Coordinated Predation Management Service*” with a detailed budget for implementation, was submitted on 24 October 2016 to the organisers of Operation Phakisa.

The four producers’ organisations would contribute proportionally (in three tranches per year) to the annual budget of the PMiC. The UFS was an important partner in the arrangement and contributing substantially (as cost to company) to the PMC and thus PMiC. However, the PMiC was short-lived; despite delivering on its commitments, the financial constraints experienced by sponsoring entities played a major role in its demise. On 6 September 2018, the PMF informed the UFS that two producer organisations had withdrawn funding, but the other two would continue until February 2019. The decision by at least one of the producers’ organisations to withdraw its financial contribution, might have been influenced by a commitment to the forthcoming PredSA.

The PredSA was launched on Friday 16 November 2018 at the NMMU. In recognition of their financial contributions, copies of the two publications (Kerley *et al.* 2018a,b) were handed, during the ceremony, to senior officials of DAFF and DEA.

On 21 February 2019, the PMF informed the UFS of its decision to establish a legal entity as Predation Management South Africa (PMSA), with focused functions and responsibilities, namely training, legislation and communication. The PMSA thanked the UFS for its input to address fragmentation and other goals of predation management and hoped it would continue providing information for the PMF newsletter.

On 23 August 2019, the PMSA Forum met at the UFS. Although the PMF had withdrawn funding

from the PMiC, ALPRU informed the meeting that the PMC at the UFS remained operational and would be strengthened to develop a system of coordinated predation management in South Africa.

At the same time this scenario was playing out, and in continuation of ALPRU’s broad initiative, Kruger (2019) developed practical methods to manage predation; technology and procedures to collate information for incorporation in a national database, integral to an information management system (MIS). Effective management of the Black-backed jackal and Caracal pose complex, varying challenges for authorities and landowners. The two mobile device applications are valuable contributions to the knowledge base and insights for predation management.

On 14 October 2020, after an internal review, PMSA communicated as follows: ‘*Research- & tertiary institutions as well as research structures within agricultural commodities are requested to consider, pursue and or fund research projects and programs in support of priorities.*’

## CONCLUSION – QUO VADIS

Many strategies and recommendations have been developed in the past 25 to 35 years, but few were implemented to mitigate predation losses and often financial constraints prevented goals from being achieved. The initiatives came and went in a way best characterised as an ebb and flow. Despite major advancement over decades, specifically since 23 July 1987 when a concerted and focussed initiative was launched, predation management in South Africa remains fragmented and uncoordinated.

## ACKNOWLEDGEMENTS

All involved, past and present, striving for a system of coordinated predation management in South Africa.

## REFERENCES

- ALLISON 1961. Report of Predator Control Activities. Cape of Good Hope March 14 to June 23, 1961. Department of Nature Conservation. Report No. 18. pp. 92-97.
- ALVARES, F., BOGDANOWICZ, W., CAMPBELL, L.A.D., GODINHO, R., HATLAUF, J., JHALA, Y.V., KITCHENER, A., KOEPFLI, K., KROFEL, M., SENN, H., SILLERO-ZUBIRI, C., VIRANTA, S., & WERHAHN, G. 2019. Old World *Canis* spp. with taxonomic ambiguity: Workshop conclusions and recommendations. CIBIO, Vairão, Portugal, May 2019.: [http://www.canids.org/Old\\_world\\_canis\\_taxonomy\\_workshop.pdf](http://www.canids.org/Old_world_canis_taxonomy_workshop.pdf).
- ANONYMOUS 1977/1978. Probleemdierbeheer. Kaapse Departement van Natuurbewaring en Museumdienste. Verslag Nr. 34: 57-65.
- ANONYMOUS 1979/1980. Probleemdierbeheer. Kaapse Departement van Natuurbewaring en Museumdienste. Verslag Nr. 36: 49-56.
- ANONYMOUS 1993. Proceedings of the Problem Animal Control Forum 4th – 5th May 1993. Golden Gate Highlands National Park, Orange Free State Province, South Africa. 90 pp.
- ATICKEM, A., STENSETH, N.C., DROUILLY, M., BOCK, S., ROOS, C. & ZINNER, D. 2018. Deep divergence among mitochondrial lineages in African jackals, *Lupulella mesomelas* (Schreber, 1775) and *L. adusta* (Sundevall, 1847). *Zoologica Scripta* 47: 1–8.
- AVENANT, N.L., DE WAAL, H.O. & COMBRINCK, W. 2006. The *Canis*-Caracal Programme: a holistic approach. In: Daly, B., Davies-Mostert, H., Davies-Mostert, W., Evans, S., Friedmann, Y., King, N., Snow, T. & Stadler, H. (Eds.). Proceedings of the national Workshop on the holistic management of human-wildlife conflict in South Africa, 10-13 April 2006. Ganzekraal Conference Centre, Western Cape. Endangered Wildlife Trust, Johannesburg, South Africa.
- BADENHORST, C.B. 2014. The economic cost of large stock predation in the North West Province of South Africa. M.Sc. Agric. dissertation. University of the Free State, Bloemfontein, South Africa.
- BOWLAND, A.E., MILLS, M.G.L. & LAWSON, D. 1993. Predators and farmers. The Penrose Press, Johannesburg.
- BEINART, W. 1998. The night of the jackal: sheep, pastures and predation. *Past & Present* 158: 172-206.
- BEINART, W. 2003. The rise of conservation in South Africa: settlers, livestock and the environment 1770-1950. Oxford: Oxford University Press.
- BERGMAN, D.L., DE WAAL, H.O., AVENANT, N.L., BODENCHUK, M.J., MARLOW, M.C. & DALE, D.L. 2013. The need to address black-backed jackal and caracal predation in South Africa. Proceedings 15th Wildlife Damage Management Conference, 25-28 March 2013, Clemson, South Carolina (J.B. Armstrong, G.R. Gallagher, Eds.).
- CARRUTHERS, J. & NATTRASS, N. 2018. History of Predator-Stock Conflict in South Africa. pp. 30-52. In: Kerley, G.I.H., Wilson, S.L. & Balfour, D. (Eds). Livestock predation and its management in South Africa: a scientific assessment. Centre for African Conservation Ecology, Nelson Mandela University, Port Elizabeth,
- DALY, B., DAVIES-MOSTERT, H., DAVIES-MOSTERT, W., EVANS, S., FRIEDMANN, Y., KING, N., SNOW, T. & STADLER, H. (Eds.) 2006. Prevention is the Cure. Proceedings of a workshop on holistic management of human-wildlife conflict in the agricultural sector of South Africa. Endangered Wildlife Trust, Johannesburg.
- DE WAAL, H.O. 2009. Recent advances in co-ordinated predator management in South Africa. *Merino SA Focus* 2009, 44-46.
- DE WAAL, HO 2021. Predation management in South Africa – historical milestones. ALPRU - Occasional Paper, November 2021 [Version 5.5].
- [https://www.ufs.ac.za/docs/librariesprovider22/pmic-documents/predation-management-in-south-africa---historical-milestones-november-2021.pdf?Status=Master&sfvrsn=465b7520\\_3/](https://www.ufs.ac.za/docs/librariesprovider22/pmic-documents/predation-management-in-south-africa---historical-milestones-november-2021.pdf?Status=Master&sfvrsn=465b7520_3/)
- DE WAAL, H.O., AVENANT, N. & COMBRINCK, W. 2006. The *Canis*-Caracal Programme – the initiative and a holistic approach. In: Holistic Management of Human-Wildlife Conflict in South-Africa – Briefing Book. Ganzekraal Workshop, Western Cape, South Africa. 10-13 April.
- DU PLESSIS, J.J., AVENANT, N.L. & DE WAAL, H.O. 2015. Quality and quantity of the scientific information available on black-backed jackals and caracals: contributing to human-predator conflict management? *African Journal of Wildlife Research* 45(2): 138-157.
- DU PLESSIS, J.J. 2013. Towards the development of a sustainable management strategy for *Canis mesomelas* and Caracal caracal on rangeland. Ph.D. thesis. University of the Free State, Bloemfontein, South Africa.
- FERREIRA, N.A. 1988. Sekere aspekte van die ekologie en die beheer van die rooikat (*Felis caracal*) in die Oranje-Vrystaat. Project N7/7/5, dated May 1988.
- GUNTER, Q. 2008. A critical evaluation of historical data on two damage causing predators, *Canis mesomelas* and Caracal caracal. M.Sc. dissertation. University of the Free State, Bloemfontein, South Africa.
- HILZHEIMER, M. 1906. Die geographische Verbreitung der afrikanischen Grauschakale. *Zoologischer Beobachter* 47: 363–373.
- JANSE VAN RENSBURG, R. D. 1965. Preliminary report on the “Humane Coyote-Getter” for the control of the Black-backed jackal *Thos mesomelas* in the Transvaal. *Zoologica Africana* 1(1): 193-198.

- KERLEY, G.I.H., WILSON, S.L. & BALFOUR, D. (Eds.) 2018a. Livestock Predation and its Management in South Africa: A Scientific Assessment. Centre for African Conservation Ecology, Nelson Mandela University, Port Elizabeth.
- KERLEY, G.I.H., BEHRENS, K.G., CARRUTHERS, J., DIEMONT, M., DU PLESSIS, J., MINNIE, L., SOMERS, M.J., TAMBLING, C.J., TURPIE, J., WILSON, S.L. & BALFOUR, D. 2018b. Summary for Policymakers. Pp. 7-14. In: Kerley, G.I.H., Wilson, S.L. & Balfour, D. (Eds.). Livestock predation and its management in South Africa: a scientific assessment. Centre for African Conservation Ecology, Nelson Mandela University, Port Elizabeth.
- KRUGER, Q. 2019. Developing a management information system for coordinated predation management in South Africa. Ph.D. (Wildlife) thesis. University of the Free State, Bloemfontein, South Africa.
- KRUGER, Q., AVENANT, N.L. & DE WAAL, H.O. 2021. The contribution of historical hunt club records to manage damage-causing animals. *Indago* 37: 17–30.
- LAWSON, D. 1988. A survey of the effects of predators on sheep farming in Natal. University of Natal, Department of Zoology and Entomology.
- LENSING, J.E. & VORSTER, F. 1983. Ontwikkelingsprogram vir Probleemdiernavorsing. Departement van Natuur- en Omgewingsbewing, Kaapse Provinsiale Administrasie (13 October 1983).
- MILLER, P. 1993. Natal Ordinances. Proceedings of the Problem Animal Control Forum 4th – 5th May 1993. Golden Gate Highlands National Park, Orange Free State Province, South Africa. pp 5-6.
- NEMBA (NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004 (Act No. 10 of 2004)).
- SCHEPERS, A. 2016. The economic implications of predation on the Wildlife Ranching industry in the Limpopo Province, South Africa. M.Sc. Agric. dissertation. University of the Free State, Bloemfontein, South Africa.
- STADLER, H. 2006. Historical perspective on the development of problem animal management in the Cape Province. pp. 11-16. In: Daly, B., Davies-Mostert, H., Davies-Mostert, W., Evans, S., Friedmann, Y., King, N., Snow, T. & Stadler, H. (Eds.) Prevention is the Cure. Proceedings of a workshop on holistic management of human-wildlife conflict in the agricultural sector of South Africa. Endangered Wildlife Trust, Johannesburg.
- STRAUSS, A.J. 2009. The impact of predation on a sheep enterprise in the Free State Province. M.Sc. Agric. dissertation. University of the Free State, Bloemfontein, South Africa.
- STRAUSS, A.J., AVENANT, N.L. & DE WAAL, H.O. 2021. The impact of predation on Merino and Dorper sheep flocks in the central Free State Province, South Africa. *Indago* 37: 43-53.
- VAN NIEKERK, H.M. 2010. The cost of predation on small livestock in South Africa by medium-sized predators. M.Sc. Agric. dissertation. University of the Free State, Bloemfontein, South Africa.
- VAN RHEENEN, R.J. 1935. Resisting drought. The Government Printer, Pretoria.