

1 **Scientific Assessment on Livestock Predation in South Africa**

2 **CHAPTER 2**

3
4 **HISTORY OF PREDATOR-STOCK CONFLICT IN SOUTH AFRICA**

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11 **INTRODUCTION**

12 This chapter provides an historical account of the longer-term predator-livestock interaction
13 that has affected humans within what is now the Republic of South Africa against an
14 abbreviated summary of socio-political and economic changes. From the pre-colonial era
15 onwards, human activities – specifically around pastoralism – have been negatively
16 impacted by predation from wild animals and such conflict persists. As a result, two central
17 government departments, Environmental Affairs, and Agriculture, Forestry and Fisheries,
18 together with Cape Wools SA and the SA Mohair Growers Association have funded a full
19 scientific assessment of the issue and the purpose of this chapter is to situate the current
20 situation within an historical context.

21 Our aim here is to provide a socio-political setting to the chapters that follow. Our
22 arrangement is chronological and the methodology is that of the humanities and social
23 sciences by way of utilizing existing primary and secondary sources to construct a coherent,
24 explanatory narrative. This is an assessment of currently available published knowledge,
25 which has limitations, and we have not conducted in-depth primary archival and other
26 research for this purpose.

27 Although the interface between pastoralists and predators has a long history in
28 southern Africa (indeed, across the world), the background against which this has occurred
29 has evolved overtime and a motivation for this chapter is to analyse the documentation in
30 connection with predation and livestock in the wider complex and regional political history of
31 the country. When human and livestock population numbers in the subcontinent were low,
32 the frontier open and farms unfenced predator management by pre-colonial people and early
33 colonial settlers was informal and without regulation by the state.

34 With the rise of effective colonial government, particularly in the Cape Colony in the
35 mid-nineteenth century, the closing of the frontier with fenced farms and the invasion by

36 settlers into the highveld interior, the state began to assist white farmers with predator
37 control

38 The value of agricultural products to colonial society, especially woolled sheep, was the
39 reason that government supported and subsidised 'progressive', or commercially productive,
40 farmers, because they promoted the local economy through the export of wool. Despite
41 variations over the decades in the price of fleece, state assistance to white farmers to
42 counteract damage-causing animals continued into the twentieth century, declining only with
43 liberalisation of government agricultural policy from the 1980s and the transition to
44 democracy in the 1990s. Waning government support mirrored the dwindling contribution of
45 the agricultural sector generally as a proportion of South Africa's GDP from 21% in 1911 to
46 2.4% a century later. Between 1946 and 2011, the economic contribution of sheep farming
47 to the overall economy by way of wool, lamb and mutton declined from 17% of gross
48 agricultural output to 3.7%. Real mutton and wool prices in 2011 were almost at the same
49 level as they were in 1911. Moreover, the number of commercial farms in South Africa has
50 generally declined: from a highpoint of 112 453 in 1946 to 39 966 in 2007 (Nattrass &
51 Conradie, 2015; Nattrass *et al.*, 2017a).

52
53 Naturally, the political clout of this sector has diminished too and therefore it no longer has
54 the influence to secure state funding for predator control. In areas where African people
55 controlled the land over the last century, it seems that predators have been less of a
56 problem. These were largely in the eastern half of the country where rainfall is higher and
57 cattle usually the most important element in livestock holdings. African communities were
58 generally more densely settled in these areas and kept predators at bay through regular
59 hunting. During the twentieth century population densities rose. As far as African farmers are
60 concerned, the segregationist and apartheid state was little involved in assisting livestock
61 production for the market or for export, although services such as dipping and other
62 veterinary interventions were provided. Certainly, the state was interventionist, forcing
63 Africans into restricted reserves, homelands, Bantustans and other segregated 'tribal areas'
64 (the vocabulary varied over time). The form of land-holding in these areas was communal,
65 with power of allocation vested in the hands of the chieftain; there was no private property.
66 Moreover, apartheid policy meant that the population in the 'homelands' grew with the forced
67 removal of 'surplus people' into them. Indeed, even agriculture (cultivation) in the
68 'homelands' was unable to support a sustainable food-producing sector and many parts of
69 South Africa, including the Eastern Cape and parts of the Northern Cape are unsuitable for
70 crop production (Platzky & Walker, 1985; Dubow, 2014).

71 Since the 1990s, the national policy has reduced direct support for agricultural
72 activity in historically white areas with land reform and land restitution initiatives, the rise of

73 game ranching and farm worker activism becoming the norm. On the other hand, the
74 development of the communal areas, neglected by previous governments of South Africa as
75 'reserves', 'Bantustans' and 'homelands' has become a priority but predation on livestock in
76 this sector has been little studied and its extent is unknown.

77 The current assessment is, in addition, coincident with the growing importance of
78 ethical treatment of non-human animals in South Africa and internationally (Pickover, 2005).
79 Wildlife conservationist sympathies, as well as recent advocacy of animal rights are at odds
80 with some of the traditional values of commercial and communal farmers. Moreover, the
81 scientific environment has also changed with more reliable ecological knowledge available
82 from specialist research in tandem with the growth of the public environmental lobby
83 (Nattrass *et al.* 2017b). Policies were previously shaped largely by the interests of white
84 commercial farmers are now required to mediate conservation and animal rights
85 perspectives, to take account of scientific knowledge and also attend to the concerns of rural
86 communities more general. After many years of discussion and consultation the central
87 government passed the 'National Environmental Management: Biodiversity Act: Norms and
88 standards for the management of damage-causing animals in South Africa' in 2016 The
89 present assessment aims to take the process further.

90 Part of our task in this chapter has been to outline changing scientific paradigms and
91 ecological thinking in terms of attitudes to animals that were once described as 'vermin',
92 emphasising in the main the impact of their predation on stock farming (large and small
93 livestock). It needs also to be appreciated that predator extermination and/or control has an
94 ideological and political, as well as an economic and scientific, rationale. Approaches to
95 predator-livestock conflict has recently also revealed differences between those claiming
96 observational and experiential knowledge (mainly white farmers and hunters) and those
97 claiming scientific authority (nature conservation officials and academic conservation
98 biologists). Nattrass and Conradie (2015) describe these as 'contested ecologies', rivalling
99 one another through different values and politics and by emphasising different aspects of
100 predator ecology. They emphasise how, in the contemporary Western Cape Province, the
101 debate over how best to control predation became emotional and overtly value-laden, yet
102 potentially open to being shaped by ongoing research (Nattrass *et al.*, 2017a). This too, is
103 vital background to the issue as people talk past each other from totally divergent
104 paradigms. Conservationists, and to some degree, scientists, have changed their language
105 from discourses about 'vermin' to 'problem animals' and recently to 'damage-causing
106 animals'. At one extreme, writers identify a 'genocide' against a particular species (Van
107 Sittert, 2016). We have not done research on local, farmworker or African knowledge
108 systems in respect of mesopredators and livestock in this chapter and there is little published
109 material.

110 The black-backed jackal has been seen as a prime culprit for predation on livestock
111 in the sheep-farming areas over the last couple of centuries. Despite foregrounding this
112 species in this assessment, our knowledge of it is far from extensive. The survey compiled
113 by Nattrass, Conradie, O’Riain and Drouilly (2017b) underscores the level of ignorance
114 about this creature but it also collates published knowledge of extremely adaptable species,
115 provides selected literature and suggests implications for management. In general, however,
116 the literature on the black-backed jackal and caracal (also called lynx and rooikat) *Caracal*
117 *caracal* on smaller domestic animals is not only scanty and uneven, but it has also mainly
118 focussed on what was formerly the Cape Colony (1814-1910), and Cape Province (1910-
119 1994), and that area itself has been divided into Western, Eastern and Northern Cape
120 Provinces since 1994. The little attention that environmental historians and historians
121 interested in changing agricultural and pastoral practices have paid to the matter has been
122 concentrated in areas, mostly white farming areas in private ownership, suitable for sheep-
123 farming and thus vulnerable to predation, viz. the Cape region. It is for that reason, together
124 with the fact that it is here that the volume of small livestock is greatest, that attention here is
125 devoted mainly to that part of South Africa.

126 From the perspective of this assessment, it is regrettable that the literature has
127 focussed on predation by jackal and caracal on sheep in the Cape region in the commercial
128 farming districts. This is largely because of the rich historical detail that deals with these
129 areas and the centrality of predation in shaping debates about farming practices and
130 conservation. Published data on the situation in the communal areas around the country
131 does not exist in equal measure. In addition, the impact of predation on other agriculturally
132 significant species, such as goats that are common in communal areas around the country
133 has also not been determined. For obvious environmental and historical reasons,
134 opportunistic species like jackal and caracal are numerous in many parts of South Africa and
135 always have been (Skead, 1980, 2007, 2011; Boshoff & Kerley, 2013). Although there are
136 accounts of larger predators like lion and leopard, or smaller predators like Cape fox, African
137 wild cat and feral dogs, in other areas taking livestock from formal and informal cattle
138 farmers (or livestock farmers of, for example, horses, donkeys, goats) this happens far more
139 seldom. Moreover, the targeted species are not routinely killed or controlled as a group but
140 as individuals.

141 The available literature indicates that predator-livestock conflict is an issue in the
142 lives of commercial farmers rather than subsistence farmers on communal land, but this may
143 not be an accurate reflection of the real situation in all parts of the country. Nonetheless, the
144 emphasis on the former may be that commercial sheep farms tend to be extensive, with few
145 workers, whereas communal farming areas are densely populated (and where dogs are

146 close to small stock). However, communal land near protected areas may have problems
147 with predators if labour is unavailable for herding; more research is needed.

148

149 **PRE-COLONIAL PERIOD TO 1652: GENERAL INTRODUCTION**

150 It is a truism that livestock-keepers from time immemorial have felt the need to protect their
151 flocks and herds from predators to which all vulnerable animals are prey. In Africa, large, or
152 apex, predatory carnivores abounded in bygone eras and over wide areas. Therefore, from
153 the dawn of pastoralism on the continent it has been necessary to provide protection from
154 wild predators for domestic livestock (Smith, 1992). Owing to its particular environmental
155 opportunities and constraints, southern Africa was settled widely by African foragers and
156 hunter-gatherers and then by pastoralists in the western parts and mixed farmers (those who
157 practised pastoralism and planted crops) in the north and east (Lewis-Williams, 1983;
158 Mitchell, 2002; Pollock & Agnew, 1983; Inskoop, 1979; Huffman, 2007; Mason, 1969;
159 Shillington, 1985; Hamilton, 1995; Derricourt, 1977; Swanepoel, Esterhuysen & Bonner,
160 2008; Peires, 1981; Laband, 1997). However, predator-livestock conflict became a matter of
161 governmental concern in the colonial era when an ideology of private land ownership and a
162 mercantilist and subsequently a capitalist economic system was introduced.

163

164 *Political and economic outline*

165 Precolonial southern Africa is a palimpsest of economies, lifestyles and communities and
166 this is not the place for a full discussion of them. The area of the modern polity of the
167 Republic of South Africa has been inhabited by modern humans for millennia.
168 Archaeologists are currently in agreement that the earliest modern human inhabitants were
169 bands of hunter-gatherers and foragers, generally referred to as San (or Bushmen). It is
170 known that they kept no livestock and cultivated no crops and that their resilient society was
171 based on small, mobile, egalitarian, and generally co-operative, communities or band
172 structures. Certainly, it must be surmised that there were many occasions on which humans
173 suffered predation on their livestock from dangerous wild animals.

174

175 *Predation on stock/mixed farmers in the interior in the pre-colonial era*

176 Over time, the San foraging and hunting economy was displaced in many regions by
177 intruding societies whose economies and political structures differed markedly. For the
178 purposes of this chapter we identify two of these societies and differentiate between them on
179 the basis of their lifestyles. Broadly interpreted, Bantu-speaking communities can be
180 appreciated for being mixed farmers and skilled iron-makers – and often traders – with
181 sophisticated political hierarchies and economic and social resilience. These traits came into
182 existence owing to the ability to store food (mostly grains) and to husband livestock – almost

183 exclusively cattle but also goats and sheep – and to use the food resources and by-products
184 of those herds. Evidence from Silver Leaves, Broederstroom, and other sites of the Early
185 Iron Age suggest that these communities settled in fairly large numbers in areas that were
186 good for cattle-raising, where nutritious grassland savanna was available and where
187 livestock diseases were not endemic. The arrival and settlement of cattle keepers and mixed
188 farmers of various communities (e.g. Nguni, Sotho, Tswana – the Late Iron Age) in what are
189 now the provinces of Limpopo, North West, KwaZulu-Natal and the Eastern Cape is well
190 documented. We have, however, little detail about their relationships with predators of their
191 cattle, but again, it appears from what is known that traditional techniques such as
192 shepherding and night kraaling together with the technical ability to hunt large predators in
193 organised groups may have been generally sufficient to protect their herds from predation
194 (Lye, 1975).

195

196 *Khoekhoen (Western and Northern Cape)*

197 Unlike the Bantu-speaking mixed farmers, the Khoekhoen (Khoikhoi, sometimes Khoisan) of
198 the south-western and northern parts of what is now the Western Cape and the Northern
199 Cape provinces can be described as pure pastoralists with fat-tailed sheep as the main form
200 of livestock. They did not cultivate grain or other crops (Smith, 1987: 393-402). Certainly, it
201 seems that careful shepherding and stock outposts were the way in which these
202 communities managed their herds. Because of their reliance on livestock as the basis of
203 their lifestyle – their political, religious and economic systems were entirely predicated on the
204 acquisition and ownership of livestock – they lacked the resilience effectively to confront the
205 intrusion of the colonial order (Elphick, 1985). As is well recorded, some groups, the
206 ‘Strandlopers’, who inhabited coastal areas for some or all of the year relied on marine
207 resources but the centre of political power more usually resided in the person who owned
208 the largest number of livestock.

209 Khoekhoen herds were substantial; in 1653, a French sealer recorded ‘thousands of
210 cattle and sheep’ on the plains around St Helena (Smith, 1987:396). Cattle and sheep
211 require different grazing: cattle are less eclectic in their diet than sheep and are bulk grazers
212 and, for this reason, patterns of transhumance in some parts of the Cape were complex
213 (Smith, 1987: 399). Population records for this era are lacking but certainly the level of
214 human density was low. Records are fragmentary and information is gleaned mainly from
215 later, often unreliable, accounts left by early European explorers and visitors to southern
216 Africa. What was occurring in parts of the subcontinent in terms of livestock and predator
217 interrelationships in places such as what is now Limpopo Province and KwaZulu-Natal in
218 particular before c.1850 is not known with any certainty and even the fragmentary oral
219 records are unclear.

220 It appears that a number of breeds of sheep were kept by the Khoekhoen. In the late
221 1770s Scottish plant collector William Paterson noted a different variety of sheep in
222 Namaqualand from those nearer Cape Town (Forbes & Rourke, 1980: 162). The ability of
223 the Khoekhoen to combat livestock disease through many natural remedies is well attested
224 (Elphick, 1985). As explained by Elphick and relying on contemporary sources such as Kolb
225 (1727) cattle and sheep were kept within the circular enclosure of the huts or just outside it,
226 with their legs tied so that they could not roam freely. Apparently, lions and presumably other
227 carnivores and mesopredators trailed the Khoekhoen bands and were unafraid of attacking
228 the stock enclosures at night (Elphick, 1985:58-59). However, it seems relatively clear that
229 Khoekhoen herds were not often allowed to wander without supervision.

230 Khoekhoen society, grounded as it was on the fragility of livestock ownership (herds
231 could be decimated by disease or drought) and with political leadership the prerogative of
232 those with the largest herds, was extremely vulnerable to the loss of livestock. Despite their
233 fierce resistance, the power of the herders was broken by the combined factors of settler
234 technology, colonial expansion and the introduction of diseases, particularly smallpox. Their
235 ancestral lands were appropriated by the expansion of white settlers and their stock and
236 their lifestyle has not survived intact (Elphick, 1985).

237

238 **COLONIAL/REPUBLICAN PERIOD 1652-1910: THE CAPE, NATAL, TRANSVAAL AND** 239 **ORANGE FREE STATE**

240

241 *Political and economic outline*

242 The southern part of South Africa was settled in 1652 by a small outpost of employees of the
243 Dutch East India Company (VOC) as a victualling station for its ships as they plied the route
244 around the Cape of Good Hope to the spice islands of the Far East. At that time there was
245 no intention to establish a colony or even to start a permanent settlement. The Company,
246 based on principles of monopoly, mercantilism, direct profit and minimum investment,
247 envisaged a small station that could provision ships through growing vegetables and other
248 crops that would combat scurvy. They also intended to barter livestock with the Khoekhoen
249 so as to provide fresh meat for ships as they lay in harbour. As is, however, well known, the
250 vision of a contained settlement centred on intensive agriculture and friendly relations with
251 the Khoekhoen soon gave way to an extended area of settler livestock holdings in the
252 interior, fierce opposition from the autochthonous people, the introduction of slavery, the
253 establishment of large wheat and wine estates and, in short, a permanent and expanding
254 European foothold in southern Africa that led to hostile relationships with the Bantu-speakers
255 in the eastern parts of the Cape region (Elphick & Giliomee, 1989). By the time that the VOC
256 was bankrupt towards the end of the 1700s, local administration and ideas of a contained

257 settlement had broken down completely. The boundaries of the colony were permeable and
258 almost indefensible, and hostilities with the Xhosa on the east were becoming intractable. At
259 the core of this conflict was competition for grazing land for livestock, particularly cattle which
260 was the economic base of both communities (Peires, 1981).

261 Moreover, the European context had changed and with the outbreak of the
262 Napoleonic Wars, and the position of the Netherlands in that conflict, the Cape became a
263 prize of war. Having been taken by the British in combat in 1795, restored to the Batavian
264 Republican administration between 1802 and 1806, the Cape reverted to Britain in 1806 with
265 permanent occupation confirmed in 1814. With this political change from VOC control into a
266 formal colonial possession, and the abolition of slavery some years later (1834), one can
267 argue that the modern capitalist era began in South Africa, and with it, formal government
268 and 'progressive' pastoralism (Beinart, 2003; Ross, 1986).

269 As for the interior region, there were, eventually, three settler polities; the Transvaal
270 (the South African Republic or ZAR, 1852), the Orange Free State (1854) and Natal (1843).
271 Natal was a British colony while the other two were self-governing and fractious Boer
272 republics in which civil war between factions was often rife (Giliomee, 2003). The colonial
273 order arrived in Natal and in the interior around the middle of the nineteenth century together
274 with considerable violence and resistance from African communities. The period from the
275 1840s to c.1902 saw confrontation between settlers and groups such as the Sotho, Zulu,
276 Tswana and Pedi. Major upheavals included the Mfecane of the 1820s and later wars
277 against the Sotho in the area that became the Orange Free State and Lesotho, the Zulu in
278 the east, and the Ndebele, Pedi and Tswana in the Transvaal. Dispossession and conquest
279 by the invading settlers occurred on a grand scale, leaving only pockets of land in the
280 possession of its pre-colonial occupiers. Despite strong opposition, eventually the majority
281 became subservient vassals of the whites or migrant labourers on the mines (Davenport &
282 Saunders, 2000; Keegan, 1986; Beinart, Delius & Trapido, 1986). Needless to say, strong
283 government – as was the case in the Cape by this time – did not exist in the interior and thus
284 state support and intervention was absent. In these regions, the very different climatic and
285 ecological conditions in comparison with the Cape militated against successful fleece-
286 bearing sheep at the same scale. Moreover, white settlement, private land ownership and
287 modern agricultural practices arrived later in these places.

288 Despite British efforts at confederation from the 1870s divisions and acrimony
289 persisted among these political units and the Cape. Totally complicating the matter was the
290 discovery of gold and diamonds from the 1870s, the transformation of, especially, African
291 society and its farming practices to cater for the growing numbers of miners and other
292 immigrants. The mineral revolution altered South Africa's history irreversibly. Not until after
293 the South African War in 1902 was effective government imposed on the region as a whole.

294 In 1909, a complex and contested Constitution united the four colonies into the Union
295 of South Africa which came into being in 1910. Legacies from the colonial era remained,
296 including some of the powers of the colonies which were transferred onto the provinces.
297 Some of these were by way of dual competencies, e.g. education, health and agriculture,
298 and this dualism has bedevilled the administration of various arms of government to this day.
299

300 **THE CAPE 1652-1910**

301 *The Cape under the VOC*

302 Once the VOC had established an outpost in what is now Cape Town, it began to build up its
303 own herds of livestock, particularly sheep, rather than continuing to barter with the
304 Khoekhoen. Various travellers' accounts record interactions with dangerous large mammals
305 and their predation on domestic stock. Many refer to lion that took horses, sheep and other
306 livestock (Raper & Boucher, 1988: 362-363). As has been explained, these accounts need to
307 be approached with caution as to their indication of numbers or extent because exciting
308 narratives of lion predation made good stories and sold books (Beinart, 1998: 179). Large
309 predators like lions are a threat to large herbivores like cattle and oxen and it is likely that
310 smaller, adaptable mesopredators like the jackal were more of a persistent problem for small
311 stock like sheep and goats. During the VOC period protecting livestock generally followed
312 Khoekhoen tradition by way of kraaling and shepherding. According to the settler historian
313 G.M. Theal writing in 1888, the VOC put prices on the heads of dead predators, but this was
314 to protect human life and crops as well as livestock (Van Sittert, 2005:272).

315 Burchell (1812) was only one of many contemporary travellers who recorded that the
316 presence of wild animals deterred people from cultivating crops but presumably these were
317 the herbivores or grazers of those crops, and perhaps also damaging bushpigs and
318 baboons. He noted also that the Khoekhoen constructed temporary kraals for their sheep on
319 their travels to fresh pastures, and cattle were tied together to ensure that they did not stray.
320 Noting that lions were around after their oxen, Burchell's party lit fires and frightened them
321 away with muskets. Jackals were reported to scavenge on what the lions had left (Burchell,
322 1822: 118, 180, 360, 464; Burchell, 1824: 83, 290, 525).

323 Under the VOC regime various push and pull factors forced or enticed burghers
324 (freemen) and disaffected company employees to expand out of the confines of the Cape
325 peninsula. VOC administration seldom followed them and a culture of self-reliance and
326 independence took hold, together with wariness, indeed abhorrence, of any administration
327 that limited the liberty of a farmer to do as he wished on 'his' land, either privately owned or
328 legally occupied. Intensive agriculture failed outside the confines of the wheat and wine belt
329 around Cape Town (that only the wealthy could afford) and the lure of the interior with its
330 abundant land and opportunity for self-reliance as a livestock farmer was an attraction.

331 Colonists sought to acquire flocks and herds of their own to increase their personal wealth.
332 Burrows has explained how indigenous Cape sheep, providing meat, fat, skins and currency
333 was a lifeline for the itinerant farmers, referred to as *trekboers* (Burrows, 1994:120-125).
334 Colonial expansion in this period was mainly towards the Xhosa-held eastern parts of the
335 Cape where good seasonal grazing was plentiful, but also into the more climatically
336 inhospitable northern Cape. Trekboers were little hampered by organised government and
337 where they met resistance from African communities they generally took matters into their
338 own hands, thus escalating frontier violence. Access to land was plentiful by way of the loan
339 farm system, properties for which no fee was required and that could be occupied or
340 abandoned at the will of the occupier. In addition, herders could be hired relatively cheaply
341 from the impoverished Khoekhoen communities if this was required. Trekboers hunted (and
342 even exterminated) wildlife as they travelled, indeed, it was a major form of subsistence
343 (Penn, 1987:462-503; Penn, 2005; Van der Merwe, 1995; Beinart, 1982; Beinart & Bundy,
344 1987).

345 The colonial experience of the first two hundred years of European rule of the Cape
346 was a process of unrelenting dispossession of land from autochthonous people, a record of
347 livestock raiding and counter-raiding and endemic violence. It was also the period during
348 which the enormous herds of wildlife and large predators were virtually exterminated from
349 the southern regions of South Africa. By the late 1700s most free-roaming large mammal
350 wildlife had been deliberately exterminated through firearms that had been introduced to
351 southern Africa by European settlers. Even by the 1830s an expedition into the Karoo was
352 needed in order to see any large fauna at all. In this way, the southern part of South Africa
353 was increasingly being made safe for large domestic stock held as private property by white
354 settlers. In South African law domestic stock is private property and can be owned by
355 persons or corporations. However, wildlife is *res nullius*, an object that is unowned. But wild
356 animals can be captured, alive or dead, and a person who captures a wild animal becomes
357 the animal's owner, through a process of acquisition of ownership known as *occupatio*. Such
358 an animal in captivity is the sole property of the captor, or of anyone who subsequently
359 acquires it from the captor. In the 1970s when wildlife ranching was becoming established
360 and game farmers sought assistance from the Department of Agriculture, a Directorate for
361 Game Farming was set up. As a result of the report of its Committee, although actual
362 'ownership' of wildlife was not conferred on landowners, a matter for which there was a
363 strong lobby, a concession was made in that if farmers could prove to the authorities that
364 they had fenced in their wildlife satisfactorily, they were eligible for a 'Certificate of Adequate
365 Enclosure' from each of the provinces, a move that entitled them to subsidies as well as to
366 other benefits (Carruthers, 2008). (See chapter XXX).

367 What was becoming clear by this time was that sheep-farming by white settlers could
368 prosper in the drier areas of the southern sub-continent (Beinart, 1998:172-206) and that by
369 the early 1800s the time was propitious for importing other breeds of sheep into the Cape,
370 particularly wool-bearing varieties. Burrows records (Burrows, 1994: 122-125) that in 1789
371 Robert Jacob Gordon, the last VOC Cape governor, clandestinely imported six Spanish
372 sheep from the Netherlands and that the Van Reenen brothers Jan, Sebastian Valentijn and
373 Dirk Gysbert acquired them and crossed them repeatedly with Cape sheep. This strain was
374 hardy and less disease-prone than pure-bred merinos. In 1804, the Batavian regime that had
375 moved away from the VOC's mercantilist economic policies, having formally proclaimed the
376 colonial boundaries and begun to introduce organised administration, encouraged stock-
377 farming, by way of an investigation under W.S. van Ryneveld. His initial report led to the
378 *Commissie ter verbetering van veeteelt en landbouw* (Commission for the improvement of
379 stock-farming and agriculture) comprising 14 government officials and farmers. Van
380 Ryneveld's recommendations included replacing fat-tailed sheep with merino but although
381 Groote Post (near Darling) was established as an experimental farm, the Batavian
382 authorities concentrated on improving agriculture not pastoralism. Under British rule the
383 commission's name was changed to the Agricultural Board (Plug, 2004:3-4).

384 At this time, fewer than 8 000 of the 1.34 million sheep in the Cape were wool-
385 producing merinos and almost all belonged to the Van Reenens (Burrows, 1994:122-125).
386 Their form of modernised pastoralism began to spawn a viable rural economy and towns
387 such as Bredasdorp and Caledon were founded on it (Burrows, 1994:122-135; Beinart,
388 1998:172-206). This was so despite the fact that many settler sheep-farmers were not keen
389 to have pure-breed sheep with their lessened resistance to disease (Freund, 1989). In
390 addition, while fat-tailed sheep bunched together when confronted by a threat, merino
391 scattered, thus making themselves more vulnerable to predators (Beinart, 1998:184).

392 Freund explains the change that occurred in the Cape with the formal cession of the
393 colony to Britain in 1814. Thereafter, securely situated in the British Empire, the Cape was
394 catapulted into international trade and benefited economically from the influx of British
395 merchants and the increase in British shipping. As part of an international network of colonial
396 possessions (including those in Australia and New Zealand) the Cape entered the global
397 community. Prior to that time, owing to the unsettled political situation and the frontier wars
398 with the Xhosa, cattle numbers in the colony decreased between 1798 and 1806, perhaps
399 by as much as 25%. But by 1815 numbers burgeoned to more than there had been in 1798.
400 As far as sheep were concerned, already in 1807 there were more than there had been in
401 the 1790s. Colonial sheep peaked in 1811 (Freund, 1989).

402 The VOC extensive loan farm system that virtually gave unoccupied land to trekboers
403 was not conducive to large-scale woolled sheep farming because they moved, almost

404 constantly, from one new farm to another and livestock were more productive under these
405 circumstances. In 1813 the British government introduced the quitrent freehold system that
406 entailed regular rental payments for surveyed farms that had to be productively used and
407 could be sold. This encouraged a more settled white rural community. Eventually, this
408 measure brought a denser white pastoral community into being and private land became the
409 norm (Freund, 1989:332-333). Between 1814 and 1823 the vermin bounty that had existed
410 under the Dutch was revived, but this may not have been related to sheep farming in
411 particular. Van Sittert asserts that jackal were not included in this bounty system, but this is
412 refuted by Beinart (Van Sittert, 1998:333-356; Beinart, 1998). Moreover, it was not policed.
413 According to Van Sittert, this form of vermin bounty was discontinued in 1828 owing to
414 financial stringency at the Cape (Van Sittert, 2005:273-275).

415 The situation altered in the 1850s (Natrass *et al.*, 2017a). There was a wool boom in
416 1853 and in that year the Cape received Representative Government and thus began partly
417 to manage its own affairs without the requirement to refer every aspect of governance to
418 Britain for approval. The need to nurture wool farmers at this time was extremely important
419 because by 1872 the ever-increasing fleece exports had peaked at the huge sum of £3
420 million (Beinart, 1998:176). In 1850 in the eastern Cape, Thomas Baines mentioned farmer
421 Currie carefully counting his sheep as they were led into the kraals and he noted that the
422 shearers on Pringle's farm were Africans (Kennedy, 1961:115; Kennedy, 1964:4). As Peires
423 has explained, at this period settler farmers were desperate for labour, particularly after the
424 introduction of woolled sheep, and dispossessed Xhosa, and what were termed 'native
425 foreigners' were allowed to squat on farms as labour-tenants (Peires, 1981:105-120).

426 Coming from Europe, settlers were familiar with the idea of 'vermin' as a group of
427 predators. In 1889, the Cape parliament (Responsible Government had been granted to the
428 Cape in 1872) instituted a bounty system for specified vermin. This remained in place for
429 more than 50 years. Divisional councils (the arm of local government in the Cape Province)
430 were empowered to oversee the process and hunting clubs were founded and grew in
431 number (Van Sittert, 2005:273-275). Poison was also used; the first Wild Animal Poison Club
432 was established in Jansenville in 1884 and the example was followed in many other districts.
433 Until well into the 1890s there were regular annual congresses of these clubs in the Cape,
434 their activities subsidised by the state (Beinart, 1998:190-194; Van Sittert, 1998:342-344).

435 Within a few short decades, woolled sheep were the mainstay of the Cape economy
436 and government protected and supported this industry assiduously. Improved methods of
437 transport, including refrigeration, meant that meat could be transported around the British
438 Empire – mutton was a favourite. Together with increased immigration to South Africa and
439 urbanisation after the 1870s with the mineral revolution in the interior the sheep farming
440 community of the Cape expanded (Cripps, 2012; Archer, 2000:675-696). The mineral

441 revolution wrought even greater changes to African society than it did to settlers. The
442 migrant labour system disrupted communities irreversibly. Some managed to adapt and
443 supply agricultural produce on a basis competitive with white farmers and imports;
444 sometimes as independent farmers, sometimes as sharecroppers. The effect of predation on
445 African owned livestock in these changing circumstances has yet to be examined.

446 As was to be expected, once the larger mammals and predators had been
447 exterminated from the Cape, together with the herds of antelope, it was the smaller
448 opportunistic predators, particularly black-backed jackal who had been harassing sheep
449 farmers from the start, that expanded to fill this ecological niche to become the bane of
450 sheep-farmers' lives, affecting their profits. In 1865 one-third of the settler population
451 (58 000) lived in the sheep farming districts and, as outlined by Archer, technology, notably
452 the industrial production of wire fencing, enabled the industry to burgeon and sheep density
453 to increase. From the 1870s artificial water supplies from aquifers equipped with windmills in
454 the drier regions meant that camps could be constructed out of imported wire fencing in
455 which the sheep ranged freely. While the need for kraaling was lessened, the need to protect
456 against predators grew (Archer, 2000:675-696). Absolute stock numbers in the Cape grew
457 too: in 1865 there were 10 million sheep and 16.7 million in 1891 (Nattrass *et al.* 2017a)
458 although they fell again during the next 15 years due to war and drought.

459 The sheep-farming industry had been transformed from nightly kraaling (with its
460 attendant dangers of disease and veld degradation) with the slow introduction of industrial
461 wire fencing from the 1870s that may have been extensive only by the Second World War.
462 The Fencing Act in the Cape in 1883 (amended in 1891) required farmers to co-operate in
463 the construction and maintenance of fences along common boundaries. Vermin-proof
464 fencing (wire mesh fencing with a packed rock apron) started spreading in the 1890s and
465 fence-making equipment came into play in 1902 (Beinart, 1998). From 1905 subsidies for
466 vermin-proof fencing were paid in the Cape. Cape farmers' cries about 'vermin' and the
467 depredations that they had to suffer on their account were never-ending and owing to the
468 importance of wool exports as a mainstay of the Cape economy, the government continued
469 to listen and to support. Van Sittert cites the fact that fencing tripled between 1891 and 1904
470 from 4.1 million morgen enclosed to 12.5 million (Van Sittert, 1998, 2002:). The situation
471 among African sheep farmers in the communal areas (particularly the eastern Cape) at this
472 time is not known. What is, however, clear, is that dispossessed and displaced Africans and
473 Khoekhoen in the eastern Cape were being increasingly being employed as shepherds and
474 herders on white-owned sheep farms at this time.

475 The bounty system that relied on the production of 'a tail' for reward lent itself to
476 fraud. Consequently, the requirements for bounty receipts were constantly tightened. From
477 1895 vermin tails had to include the bone, in 1896 proof was required that the tail emanated

478 from the Cape Colony, in 1899 a bounty payment required tail, scalp and ears and signature
479 of a Justice of the Peace or landowner, and in 1903 the whole jackal skin was required.
480 Select Committees looked at the matter. One report was published in 1899, *Report of the*
481 *Select Committee on the Destruction of Vermin*, but the outbreak of the South African
482 (Anglo-Boer) War prevented further action until a second Select Committee sat in 1904
483 (*Report of the Select Committee on the Destruction of Vermin*). Predator control was high on
484 the government agenda.

485 The bounty expenditure was considerable. In 1898-1899 bounties on jackal tails
486 (7shillings each) amounted to the not inconsiderable sum of £28 000 and thus represented
487 more than 50 000 jackal killed (Beinart, 1998:190-191). But in 1908, mainly because of
488 fraud, vermin bounties were abolished in the Cape. The post-war depression of 1904 to
489 1907 affected all four colonies as the export price for wool collapsed and evidence of veld
490 degradation became ever more apparent (Beinart, 1998:190-196). Van Sittert has argued
491 that the bounty system was helpful not only in controlling vermin but also in alleviating poor
492 white poverty. It may also have created cohesion among whites of all classes and the
493 establishment of farmers' associations assisted this process further (Van Sittert, 1998:333-
494 356). How many black people were paid out for proofs is not a matter that is formally
495 recorded for this period. Beinart, however, notes that African areas were relatively free of
496 jackal because communal areas could be controlled by groups of people, not individual
497 owners, there was thus no consideration of private property or issues of trespass. In
498 addition, the large numbers of dogs kept by Africans were destructive to smaller predators
499 like jackal and caracal and it may even be that black farmworkers and independent hunters
500 killed predators for the bounty (Beinart, 1998:192; Beinart, 2003).

501 No 'scientific ecological research', as currently understood, was conducted on
502 predators like jackal and caracal by museums or university colleges. Natural history societies
503 proliferated in the late nineteenth century but the ethos of the time was on teaching the type
504 of zoology that was current in Europe (if it was taught at all), on the collection of specimens
505 and on close taxonomic study. The place of predators in any kind of what would now be
506 called an 'ecological system' was limited to a few voices that need to be understood in the
507 context of their time and the emphasis on introducing a modern agricultural economy. One of
508 them was F.W. Fitzsimons, director of the Port Elizabeth museum (Beinart, 1998:183). The
509 demands of politically powerful Dutch- and English-speaking farmers (Tamarkin, 1995) for
510 the persecution of predators like jackals held sway.

511 As indicated, the main leitmotif of this pre-Union period in the Cape was the
512 dispossession of local communities from ancestral lands and their replacement by private
513 property, settler farming practices and a market economy. The Khoekhoen herders were
514 unable to sustain themselves as a cohesive society once they had lost their cattle, and

515 despite numerous wars, in time, the Xhosa of the eastern Cape were pushed eastwards.
516 Certainly, they continued to husband livestock and grow crops, but they had access to ever
517 decreasing areas of land. How this influenced the predation of their livestock has not been
518 examined. However, African cultural practices such as loan cattle (*mafiso*, where shepherds
519 cared for the livestock of a chief or headman in exchange for some of the progeny of the
520 herd), may have increased the number of herders and shepherds. For example, the large
521 herds of a chief were not protected by him alone, as was the case with settler farmers.
522 Practices such as loan cattle, vassalage, the use of the youth etc. meant that labour for
523 shepherding and herding was generally always available.

524

525 *Natal, Transvaal (South African Republic 1852-1902) and Orange Free State (1854-1902,*
526 *Orange River Colony 1902-1910)*

527 Natal was annexed by Britain in 1843 primarily to prevent permanent settlement by the
528 Voortrekker groups who had vacated the Cape in the 1830s during the 'Great Trek'. This
529 was not sheep-farming country. Hot summers and high rainfall were detrimental to woolled
530 sheep and a special type that might have acclimatised was not bred. The presence of
531 predators was a far lesser threat than worms and other sheep ailments and diseases. Sheep
532 could not range freely in the veld (as they could in the Cape) but had to be confined in
533 camps. Unlike in the Karoo, there was a shortage of mineral salts in the soils of Natal, and
534 careful veld burning was required. In the very hot Natal summers, flocks had to trek onto the
535 cooler Highveld in summer (Anon., 1929). Zululand, nominally independent until 1897 when
536 it was annexed by Natal, is also not suitable for sheep-rearing but has always been well
537 known for cattle-keeping, the main economic resource of the Zulu.

538 In comparison with the Cape with its longer history of white settlement, large game
539 remained plentiful in Natal until well into the 1800s. Predator control among the Zulu in the
540 pre-colonial and colonial period is not well studied but it is likely that cattle were protected
541 from lion and other predators as a matter of course. Struthers, in 1854, relates how 'tigers'
542 (probably leopards) in a tree near the wagons attacked six dogs, only one of which returned
543 three days later with 'fearful holes in its neck and shoulder' (Merrett & Butcher, 1991:49). At
544 a similar time, Delegorgue explained how Zulu cattle were penned every night into a kraal
545 with a circular hedge, fairly close to the huts and all with an external fence for protection
546 against attack from 'hyaenas and panthers who are so bold that they enter huts and seize
547 the dogs sleeping at the owner's feet' (Delegorgue, 1997:125). In the 1890s Tyler, recorded
548 lions in the Zulu cattle folds (Tyler, 1971:75).

549 Of jackal and other predators and livestock (particularly small stock) in the growing
550 agricultural economy in the greater area of KwaZulu-Natal before Union in 1910, the
551 historical record is mostly silent. It seems likely that predation on small livestock as

552 hampering productive livestock farming has historically been an issue in the Cape rather
553 than evenly country-wide although we cannot be sure.

554 As the Cape became more densely settled and with the enclosure movement gaining
555 pace, intrepid missionaries, explorers and land-hungry settlers – and the Voortrekkers for
556 different reasons – ventured into the interior. Initially Britain claimed these territories, but
557 during a period of financial stringency, it granted independence to the Transvaal in 1852 (the
558 South African Republic or ZAR) and to the Orange Free State in 1854. Many travellers and
559 explorers between the 1830s and 1860s commented on the large herds of wildlife and the
560 abundance of predators. The hunting literature is extensive and this genre spawned an
561 appreciation of the ‘excitement’ of the interior regions as well as providing a record of the
562 decimation of elephant and other large wildlife (Gray, 1979). Not for many years was settled
563 agriculture and property ownership consolidated in the Transvaal and Orange Free State.
564 Moreover, this was generally cattle country, although Sandeman, travelling in the Free State
565 in 1878 on his way to Pretoria, described wool as the staple article of the republic
566 (Sandeman, 1975:90). It is not clear how many sheep there were, nor the herding practices
567 or mesopredator losses. In 1850 Baines, then on the Marico River among the Tswana in
568 what is now the North West Province, described how a lion had been among the cattle and
569 badly injured them (Kennedy, 1964:87). Selous, one of the most famous of the sport-
570 hunters, recorded that predators, when encountered, had to be driven off by specifically
571 employed African herders otherwise they would attack donkeys and horses (Selous,
572 1999:300). Apparently, in 1833 near Clocolan (in the Free State) a group of missionaries
573 heard jackal and ‘tigers’ one night and the following morning one of their sheep was missing
574 (Boshoff & Kerley, 2013:149). There is not sufficient anecdotal evidence such as this to
575 reliably inform a professional and coherent account of the situation before the 20th century in
576 the interior of what was to become South Africa. (But see Keegan, 1986.)

577 After the South African War had ended in 1902 and the two republics had become
578 British colonies – the Transvaal and the Orange River Colony – the government established
579 Departments of Agriculture on the same basis as was the case in the Cape and Natal.
580 Progressive agricultural expert Frank B. Smith became head of the Department in the
581 Transvaal and Charles M. Johnston (a keen and knowledgeable ornithologist) in the Orange
582 River Colony. An early edition of the *Transvaal Agricultural Journal* (1904) posted a notice
583 on the ‘Destruction of Vermin’ instituting bounties for targeted animals among which jackal
584 were included. Leopards (often referred to as ‘tigers’ following the Dutch and Afrikaans
585 terminology), then still existing in the more remote parts of the colony were worth 10
586 shillings, wild dog 7 shilling and 6 pence, silver and red jackal (the side-striped *Canis*
587 *adustus* and black-backed jackal – not ‘maanhaar’ jackal, viz. insectivorous aardwolf
588 *Proteles cristatus*) 5 shillings, and caracal/lynx or ‘rooikat’, 5 shillings. In order to obtain the

589 reward, the tail and the skin of neck and head of the destroyed animal had to be presented
590 to the Resident Magistrate together with a written declaration that the creature was killed
591 within the boundary of the colony. If the animal was young, the whole skin had to be shown.
592 If required, poison (strychnine) was made available from the Resident Magistrate at cost
593 price. It is clear that this notice followed very closely the situation in the Cape at that time
594 (Anon., 1904:403). No analysis of the records of Resident Magistrates has been done to
595 ascertain how many rewards were paid, to whom, or when. The few records in the National
596 Archives of South Africa accessed using the keywords 'vermin' and 'ongedierte' (for the
597 Transvaal database accessed via NAAIRS – the National Automated Archival Information
598 System) provides only minimal information about the destruction of stock by domestic dogs
599 and lice (vermin) on humans.

600 The guiding philosophy of settler farming in the post-war colonies, particularly in the
601 Transvaal under Smith, was to recover from the destruction of the countryside that had
602 occurred over the three years of hostilities and to restock farms, introduce new grasses and
603 crops and formalise agricultural policy. The colony also needed to attract English-speaking
604 settler farmers. To these ends, Smith employed qualified staff such as Joseph Burt Davy,
605 E.B. Pole Evans and C.E. Legat and he retained veterinarian Arnold Theiler who had been
606 employed by the Transvaal republican government. In 1902 he initiated the *Transvaal*
607 *Agricultural Journal*, published in both English and Dutch. His difficulties in guiding these
608 processes and dealing with placating the vanquished and still hostile Boer population were
609 immense.

610 One of the problems at this time regarding sheep farming in the wetter parts of the
611 interior was endemic livestock diseases, of which southern Africa has many and that have
612 been augmented by some Australian sheep diseases. The challenges in dealing with them
613 were extremely difficult and only with time and the invention of appropriate pharmaceuticals
614 and strategies have some of them been overcome. The ecological role of jackal in disease
615 transmission has not been fully elucidated, nor has the effect of the rinderpest epizootic of
616 the 1890s on sheep been adequately explored (Jansen, 1977; Bingham & Purchase, 2002).

617

618 **AFTER UNION IN 1910-1990**

619 *Political and economic outline*

620 Because, traditionally, the issuing of hunting licences, determining closed seasons, and
621 advertising 'royal' game and 'vermin' species was a responsibility of the four colonies and
622 was regarded as merely an administrative function, 'Game and fish preservation' remained
623 in the hands of the provinces under the Union constitution by Section 85 of the South Africa
624 Act 1909, 85(x). Game reserves were then few in number and southern Africa could boast
625 only one national park in Natal, founded in 1906 (Carruthers, 2013). Game and fish

626 preservation and game reserve administration was administered within the general ambit of
627 provincial management.

628 This changed as a consequence of the Financial Relations Consolidation and
629 Amendment Act 38 of 1945 that obliged the provinces to reformulate their nature
630 conservation and other structures. Responses to this obligation in the Transvaal, Orange
631 Free State and the Cape resulted in 'nature conservation' (the terminology had changed
632 from 'game and fish preservation') departments or divisions being formed within the existing
633 provincial government structures in the late 1940s and finally in the Cape in 1952. In Natal a
634 semi-independent parastatal with the title of the Natal Park, Game and Fish Preservation
635 Board was established in 1947. Somewhat ironically in the light of later environmental
636 thinking and the stricter interpretation of 'nature conservation' in South Africa, the
637 introduction and management of trout continued to be the responsibility of these authorities
638 as did vermin control. Moreover, it was only after the post-war environmental revolution of
639 the 1960s that the biological sciences began to respond to conservation matters, including
640 ideas around 'threatened' or 'endangered' species, although botany had had a head start
641 over ecology from the 1930s (Carruthers, 2011).

642 However, one needs to bear in mind that much of the legislation was directed at the
643 protection of whites, not Africans. Indeed, the 1913 Native Land Act restricted the amount of
644 land at their disposal. Different laws applied to Africans than to whites and many
645 segregationist and apartheid laws impacted on the farming practices of Africans.
646 'Betterment' philosophies enabled the state to interfere directly in African farming. Livestock
647 herds were limited and – at best – subsistence, but not sustainable – agriculture and
648 pastoralism continued to limp on. Africans expelled from white-owned property added to the
649 numbers evicted from those forbidden by law to seek livelihoods in the city (Davenport &
650 Saunders, 2000; Platzky & Walker, 1985). Whether black-backed jackal and other
651 mesopredators survived in these generally desolate, overcrowded homelands to prey on
652 African cattle, goats and sheep is not a matter of record.

653 From the outset of Union vermin destruction was in a somewhat anomalous position
654 in government. Certainly hunting permits came from game and fish preservation authorities,
655 but a strong interest in the matter came from the national Department of Agriculture, the arm
656 of government tasked with promoting effective and profitable farming. As the private property
657 of farmers and with agriculture and pastoralism being in the national interest, the Department
658 had a duty to support farmers and to assist in protecting their property. Moreover, the
659 farming, or rural, vote was critically important to politics. Until 1990 all four provinces had
660 programmes to manage predation by black-backed jackal, but from the 1980s there were
661 concerns in this regard. Animal rights, financial stringency and the growth of wildlife ranching
662 – together with greater ecological understanding – initiated new thinking about predator

663 control (Bergman, 2013). These factors have been responsible in later years for raising the
664 profile of livestock predation in the Cape and the involvement of national government.

665

666 *The Cape Province 1910-1990*

667 In the Cape, the neglect and disruption of the country during the South African War had
668 allowed jackal numbers to rise. Apparently, Sir Frederic de Waal, the Administrator of the
669 Cape from 1911 to 1925, took on the 'jackal question' with enthusiasm. His energy in
670 counteracting the activities of the 'free-booting jackal' was as much, it seems, an exercise in
671 creating harmony between the Dutch and English farmers as it was to nurture the sheep
672 farmers at a time when the price of wool and mutton were rising (Beinart, 1998). Woolled
673 sheep in the Cape Province rose from 13.3 million in 1918 to 18.6 million in 1927, peaking at
674 23.4 million in 1930 before being affected by the fall in wool prices in the Depression
675 (Beinart, 1998:195).

676 Owing to the fact that the outbreaks of scab meant that kraaling was discouraged,
677 more Cape sheep roamed in large paddocks than hitherto. This may well have made them
678 easier prey. The jackal bounty was raised, hunting and poisoning this species on state land
679 was prioritised, while hunting hound packs were subsidised and poison supplied to white
680 farmers, but not to Africans (Beinart, 2003). The bounty system was revived in 1913 and
681 remained operative until 1957. In 1917 the Cape's foundational Vermin Control Ordinance
682 established 17 effective 'Circle Committees' in the 85 Divisional Councils (a form of local
683 government specific to the Cape) that relied on local government structures for their
684 effectiveness in compelling the start and maintenance of hunting clubs, ignoring trespass
685 traditions and otherwise penalising farmers who did not control jackal effectively. At almost
686 regular intervals the Vermin Control legislation was updated, with a major alteration in 1946
687 that even classified dassies *Procavia capensis* (rock hyrax) as vermin. Over the years, the
688 definition of 'vermin' was widened to include animals that damaged fences or were otherwise
689 detrimental to sheep farmers. Thus, together with fencing and windmill and other
690 government subsidised technology between 1914 and 1923, allied to state assistance with
691 eradicating predators (including the uses of poison from 1929), the tide turned on the jackal
692 and numbers began to decrease, although their disappearance was geographically uneven
693 (Natrass & Conradie, 2015; Beinart, 1998; Van Sittert, 2016; Natrass *et al.*, 2017a).

694 A significant change in philosophy and management took place after the institution of
695 the Nature Conservation Department in 1952 and with Douglas Hey, a trout scientist, in
696 charge of it. Given Hey's familiarity with new environmental thinking, the discourse altered
697 from old-fashioned 'vermin' to 'problem animals' and 'extermination' gave way to 'control'.
698 Hey explained how extermination was neither desirable nor practicable and that predators
699 should be regarded as useful animals integral to South Africa's natural heritage (Hey, 1964).

700 Hey began to dismantle the bounty system in the early 1950s and ended it finally in
701 1957 (14 species had been on the list in 1956). The province turned towards 'technical aid'
702 to farmers to control problem animals, i.e. improved subsidies to hunt clubs, better training
703 and an improved breed of hounds. Near McGregor, at Vrolijkheid (currently a nature
704 reserve), a Hound Breeding and Research Station was established in 1962 where hunting
705 packs of 11 foxhounds, one greyhound and two fox terriers were trained. In 1966 another
706 training depot began in Adelaide, where environmental and climatic conditions were
707 different. According to Stadler, Adelaide 'gradually developed into a fully independent
708 functional unit and the centre of all Problem Animal Control activities for the Eastern Cape'.
709 Moreover, to serve the northern Cape where hunting with hounds was not possible, training
710 courses on the use of traps began and, in 1973, a third Problem Animal Control Station
711 was established at Hartswater. This facility focussed on the provision of advice and training
712 – no hunting hounds were maintained. There was great demand for the hunting hounds from
713 these stations but farmers also benefited from training courses that included ethical nature
714 conservation, trapping and the translocation of problem animals (Stadler, 2006).

715 By the mid-1960s, the jackal was still the major predator of sheep, but was regarded
716 as 'relatively well controlled' through hunting, trapping and poisoning (Hey, 1967:158).
717 Instead, the caracal was increasing in range and in places becoming the dominant predator
718 of sheep, small antelope and game birds, prompting Hey to comment that there would thus
719 'seem to be some ecological relationship between these two animals'. Hey also commented
720 on the rise of baboons as a predator of sheep, linking this to declining leopard populations
721 (Hey, 1967:160).

722 Hunting club data from the Ceres Karoo and the Eastern Cape revealed that most
723 damage at the end of the 1970s was caused by caracal. Analysis of this data revealed that
724 killing stray dogs reduced stock losses the following year, whereas culling caracals and
725 leopards increased future losses – suggesting that hunting these predators made the
726 problem worse for farmers, presumably through compensatory breeding and in-migration
727 (Conradie & Piesse, 2013).

728 Predation on sheep continued to have a high profile in the Cape, resulting in a further
729 'Commission of investigation on vermin and problem animal control in the Cape' being
730 appointed in 1978. There were 30 recommendations, including the abbreviation of the list of
731 'declared vermin' to just three (caracal / lynx, black-backed jackal and vagrant dogs).
732 However, the rest of the recommendations were implemented only in 1984 and, according
733 to Stadler, the most important of these was the replacement of an older vocabulary including
734 'extermination, exterminate, destruction, destroy, vermin' with that of 'control, problem
735 animal, combat and combating'. Hey retired in 1979 and nearly a decade later, in 1987, his
736 Problem Animal Control Section was dismantled and its functions relegated to other

737 sections. This was part of a wider process of deregulation and the withdrawal of government
738 assistance in agriculture in the 1980s. In 1988 the subsidy of hunt clubs ended, in 1989 the
739 facilities at Vrolikheid and Adelaide were given over to the private sector (viz. the farmers
740 themselves) for research and management, and free training courses ended in the mid-
741 1990s (Stadler, 2006; Van Sittert, 2016:122).

742

743 *The Transvaal, Natal and Orange Free State 1910-1990*

744 As has been explained, predation by meso-carnivores on livestock was far more important in
745 the Cape region than elsewhere. It was, however, a central theme in the woolled sheep-
746 farming districts of South Africa (including in the Orange Free State) and farmers there had
747 called on the state for assistance in combating predators, particularly but not exclusively
748 jackal, for many decades. In the 1930s, for example, a farming journal reiterated that most of
749 the Transvaal bushveld region was 'livestock country' in which merino could not survive,
750 although there was an experimental station at Pietersburg (now Polokwane) working on a
751 cross-breeding project to research an appropriate mutton sheep (Anon, 1930).

752 Nonetheless, the other three provinces all had various iterations of predator
753 legislation in the years after Union. In 1983, for example, there was the Natal Ordinance 14
754 of 1978, the Orange Free State Ordinance 11 of 1967, and Section c.II of the Transvaal
755 Nature Conservation Ordinance 11 of 1967. Moreover, the Administrator of these provinces
756 had the power to declare any species of wild animal to be a 'problem animal' in whole or part
757 of the province (Fuggle & Rabie, 1983:213-216).

758 There was an agricultural census of the Transvaal in 1918 that showed that there
759 was 637 000 head of cattle in the province, and it produced some 4.5 million kg of wool,
760 mostly in Ermelo, Wakkerstroom and Standerton. The census of 1993 recorded 458 000
761 head of cattle and 598 000 sheep that yielded nearly 7.8 million kg of wool. However, it was
762 also recorded that since 1950 the number of farms had declined from 10 000 to 5 400
763 (Schirmer, 2007:297). The matter of predation was not highlighted in the census. Although
764 Africans had restricted access to land and markets – and worked within a hostile political
765 environment – some made entrepreneurial economic contributions either within the
766 'homelands' (if they had access to land there) and also as tenants on white-owned farms.
767 Nonetheless, the comment has been made for Mpumalanga (at that time part of the province
768 of Transvaal) that by the late 1980s African agriculture (cultivation) had all but ceased but
769 probably not livestock keeping. With 60% of Africans living in the reserves it is unlikely that
770 free-ranging mesopredators were a substantial problem (Schirmer, 2007:311). In socio-
771 economic terms, paternalism and dependency were created by apartheid and the legacy of
772 this era endures.

773 There are no detailed historical accounts of vermin extermination or control in these
774 three provinces thus flagging the fact that it had, for many reasons, a lower profile in these
775 areas. Beinart (1998:185) mentions that the first detailed studies of jackal diets took place in
776 the Transvaal between 1965 and 1971. Some 400 jackal stomachs were analysed. Of those
777 killed in game reserves 6% had sheep remains in their stomachs, of those in farming
778 districts, 27%. Extrapolating whether the jackal had actually killed the sheep or merely fed on
779 the carcasses of already dead animals is not possible.

780 Even if numbers were low, farmers were not deterred from addressing the matter,
781 presumably taking their lead from the Cape. Perhaps the most famous hunting club in recent
782 years has been Oranjejag that operated with government subsidies, and notoriety, from
783 1966 to 1993 in the sheep-farming districts of the Orange Free State and western Transvaal
784 (Faure, 2010). The existence of Oranjejag was mandated by the Free State Problem Animal
785 Control Ordinance and between 1966 and 1993 it exterminated some 87 570 animals in the
786 Orange Free State alone but, alarmingly, some 70% (60 340) were Cape (silver) foxes
787 *Vulpes chama* that take insects and other small prey (Daly, Davies-Mostert, H., Davies-
788 Mostert, W., Evans, Friedmann, King, Snow, & Stadler, 2006). In the western Transvaal a
789 problem animal station for hounds and farm training was set up at Panfontein near Bloemhof
790 in what is now the North West Province and the S.A. Lombard Nature Reserve. Its history
791 has not been explored.

792

793 **1990 TO PRESENT**

794 In the early 1990s, a loose consultative structure known as the National Problem Animal
795 Policy Committee (NPAPC) appears to have been fairly successful at drawing together
796 government officials from nature conservation, the old regional services councils, hunters
797 and industry organisations such as the Red Meat Producer's Organisation (RPO) and the
798 National Woolgrowers Association (NWGA). At a conference in the Orange Free State in
799 1993, delegates reportedly emphasised the need for ongoing government support for
800 predator control given the imminent demise of Oranjejag, the last remaining hunt-club, due
801 to the cessation of state funding. This process, however, reportedly 'faded' as it was
802 overtaken by political events, notably the creation of nine new provinces (with new
803 administrations) as South Africa transitioned to democracy in 1994 (De Waal, 2009:44-45.
804 Generating new institutions and legislation (especially regarding land reform and security of
805 tenure of farm workers) dominated the agricultural agenda for the rest of the decade. Matters
806 of interest to stock farmers were divided between the new departments of agriculture and
807 environmental affairs and tourism. Managing 'damage-causing animals' was left to the
808 provinces, although over time the scope was restricted by national legislation. In 1995 the
809 NPAPC recommended that in updating and creating appropriate legislation, the provinces

810 refrain from assigning problem animal status to any species, that animals causing damage
811 be dealt with through translocation and regulated hunting, that problem animal hunters be
812 required to undergo some training (e.g. attend an accredited course) and that landowners
813 should not be compelled to join hunt clubs and that hunt clubs not be allowed to access
814 private property without permission (Stadler, 2006). In the Western Cape, Cape Nature
815 Conservation (subsequently known as CapeNature) started a process in 1996 to revise the
816 legislation (notably Ordinance number 26 of 1957 as amended) around the control of
817 damage causing animals. This involved consultation with animal rights groups,
818 environmental organisations, farmers and academics. This lengthy process was shaped also
819 by changing national legislation, notably the National Environmental Management
820 Biodiversity Act (Act 10 of 2004) which inter alia further restricted the use of poison and
821 hunting with dog packs. Additional regulations (in terms of the 1947 Fertilizers, Farm Feeds,
822 Agricultural Remedies and Stock Remedies Act (Act 36 of 1947) were passed in 1996 and
823 2003 outlawing the use of pesticides and remedies to poison predators (Predation
824 Management Forum, 2016).

825 The use of poison was curtailed in the 1970s by the Hazardous Substances Act (Act
826 15 of 1973). From then onwards, sodium monofluoacetate (1080) was restricted to be used
827 on toxic collars only (and the sellers of such collars had to be licenced) and other hazardous
828 substances like strychnine were regulated (and subsequently outlawed). Cyanide was
829 limited for use in the coyote getter (and producers had to be licenced to sell them). Farmers
830 wanting to use such methods also had to comply with provincial legislation and regulations
831 from local conservation bodies. The Firearms Control Act (Act 60 of 2000) outlawed previous
832 models of coyote getters (the ones with ammunition), but allowing newer models that
833 projected poison capsules. In 2005, CapeNature obtained legal opinion on its emerging draft
834 regulations and decided to stop providing training in the coyote-getter with immediate effect
835 (given its potential to kill many non-target species) and started investigating further
836 restrictions on the use of gin traps (as these are increasingly regarded as cruel and non-
837 specific). In 2007, CapeNature formed a partnership with an environmental NGO to work
838 towards the elimination of gin traps and to promote 'holistic' non-lethal predator control
839 methods. In late 2008, CapeNature announced that from January 2009, various control
840 methods, including night-hunting of jackals, would no longer be allowed. By this stage,
841 however, small stock farmers and their organisations were complaining vociferously about
842 what they were experiencing as a sharp increase in predation (especially by black-backed
843 jackals) from the mid-1990s, and a bitter contestation emerged (Nattrass & Conradie, 2015).
844 The Western Cape government subsequently backed down in the face of industry pressure,
845 making it easier for farmers to obtain permits to shoot jackals and caracals provided that
846 data detailing mortalities were provided.

847 The issue also played out at on the national stage as the NPAPC engaged with the
848 Department of Environmental Affairs and Tourism, resulting in the convening of a meeting by
849 the DEAT in January 2009, which in the eyes of one observer, 'may have caused more
850 discord than synergy' (De Waal, 2009: 46). The DEAT then released draft 'Norms and
851 Standards for the Management of Damage Causing Animals', which the agricultural industry
852 regarded as 'biased', demanding that both agricultural and environmental departments be
853 involved (De Waal, 2009: 46). It also prompted the NWGA, the RPO to join with the South
854 African Mohair Growers Association and Wildlife Ranching South Africa to form the
855 Predation Management Forum (PMF) in 2009. This organisation remains a powerful lobby
856 for the industry, providing advice on line and over the phone, and most recently, producing a
857 booklet on how to identify predators and what methods can be used to control them. The
858 book provides an overview of key national legislation but given the complexity of the relevant
859 provincial legislation and related ordinances, simply directs farmers to their local government
860 offices to 'familiarise themselves' with the precise legal context they face with regard to
861 managing predators on their land. At the end of 2016, the legal environment for managing
862 damage causing animals remained bewilderingly fragmented.

863 On 10 November, 2016, the minister of Environmental Affairs finally published the
864 'Norms and Standards for the Management of Damage-Causing Animals in South Africa'
865 (Government Gazette no. 404012, notice 749 of 2016). It begins by stating that everyone
866 has a 'general duty of care to take reasonable measures to prevent or minimise damage
867 caused by damage-causing animals (4.1), and this sets the tone for a set of guidelines that
868 present lethal control as a strategy of last resort. The legal framework for methods regularly
869 used by farmers (cage traps, foothold traps, call and shoot, poison collar, hounds, poison
870 firing apparatus and denning) remained unclear, with the guidelines stating that these
871 methods 'may require a permit, issued by the issuing authority, in terms of any applicable
872 legislation' (8.1). It also included specific 'minimum requirements' for the use of traps, collars
873 etc. Those engaging in call and shoot had to be adequately trained, 'comply with the
874 conditions applicable to the use of call and shoot method, as determined by the relevant
875 issuing authority', submit records of call and shoot events and 'must target only specific
876 individual animals known to cause damage' (12 (1)). The latter requirement is onerous (and
877 thus likely to be ignored) given that it is impossible to know which individual predator is
878 causing damage. (See Chapter 5).

879

880 **CONCLUSION**

881 The above outline of predation on livestock has highlighted how uneven and complex this
882 matter has been and remains. This is so whether the issue is considered ecologically (in
883 terms of various parts of South Africa) or in terms of impact on different farmers and

884 communities (regionally, racially, and economically); philosophically (in terms of societal
885 attitudes towards predators/vermin) and politically (meshing national and provincial
886 structures over the long history of the subcontinent). A reality emerging is that whatever
887 methods applied in attempts to curb or halt the onslaught on mainly small stock by jackal
888 and caracal over the past 350 years of colonialism, these have proved ineffective over the
889 longer term, although there were periods in which it was more successful than others in
890 certain regions. Moreover, in a global context of volatile wool and meat prices, and an ever-
891 changing national context in which agriculture has a declining share of GDP and
892 urbanisation is burgeoning, the future policy environment is bound also to be difficult and
893 complex. In addition, as explained by Natrass *et al.* (2017b), and that will emerge from the
894 chapters that follow, formal scientific knowledge of mesopredators is thin and these species
895 are elusive and highly adaptable. Policy-making under these circumstances is bound to be
896 difficult to make at a national level. The issue at the heart of this assessment is whether the
897 state has an obligation to protect livestock farmers in South Africa from certain species of
898 predators. Protecting livestock from errant individual large fauna, such as elephant or lion
899 that may escape from protected areas is not the same as providing regulations for a specific
900 section of the population that farms with sheep.

901

902

903

904 TIMELINE

- 905 c. 2 000 BP Evidence of livestock keeping in southern Africa.
- 906 1652 Arrival of the VOC (Dutch East India Company) at the Cape.
- 907 1656 VOC pays rewards to kill lion, 'wolves' and leopard.
- 908 1783 VOC rewards for killing elephant, rhinoceros, giraffe, eland, lion and zebra.
- 909 1795 Cape taken over by Britain. VOC bankrupt, Battle of Muizenberg.
- 910 1802 Cape returned to the Netherlands under Peace of Amiens. Ruled by the Batavian
911 Republic that had nationalised the VOC.
- 912 1806 Cape reverts to rule by Britain after renewed Napoleonic Wars. Battle of Blaauwberg.
- 913 1814 Cape formally ceded to Britain by the Netherlands and comes under the formal
914 permanent control of Britain by Convention of London. Vermin bounty introduced.
- 915 1828 Vermin bounty discontinued.
- 916 1843 Natal annexed as a British Colony.
- 917 1852 Transvaal gains independence from Britain as the Zuid-Afrikaanse Republiek.
- 918 1853 Cape Colony receives Representative Government.
- 919 1854 Orange Free State gains independence from Britain as a republic.
- 920 1865 Approximately one-third of the settler population (58 000) lived in the sheep districts.
921 13 million stock of all kinds.
- 922 1870s Introduction of cheaper wire fencing.
- 923 1872 Peak of wool exports at over £3 million.
- 924 1872 Cape Colony receives Responsible Government.
- 925 1883 Fencing Act finally passed in the Cape Colony (amended 1891)
- 926 1884 First Wild Animal Poison Club established in Jansenville. Many followed in
927 subsequent years. Subsidy offered for vermin tails.
- 928 1886 Cape Game Act 36. Jackal exempted from hunting restrictions.
- 929 1887-1890s Annual congresses of Wild Animal Poisoning Clubs
- 930 1890s Vermin-proof fencing introduced.
- 931 1895 Cape bounty restricted to vermin tails with bones.
- 932 1896 Cape bounty payment required proof that the skin came from the Cape Colony.
- 933 1896 Rinderpest epizootic
- 934 1899 Cape bounty payment required tail, plus scalp and ears and signature of Justice of
935 the Peace or landowner.
- 936 1899 Select Committee instituted in the Cape Colony to investigate the reward system.
- 937 1899-1902 South African (Anglo-Boer) War.
- 938 1902 Fence-making machines introduced.
- 939 1903 Cape bounty payment required whole skin.

940 1904 11 million woolled sheep in the Cape Colony. 30 000 jackal killed for reward.

941 1904 Select Committee instituted in the Cape Colony to investigate the reward system.

942 1904 Vermin bounty regulations published in the Transvaal Agricultural Journal, vol. 3

943 c. 1904-1907 Economic depression in southern Africa. Collapsing export wool price and veld

944 degradation.

945 1905 Assistance from the Cape Colonial government for vermin-proof boundary fencing

946 included in Fencing Act.

947 1908 Vermin bounties abolished in the Cape Colony mainly on account of fraud.

948 1910 The Cape, Orange River, Natal and Transvaal colonies amalgamate to form the

949 Union of South Africa. 'Wildlife conservation' regarded as administrative function

950 (licences etc.) a provincial competency.

951 1911 Division of Sheep established in the national Department of Agriculture.

952 1911-1925 Cape Administrator Sir Frederic De Waal took active personal interest in the

953 'jackal problem' and prioritised sheep farming over other forms of agriculture.

954 1912 Fencing Act 17. State subsidy available for fencing.

955 1913 2 8 million woolled sheep in the Cape Colony. Wool exports second only to gold.

956 1913 Cape Province revives bounty system (ended 1957).

957 1914-1918 First World War.

958 1917 Cape Vermin Control Ordinance established 17 'Circles' based on electoral districts

959 (not Divisional Councils) under committees. Bounties subsidised by the Province.

960 1917-1921 Annual Vermin Extermination Congress held under the 1917 Cape Ordinance.

961 1918 First agricultural census

962 1918-1927 Number of woolled sheep in the Cape Province between 13.3 million and 18.6

963 million.

964 1920s Shepherding plus kraaling on commercial farms generally replaced by artificial water

965 provision and fenced camps.

966 1923-1924 Vermin Extermination Commission

967 1923 Cape Vermin Extermination Ordinance revised.

968 1923 Drought Investigation Commission.

969 1929 Poisoning of vermin allowed in Cape Province.

970 1930s Economic depression in southern Africa. Fall in wool prices.

971 1930 Peak of woolled sheep numbers in the Cape Province at 23.5 million.

972 1939-1945 Second World War.

973 1946 Cape Vermin Extermination Ordinance revised and extended. Wide powers.

974 1940s-1952 establishment of nature conservation authorities in all 4 provinces.

975 1950s- 1960s shifting environmental philosophy towards understanding ecological systems.

976 1951 Cape Province phases out bounties to replace them with 'technical aid'.

977 1955 Administration of vermin removed from the General Section of the Cape Provincial
 978 Administration to the newly formed Department of Nature Conservation.
 979 1955 Douglas Hey's Commission of Enquiry, report published in 1956. 'Predator control'
 980 rather than 'vermin extermination'.
 981 1957 Cape provincial bounty system ended.
 982 1957 Cape Province Problem Animal Control Ordinance 26
 983 1950s Hound breeding stations in the Cape at Robertson (Vrolijkheid, 1958) and Adelaide
 984 (1965/1966) and at the Panfontein Game Reserve (near Bloemhof) in the Transvaal.
 985 1950s Favourable wool, pelt and meat prices encourage continued sheep farming in the
 986 Cape.
 987 1961 South Africa becomes a Republic.
 988 1961 Introduction of poison 1080 (sodium fluoroacetate), disallowed after 1973 with
 989 Hazardous Substances Act.
 990 1966 Oranjejag established.
 991 1967 Transvaal Province Problem Animal Ordinance 11
 992 1967 Orange Free State Province Problem Animal/ Ordinance 11
 993 1972/3 Hound breeding station begun at Hartswater to serve the Northern Cape.
 994 1973 Hazardous Substances Act limits the use of certain poisons, including those
 995 previously used on carnivore predators.
 996 1978 Second Commission of investigation on vermin and problem animal control in the
 997 Cape. List of vermin restricted to caracal/lynx, black-backed jackal and vagrant
 998 domestic dogs.
 999 1978 Natal Province Problem Animal Ordinance 14
 1000 1979 Orange Free State 'Verslag van die Kommissie van Ondersoek na
 1001 Ongediertebestrijding en Rondloperhonde in die Oranje-Vrystaat'.
 1002 1979 Report of the OFS Commission of Enquiry (Potgieter, T.D. *et al.*)
 1003 1980 81 registered and subsidised vermin-hunt clubs in the Cape. Hey unable to abolish
 1004 them owing to political pressure.
 1005 1987 Problem Animal Control Section abolished in the Cape and distribution of poison,
 1006 coyote-getters and baits discontinued.
 1007 1988 Subsidies to Problem Animal Management Hunt Clubs discontinued.
 1008 1989 Discontinuation of hound breeding and training in the Cape.
 1009 1990s Inter-provincial Problem Animal Control Committee established. Prior to 1990 all four
 1010 provinces had programmes to manage black-backed jackal.
 1011 1992 Peter Kingwill, Chairman of the National Problem Animal Policy Committee calls for a
 1012 national policy and strategy for problem animal control.
 1013 1994 Oranjejag officially disbanded.

- 1014 1994 Constitutional change in South Africa to a fully democratic republic. Four provinces
1015 converted into nine.
- 1016 1995 Recommendations to the provinces from the Inter-Provincial Problem Animal Control
1017 Committee.
- 1018 1996 Officials of CapeNature conclude that problem animal legislation outdated. Draft
1019 regulations for the Cape completed in 2002.
- 1020 2008 Establishment of the Landmark Foundation, a partnership with CapeNature. Night-
1021 hunting of jackal prohibited.
- 1022 2009 Widely representative task team to formulate Norms and Standards for management
1023 of damage-causing animals established. Formation of Predation Management
1024 Forum.
- 1025 2010 Publication of 'Draft Norms and Standards for Management of Damage-Causing
1026 Animals in South Africa' in *Government Gazette* 33806, Notice 1084, 26 November
1027 2010.
- 1028 2016 Publication of 'Norms and Standards for Management of Damage-Causing Animals
1029 in South Africa' in *Government Gazette* 40412, Notice 749, 10 November 2016.
- 1030
- 1031

1032 **TABLES AND GRAPHS**

1033

1034 **Table 2:1 Declining economic importance of agriculture, p.2.** (Nattrass, N. and
 1035 Conradie, B., 'Jackal narratives: Predator control and contested ecologies in the Karoo,
 1036 South Africa', *Journal of Southern African Studies* 41(4), 2015, pp.1-19).

	% National population rural	Agriculture as % GDP	Number of commercial farms	Average size of commercial farms (ha)	Farm employees and domestic workers on farms	Wool, lamb and mutton as % of gross agricultural output
1911	75.3%	21.0%				
1946	63.7%	13.0%	112,453	837		15.2% (1948)
1960	53.3%	12.3%	105,859	867	907,705	17.00%
1970	52.2%	8.2%	91,154	979	1,299,850	12.00%
1980	51.6%	7.1%	69,372	1,252	1,235,200	6.60%
1990	48.0%	4.6%	62,084	1,335	1,184,700	7.80%
1994	46.0%	4.6%	57,980 (1993)	1,427 (1993)	921,700	4.7% (1993)
2000	43.1%	3.30%	45,818 (2002)		977,610*	3.70%
2007	39.8%	3.40%	39,966		773,900	4.00%
2011	38.0%	2.40%				3.70%

Sources: South African Statistics 1964, 1978, 1982; World Development Indicators, Abstract of Agricultural Statistics 2012 (Department of Agriculture, Forestry, and Fisheries). * Estimated from average trend between 1990 and 2002.

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1039

PRELIMINARY

1040 **Table 2:2 Table of vermin kills and bounty payments 1889-1908 p.343** (Van Sittert, L.,
 1041 “Keeping the enemy at bay”: The extermination of wild carnivora in the Cape Colony, 1889-
 1042 1910’, *Environmental History* 3(3), 1998, pp.333-356).
 1043

Year	Jackal	Caracal	Leopard	Wild Dog/			Total Bounty
				Hyena	Baboon	Other	
1889-90	1,512	130	22	5	1,394	1,291	275
1890-91	2,858	251	60	89	1,860	1,858	1,020
1891-92	4,525	497	72	147	3,036	11,680	1,217
1892-93	6,367	570	63	242	4,549	20,579	1,756
1893-94	6,832	457	52	24	3,415	14,836	2,345
1894-95	35,115	1,846	193	216	8,909	-	11,893
1895-96	10,785	474	40	8	4,556	-	2,010
1896-97	41,417	1,553	199	59	17,953	-	17,740
1897-98	34,677	2,172	583	255	17,954	-	16,349
1898-99	60,863	4,479	569	691	21,321	-	28,009
1899-1900	29,209	2,131	178	198	4,371	-	10,565
1900-01	N/A	N/A	N/A	N/A	N/A	N/A	229
1901-02	3,329	213	-	-	107	-	768
1902-03	9,038	625	-	-	664	-	2,254
1903-04	41,221	2,244	-	-	4,644	-	19,491
1904-05	21,114	1,786	-	-	1,730	-	9,406
1905-06	20,958	1,933	-	-	3,696	-	10,608
1906-07	18,563	1,531	-	-	2,898	-	9,249
1907-08	1,845	136	-	-	174	-	306
Total	350,228	23,028	2,031	1,934	103,231	50,244	145,490

Note: N/A indicates no available data. The category “Jackal” includes maanhaar and pups. The category “Leopard” includes cheetahs. No bounties were paid from January to August 1907.

Sources: Cape of Good Hope, *Report of the Select Committee on Wild Carnivora, 1896*, A10-96 (Cape Town: Government Printers, 1896), 25; Cape of Good Hope, *Report of the Select Committee on the Destruction of Vermin, 1904, A2-1904* (Cape Town: Government Printers, 1904), 105; *Agricultural Journal of the Cape of Good Hope* 29 (1906): 241; Western Districts Game Preservation Association, *Annual Reports, 1900-1904*, AGR 682 24, Cape Archives Depot, Cape Town, Republic of South Africa [CA]; AGR 308 246, CA; Cape of Good Hope, *Report of the Acting Director of Agriculture, 1905, G47-1906* (Cape Town: Government Printers, 1906), 23; Cape of Good Hope, *Report of the Department of Agriculture, 1906, G30-1907* (Cape Town: Government Printers, 1907), 30; Cape of Good Hope, *Report of the Department of Agriculture, 1907* (Cape Town: Government Printers, 1908), G23-1908, 10.

1044

1045 **Table 2:3 Vermin bounty rates 1889-1907 p.345** (Van Sittert, L., "Keeping the enemy at
 1046 bay": The extermination of wild carnivora in the Cape Colony, 1889-1910', *Environmental*
 1047 *History* 3(3), 1998, pp.333-356).

Species	1889	1891	1893	1894	1895	1896	1899	1900	1903	1907
Wild Dog	16pts	16pts	20pts	10s	8s+2s	15s	-	-	-	-
Leopard	16pts	16pts	16pts	6s	5s+1s	10s	-	-	-	-
Cheetah	16pts	16pts	16pts	6s	5s+1s	10s	-	-	-	-
Hyena	8pts	8pts	8pts	6s	5s+1s	-	-	-	-	-
Caracal	8pts	8pts	8pts	6s	5s+1s	7s3s	.6d3s	.6d3s	.6d	3s
Jackal	4pts	4pts	16pts	6s	3s+1s	7s	3s.6d	5s	10s	3s
Maanhaar	-	-	4pts	6s	3s+1s	7s	2s	3s	7s.6d	-
Pups	-	-	-	-	-	-	-	1s.3d	2s.6d	-
Baboon	4pts	4pts	4pts	1s.6d	1s+6d	2s.6d	1s.3d	1s.3d	1s.3d	1s
Vulture	4pts	4pts	4pts	-	-	-	-	-	-	-
Ratel	-	3pts	2pts	-	-	-	-	-	-	-
Porcupine	-	2pts	1pt	-	-	-	-	-	-	-
Springhare	-	2pts	1pt	-	-	-	-	-	-	-
Wild Cat	1pt	1pt	1pt	-	-	-	-	-	-	-
Polecat	1pt	-	-	-	-	-	-	-	-	-
Crow	-	-	1/2pt	-	-	-	-	-	-	-

Note: The 1895 figures include a Divisional/WAPC contribution. No bounties were paid on maanhaar from October 1896 to June 1898.

Sources: *Agricultural Journal of the Cape of Good Hope* (22 August 1889): 220; 33 (July 1908): 4; *Cape of Good Hope Government Gazette* 7315, 31 July 1891, GN No. 630; 7637, 31 August 1894, GN No. 855; 1894, GN No. 1016; 7695, 22 March 1895, GN No. 309; 7739, 23 August 1895, GN No. 807; 7776, 31 December 1895, GN No. 1221; 7846, 1 September 1896, GN No. 830; 8169, 6 October 1899, GN No. 778; 8182, 21 November 1899, GN No. 918; 8284, 13 November 1900, GN No. 782; 8576, 4 September 1903, GN No. 798; 9002, 4 October 1907, GN No. 1085; Cape of Good Hope, Department of Agriculture, Circular No. 2 (Cape Town: Government Printers, 1893).

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