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TITLE

How worldview and personal values can shape conservation conflict – the case of captive-bred lions

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Fig. 1 Conservation value appraisal framework showing the main emerging themes and their interrelations relevant for assessing the conservation value of captive-bred lions. Factors in the bigger frame affect how people interpret the factors in the inner frame to suit their conservation value appraisal

Fig. 2 Stakeholder values resulting in contrasting character judgements of lion breeders, which are transferred to captive-bred lions and lead to positive, sceptical or negative tendencies when assessing their conservation value

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Glossary

CBL.....Captive-Bred Lion
CLCaptive Lion
CVConservation Value
F.....Female
IDIdentification
KIKey-Informant
NGO.....Non-Government Organisation
M.....Male

42 Abstract

43 Conservation debates, fuelled by social media, are becoming increasingly polarised, especially where
44 animal conservation and welfare are concerned. This study reveals how the ‘evidence-based
45 approach’ founded on scientific knowledge and consensus-building can be insufficient when
46 addressing conflicts that are driven by deeply held and opposing belief systems about nature, wildlife
47 and their exploitation. Using targeted semi-structured interviews grounded in inductive approaches, we
48 unveil core attitudes and viewpoints of captive lion breeders in South Africa and compare them to
49 those of key-informants from science and governance arenas. Further, we demonstrate how the value-
50 systems and worldviews of stakeholders influence their interpretations of scientific knowledge when
51 assessing the conservation value of captive-bred lions. Since polarised conflicts are frequent in
52 conservation, the insights of this study highlight the need to create a deeper understanding of the
53 social-psychological perspective of all main stakeholders to prepare the foundation for solution-
54 building processes and evidence-based decision-making.

55 **Keywords:** conservation value, conservation psychology, conservation conflict, lion trade (*Panthera*
56 *leo*), inductive research, complex problems

57 1 Introduction¹

58 Many human-wildlife issues in conservation are complex, dynamic and characterised by uncertainty
59 and ambiguity as they are embedded in a context of ecological, social and economic trade-offs.
60 Complexity within such socio-ecological systems refers to a lack of clearly defined boundaries,
61 innumerable nonlinear interactions and constant change (Game et al., 2014). In other words, these
62 conservation challenges lack cause-and-effect relationships and the possibility to determine the right
63 intervention. Rather, stakeholders’ personal values and beliefs shape their problem statement,
64 objectives and tactics (Mason et al., 2018) and are regarded as one source of conservation conflict
65 (Redpath et al., 2013). Rittel and Webber (1973) coined the term “wicked” problems for such complex
66 issues where no objective and definitive solution exists and where resolutions rely on political
67 judgement influenced mainly by the differing levels of power of all actors involved (Mason et al., 2018).
68 Such issues, almost by definition, defy classical problem-solving approaches grounded in the
69 quantitative sciences, where optimal solutions are often identified or engineered by addressing deficits
70 and disagreements through research and knowledge exchange (Dickman et al., 2015; Kidd et al.,
71 2019), even when supplemented by consensus-building techniques such as the ‘Delphi Approach’
72 (MacMillan and Marshall, 2006).

73 Complex problems resist such knowledge-based approaches and represent a fundamental hurdle for
74 policy-making, with final decisions often left to political expediency. In the globalised world, featuring
75 increasingly heterogeneous societies, political decision-making becomes more complicated and
76 fallible, with decisions influenced by powerful but perhaps cloaked vested interests, prevailing political
77 ideologies or cultures and the fast-evolving nature of global value-systems. It is becoming increasingly
78 difficult for governance agencies to mediate the co-construction of a broadly accepted way forward
79 while stakeholder groups drift further apart, and simple but extreme solutions emerge and fill the
80 solution-void, increasingly via social media. Untangling and understanding such contextualised
81 problems can only be achieved through in-depth qualitative social science (Moon et al., 2019).

82 Farming wild animals for human purposes is a contentious issue in many countries. Still, none more so
83 than in South Africa, where breeding wild animals in captivity is an established sector in rural areas
84 and where the debate has considerable salience to policymakers and society at large, both at home
85 and abroad (Coals et al., 2019; Nelson et al., 2016). In this study, we explore the conflict over captive-
86 bred lions (CBLs) (*Panthera leo*) in South Africa, which now outnumber wild populations by more than
87 two to one, with 8 000 CBLs (Williams and ‘t Sas-Rolfes, 2019) compared to an estimated 3 490 free-
88 roaming lions (Miller et al., 2016).

89 The polarisation of the conflict about CBLs has surged following numerous (social) media reports and
90 several ensuing court cases or parliamentary debates (Parliament of the Republic of South Africa:
91 Portfolio Committee on Environmental Affairs, 2018; Republic of South Africa: Department of

¹ CBL.....Captive-Bred Lion
CV.....Conservation Value

92 Environment, 2019; The High Court of South Africa, 2019; The Supreme Court of Appeal of South
93 Africa, 2010). Thus far, quantitative data analyses have largely been used to create knowledge about
94 the sector and support reconciliatory conflict-resolution attempts (Coals et al., 2020; Williams et al.,
95 2015, 2017; Williams and 't Sas-Rolfes, 2019). Mostly, these efforts have stopped in their tracks by the
96 continued claim of animal rights, welfare and even biodiversity conservation organisations, seemingly
97 supported by public interest groups on social media, that the only acceptable way to deal with the
98 captive lion sector is to completely shut it down and ban captive breeding of lions (Ban Animal Trading
99 South Africa, 2020; Blood Lions, 2019; Born Free Foundation, 2020; Campaign Against Canned
100 Hunting, 2019; FOUR PAWS, 2020). The most recent court case lodged by the National Council of
101 Societies for the Prevention of Cruelty to Animals challenged the lion bone quotas set by the South
102 African Minister of Environment, Forestry and Fisheries (DEFF) in accordance with the COP17
103 decision by the Convention on International Trade in Endangered Species (CITES 2017), and resulted
104 in the widened mandate of DEFF to include animal wellbeing aspects when deciding on lion part
105 quotas (The High Court of South Africa, 2019). Currently, a high-level ministerial panel has been
106 established to "Review Policies, Legislation and Practices related to the Management, Breeding,
107 Hunting, Trade and Handling of Elephant, Lion, Leopard and Rhinoceros" (Republic of South Africa:
108 Department of Environment, 2019).

109 Simultaneously, the debate about CBLs has for large parts been revolving around their potential
110 conservation value (CV) (US Fish and Wildlife Service, 2018; Williams and 't Sas-Rolfes, 2019). This
111 renewed attempt to deal with the controversy based on more scientific knowledge results in further
112 efforts to collect evidence garnered from genetic, behavioural, ecological and socio-economic data to
113 be evaluated within a CV-framework. As we demonstrate with our research, we are inclined to doubt
114 the prospects of CV-based approaches to mitigating polarised conflicts. Traditionally, as described by
115 MacMillan and Marshall (2006), consensus-building techniques such as the Delphi approach can be
116 integrated to resolve disagreements between stakeholders and deal with uncertainties. Furthermore, it
117 is already well-established that developing a vision for conservation success with all relevant
118 stakeholders can create a positive atmosphere for cooperation (Redford et al., 2011) and allow for
119 structured engagements like scenario-based planning or structured risk evaluation approaches to
120 achieve pragmatic, accepted solutions for wicked problems (Woodford et al., 2016).

121 However, these practices and techniques assume common perception about the nature of the problem
122 and the objectives of the project or policy. In the context of CBLs, several issues arise. First, there is
123 no agreed definition of CV (Capmourteres and Anand, 2016; McGowan et al., 2017). Capmourteres
124 and Anand (2016) instead emphasise that the term conservation value in academia comprises a wide
125 variety of meanings and associated metrics and that the CV theory is evolving by adapting to different
126 conservation management scenarios making CV-frameworks highly case-specific. Second, scientific
127 research is patchy. Some studies have investigated the direct impact of CBLs on rehabilitating
128 extirpated or declining wild populations through reintroductions or by keeping genetic repositories
129 (Edwards, 2014; Frankham, 2008; Lindsey et al., 2012; Slotow and Hunter, 2009). Others have
130 examined how CBLs could alleviate trade-related pressures for free-roaming animals (Lindsey et al.,
131 2012; Macdonald et al., 2017; Williams et al., 2017). But many other factors, such as contribution to
132 habitat protection or raising conservation funds, are much more difficult to investigate scientifically and
133 are under-researched (Bauer et al., 2018; Coals et al., 2019). Third, even with fuller scientific
134 knowledge and understanding, it may be difficult to obtain consensus about strategy or policy
135 decisions when the major stakeholders have very different views about the problem and vested
136 interests, in particular solutions related to conservation and animal rights (Williams and 'Sas-Rolfes,
137 2019; Woodford et al., 2016).

138 In this study, we use an inductive research approach based on in-depth interviews to establish the role
139 of an emergent CV-framework for conflict resolution that directly incorporates social-psychological
140 components of the CV-debate about captive populations. The social-psychological perspective seeks
141 to comprehend human behaviour in social situations. It helps to understand how stakeholders
142 construct their goals and perceptions based on feelings, thoughts, values and beliefs, in this case,
143 about the CV of CBLs, within their social context and interactions with others (Allport, 1985). We
144 explore the attitudes of lion breeders towards conservation and their understanding of the CV of their
145 animals, and we compare views of lion breeders with those of scientific experts and policymakers. We
146 believe our model can move the debate forward by shedding light on the specific socio-ecological
147 context in which this farming-related controversy takes place as well as on the contextual "realities" of
148 stakeholder and their core values and beliefs (Moon et al., 2019). We hope that our extended CV-
149 framework will provide a more resilient and enabling platform for deeper, less polarised debates to be
150 undertaken by conservation professionals worldwide.

151 **2 Materials and Methods**

152 Semi-structured interviews were used to obtain qualitative data permitting us to gain access to the
153 relevant stakeholder groups as well as to overcome logistical challenges due to their wide
154 geographical distribution. With open questions, these interviews are the best way to gain a deeper
155 understanding of perceptions, dilemmas, emotions, conflicts, beliefs and values of especially hard-to-
156 access stakeholder groups such as lion breeders (Drury et al., 2011). They can yield high-quality data
157 and insights into complex situations (Young et al., 2018), especially when a more inductive social
158 research approach is adopted. Guided by the core principles of grounded theory (Corbin and Strauss,
159 1990), we used the interviews to build a theory of how the CBL-industry links to CV through the eyes
160 of the respondents (Khan, 2014).

161 Grounded theory postulates that data collection, coding and analysis happen simultaneously in
162 overlapping cycles uncovering themes and their interconnections. Data analysis involves annotations,
163 memo-writing and coding of transcribed interviews. When interviews elicit no new information on the
164 research topic, the process is understood to be saturated, and research can conclude. In a final step,
165 writing up the findings and insights with reference to relevant literature enhances the resulting
166 narrative. Since this inductive approach lacks an initial hypothesis, the researcher ought to adopt a
167 “not-knowing-stance” and trust that the patterns and insights representing the real-world phenomena
168 emerge through the process.

169 **2.1 Study area and sampling strategy**

170 Inductive research based on grounded theory deploys theoretic sampling evolving from the
171 simultaneous collection and analysis of data, becoming more purposeful over time as emerging
172 theories become more robust (Khan, 2014). This study was conducted in South Africa, currently the
173 only country with a large-scale CBL-industry (Williams and 't Sas-Rolfes, 2019). A short fieldwork
174 timeframe of six weeks and the widespread distribution of interview partners across most parts of
175 South Africa (Fig. A1) rendered theoretic sampling infeasible. As an alternative, purposive sampling
176 was used to coordinate interviews with key-informants such as scientists and policymakers who are
177 very knowledgeable about the industry or aspects of lion conservation (Bernard and Ryan, 2010) and
178 could also provide us with an entry point with lion farmers. For the owners and managers of CBL-
179 facilities, we used a snowballing strategy as this was the best approach to overcome their scepticism
180 and reluctance to engage with outsiders (Drury et al., 2011). All interviews were conducted by the
181 main researcher, a permanent resident of South Africa for 15 years, in English language and without
182 the need to engage a translator. Meeting interview partners face-to-face at their chosen location was
183 essential to secure their voluntary participation, build rapport (Young et al., 2018), and obtain
184 permission to record the conversation. Rapport was further enhanced after explaining all measures
185 implemented to ensure anonymity and by maintaining a neutral and curious stance throughout the
186 interview. Furthermore, it was necessary to address the lion farmers' concern that the research results
187 might not reflect the full picture conveyed by them but rather selected aspects, an experience
188 described by many interviewees about how (social) media regularly portrays the controversy.

189 **2.2 Data gathering**

190 The length of the 28 semi-structured interviews outlined in Table 1 ranged from 41 minutes to 1 hour
191 and 47 minutes, with an average duration of 1 hour and 12 minutes. The interview guide was
192 developed to collect qualitative data from both representatives of the CBL-industry and key-informants
193 addressing the same core topics (Fig. A2/A3). The wording of the open-ended questions was adjusted
194 during interviews to modulate the flow of the conversation. No pilot interviews were conducted as the
195 questions evolved from interview to interview due to the inductive nature of the research (Newing et
196 al., 2011). An early interviewee permitted the research supervisor to listen to this particular recording
197 and provide feedback to improve the interview technique. Each interview started by explaining the
198 research aims and addressing ethical concerns, including confidentiality, anonymity and the
199 comprehensive analysis of the information shared. Standardised interview topics were not discussed
200 in a specific order, thereby allowing the conversation to flow naturally and follow new threads as they
201 surfaced (Young et al., 2018). All interviewees accepted the offer to receive a copy of the final report.

202 **2.3 Data analysis**

203 The inductive social research designed for this study featured three distinct phases, described in more
204 detail in the supplementary material (Table A1). Annotations and theoretical memos based on hand-
205 written interview notes during the first two phases constituted the core components to allow for a

206 continuous comparison of interviews and to support the formulation and revision of emerging concepts
207 and their links (Corbin and Strauss, 1990). The third phase served to refine the emerging theory
208 ensuring the identified common threads represented the viewpoints shared by the interview partners
209 (Newing et al., 2011).

210 An open coding system derived from the annotations and memos served to code the transcripts (Table
211 A2). Categories received letter-codes and sub-categories numbers. Subsequently, selective coding
212 helped to structure final themes, whereas an in-depth analysis of coded data provided the platform to
213 evidence, triangulate and link the various findings, thereby creating a representative storyline. The
214 comprehensive literature review before commencing fieldwork influenced which sub-categories were
215 defined. However, utmost care was taken to only work with categories which at least one interviewee
216 had themselves introduced into the research.

217 **3 Results**

218 The inductive research process uncovered six interrelated main themes resulting in a diagram with
219 three contiguous components directly linked into the central category “conservation value appraisal-
220 spectrum” (Fig. 1). In the bigger picture, two more themes emerged connected to two components
221 people use when explaining their CV-appraisals.

222 **3.1 The CV of CBLs is about lions**

223 *3.1.1 Common ground*

224 Most interviewees framed their CV-appraisal within the context of threats to free-roaming lions and
225 desired outcomes of conservation efforts. Habitat loss or fragmentation represented the most
226 frequently mentioned threat by both captive lion owners and key-informants (eight/66.7% of all
227 interviewed CL-facilities) and ten/62.5% of all interviewed key-informants), followed by human-wildlife
228 conflict (five/41.7% of all interviewed CL-facilities and nine/56.3% of all interviewed key-informants).
229 Threats to lions due to wildlife trade and disease were only brought up by a few interview partners
230 from both CL-facilities (two/16.7% and one/8.3% respectively) and key-informants (three/18.8% and
231 three/18.8% respectively). All in all, the interviews revealed broad awareness of the human-induced
232 threats to lions, with many stakeholders sharing the view that the apparent solution to lion
233 conservation would be to shrink the human population [1]. (Numbers in square brackets in Results
234 refer to exemplified quotes in Table 2). Similarly, most interviewees described successful conservation
235 as resulting in one or more of three outcomes: (i) functioning ecosystem processes (two/16.7% of CL-
236 facilities and six/37.5% of key-informants) [2], (ii) extant, healthy wild lion populations (six/50.0% of
237 CL-facilities and eleven/68.8% of key-informants) [3] and (iii) conserved evolutionary potential
238 (twelve/100% of CL-facilities and four/25% of key-informants) [4].

239 Throughout the interviews, the respondents introduced and elaborated on eight criteria relevant for
240 determining the CV of CBLs (Table 3). All interview partners discussed at least two of the criteria and
241 the vast majority more than five, while none of them commented on all eight. Almost everyone talked
242 about “genetics”, “reintroductions”, or “wild population buffer” when assessing the CV of CBLs and
243 more than half of all interviewees about “safety net population”. At least eight interviewees deliberated
244 “habitat protection”, “research”, “raising conservation awareness”, and “raising conservation funds” as
245 assessment criteria. Overall, the interviews revealed that views on (i) threats to wild lions, (ii) desired
246 conservation outcomes and (iii) criteria used to assess the CV of CBLs showed high levels of
247 consonance or compatibility across all stakeholder groups.

248 *3.1.2 Conservation value appraisal spectrum*

249 In contrast, the extent to which the interview partners thought that CBLs possess CV was very diverse
250 and contentious, ranging from “no CV” via “potential” and “limited” to “substantial” CV. Table 3 exhibits
251 the spectrum of opinions shared during the interviews. (Quote codes A1-H4 in square brackets in
252 Results refer to exemplified quotes). The emergent theory revealed that people either use
253 “conservation status uncertainty” or “knowledge ambiguity” to frame their appraisal on the CV-
254 spectrum.

255 *3.1.3 Conservation status uncertainty*

256 Uncertainty about the future conservation status of lion populations in different regions of Africa
257 regularly served to argue for or against the benefit of keeping lions in captivity from a conservation

258 point of view. Notably, the “safety-net” criterion [C1-C4], the “research” criterion [F1-F4] and the
259 criterion for “raising conservation awareness” [G1-G4] proved to be subject to uncertainty-based
260 appraisals, in addition to other examples relating to reintroductions [B3]. Interviewees arguing against
261 the CV of CBLs mostly alluded to an expectation that conservation efforts will be successful and that
262 the prolific breeding qualities of lions will stabilise or even increase wild lion populations in the future.
263 In contrast, positive CV-appraisals were mainly based on the prospect that a growing human
264 population in Africa will escalate human-induced threats to lions, further diminishing or losing existing
265 wild lion populations and a corresponding need for ex-situ conservation efforts.

266 3.1.4 Knowledge ambiguity

267 Respondents also arrived at different conclusions based on ambiguous knowledge and understanding
268 inherent to the assessment criteria summarised in Table 3.

269 Firstly, some respondents mentioned a lack of knowledge of the genetics of CBLs [A2], while others
270 referred to differing, often unpublished results claiming CBLs either exhibit insufficient, inappropriate or
271 unexpected genetic diversity [A1, A3, A4]. Furthermore, a vague understanding of what constitutes
272 “the right” genetics emerged. From a conservation point of view, the spectrum ranged from purist to
273 pragmatic positions. For purists, it is essential to split lions into separate management units based on
274 observed local adaptations and only reproduce within those, whereas for pragmatists, all lions can be
275 mixed. One conservation genetics expert claimed that detailed knowledge of the whole lion genome
276 would be necessary to understand genetic profiles for maintaining their evolutionary capacity [A2].

277 Secondly, ambiguous knowledge also characterised the “reintroduction” criterion. A few interviewees
278 referred to failed attempts of CBL-reintroductions [B1-B3]. In contrast, some stakeholders reported on
279 successful introduction projects with ongoing research or the development of science-based release
280 models [B4]. Moreover, differing views were expressed as to whether the existence of other lions in
281 the release area constitutes a pre-requisite to deciding on the release success in addition to self-
282 sufficiency, successful breeding and the survival of the progeny of the discharged lions [B1, B3].

283 Thirdly, in relation to the “habitat protection” criterion, a couple of interviewees contemplated the
284 ecological functioning of hunting farms and breeding facilities in comparison to other types of land use,
285 especially livestock and crop farming [D1-D4]. A lack of information about the combined size of CBL-
286 facilities and their level of ecological functioning became noticeable.

287 Fourthly, the “wild population buffer” criterion yielded different judgements based on ambiguous
288 knowledge about market mechanisms and the extent of demand. A few interviewees expressed the
289 view that the legal bone trade fuels demand and encourages legal and illegal lion hunts, thereby
290 increasing the pressure on wild lions [E1]. Other respondents argued that the legal trade meets the
291 demand, thus discouraging poaching and wild lion hunts by acting as a buffer for wild lion populations
292 [E4]. Along those lines, several interview partners deliberated how the demand for trophy hunts and
293 lion bones had been met before trade interventions were introduced [E2], while others eluded to an
294 “infinite” demand due to growing consumer numbers and wealth in Asia [E3].

295 Lastly, in terms of the “conservation funding” criterion, no clear account was given in what way
296 conservation funds raised through CBLs would have to be allocated and spent to consistently result in
297 a positive CV-appraisal of CBLs [H2-H4].

298 3.2 The CV of CBLs is not about lions, but personal values and worldviews

299 The inductive research process unveiled that people’s values and worldviews greatly influence how
300 they refer to uncertainty and ambiguity to substantiate their appraisal for different criteria on the CV-
301 spectrum for CBLs.

302 3.2.1 View on breeders/concept of humankind

303 Data relating to the image of lion breeders uncovered a value iceberg with money-related valuations
304 being discussed above the surface and core values below (Fig. 2). Three distinctive value-based
305 patterns became transparent, each with an associated tendency to assess the CV of CBLs either
306 positively, sceptically or negatively, exemplified by quotes in Table 2. The figure depicts how opposing
307 values result from vastly different character judgements of lion farmers and attitudes towards them.
308 Within the positive section, above the surface, the value “money” signifies business acumen and
309 entrepreneurship [5]. By contrast, money symbolises greed and selfishness for personal enrichment

310 within the sceptic and the negative sections [6]. The ostensibly polarised views serve as a breeding
311 ground for mistrust and escalating emotions [7]. Astonishingly, many interviewees expressed the view
312 that non-government organisations (NGOs) operating in the field of lion conservation have no interest
313 to change this situation since the conflict serves as the basis for their fund-raising business model [8].

314 The core values in the submerged part of the iceberg are less transparent and not part of the overt
315 debate. Overall, the values within the different sections of the iceberg give rise to distinct breeder
316 images. These character judgements are transferred to general attitudes towards CBLs and influence
317 a person's CV-appraisal. The breeder image and stance towards CBLs in the positive section [9] rests
318 on an ambition to produce top-quality [10] in combination with a sense of responsibility for animals and
319 nature [11]. At the other extreme, core values to ensure animal justice and to protect the welfare of
320 animals [12] characterised a negative sentiment and attitude towards breeders and CBLs [13]. In the
321 centre, the underlying core values to conserve and enable nature, combined with caution to avoid
322 irreversible mistakes [14], lead to scepticism towards lion farmers and CBLs [15].

323 3.2.2 Conservation worldview

324 The analysis also unveiled the theme "conservation worldview", showing that interviewees hold
325 diverging views of the approach conducive to bring about conservation success. The elicited sub-
326 themes summarised in Fig. 3 suggest that two paradigms are currently relevant in the case of CBLs.
327 Some interviewees associated with either a "sustainable use" paradigm [16] or with "wilderness
328 protection" [17], whereas others alluded to the shortfalls of both models resulting in a neither-nor
329 position [18]. Adopting a "sustainable use" paradigm resulted in more favourable CV-appraisals of
330 CBLs. In contrast, the "wilderness protection" paradigm promoted the opposite. The perception of
331 some interviewees that both these paradigms feature serious flaws resulted in scattered CV-
332 appraisals on the spectrum.

333 Overall, the emergent theory highlights how human value systems and conservation-related
334 worldviews influence CV-appraisals of CBLs. The inner frame merely serves as a mechanism to
335 translate a person's worldview and values into a CV-appraisal. As a consequence, a CV-framework
336 based on scientific knowledge will not resolve the conflict. Emotionality, which links strongly to NGO
337 business models, and which 'despises' private profits from wild animal management and breeding,
338 represents perhaps the biggest barrier to conflict resolution between conservationists and lion farmers.

339 4 Discussion

340 Scientists and policymakers have almost exclusively focused on creating more knowledge to resolve
341 contentious conflict issues in conservation. However, debates turn ever more polarised, while
342 numerous questions remain unresolved from a scientific viewpoint. Our research demonstrates how
343 the real-world debate about a complex conservation issue tacitly turns deeply anthropocentric,
344 revolving around worldviews and personal values in the form of deeply felt beliefs, to substantiate
345 extreme positions in the dispute. Consequently, scientific knowledge concepts like the CV of CBLs
346 fade into the background and lions, both wild and captive, suffer from a lack of in-depth discourse. For
347 example, critical knowledge gaps, highlighted by this study, relate to market mechanisms and demand
348 for consumptive and non-consumptive lion products and the quantity and quality of land managed by
349 the CBL-industry and remain unanswered. Furthermore, analysing the genetic composition of the
350 CBL-population, defining "ideal" genetic profiles and overcoming ambiguity when determining
351 successful reintroductions could help to gauge the suitability of CBLs to maintain evolutionary potential
352 and to aid the restoration of extirpated or diminished lion populations.

353 Once stakeholders are prepared to engage, conservation can make use of its conventional problem-
354 solving approach and continued knowledge-creation has a valuable role to play. However, the inherent
355 emotional complexity of the CBL-issue with the associated lack of direct, science-based cause-effect
356 relationships suggests that there are no easy answers (Game et al., 2014; Rittel and Webber, 1973;
357 Woodford et al., 2016).

358 As Fig. 3 shows, the conflict is partly fuelled by the different worldviews of stakeholders about the
359 'right' approach to conservation. Conservation science is familiar with shifting views about the purpose
360 and frame of conservation (Kareiva and Marvier, 2012; Mace, 2014). The "sustainable use" and
361 "wilderness protection" paradigms in this study represent such divergent worldviews and mirror the
362 observation of Mace (2014) that differing underlying ideologies of conservation paradigms tend to

363 provoke tension and frictions. Our results suggest that a wide gap between these different paradigms
364 exists with little evidence of an evolution into a more nuanced “nature and people” approach that
365 recognises the interlacement and dynamic relationship between nature and people, as suggested by
366 Mace (2014).

367 Our research results elicited an understanding of the emerging limits to the sustainable use approach
368 based on the business case for conservation in South Africa (Fig. 2 and Fig. 3). Not only do business
369 leaders like owners of CBL-facilities fail to incorporate the ecological and social objectives of
370 sustainability on an equal footing (Elkington, 2018; Rogers and Hudson, 2011), the approach does not
371 resonate with the increasingly strident calls for banning CBLs from the animal rights and welfare
372 movement. Concerns about animal welfare are now penetrating legal processes and policies about
373 CBLs, with a recent High Court Ruling in South Africa requiring the Department of Environment,
374 Forestry and Fisheries (DEFF) to consider welfare matters during its process to decide on the annual
375 lion bone export quotas (The High Court of South Africa, 2019). This shift is a reflection of the
376 movement of funds into conservation NGOs from western donors that seek to abolish CBL-enterprises
377 run for profit through the use of disconcerting imagery to create very negative perceptions of CBLs via
378 social media (Ban Animal Trading South Africa, 2020; Blood Lions, 2019; Born Free Foundation,
379 2020; Campaign Against Canned Hunting (CACH), 2019; FOUR PAWS, 2020). The potential to
380 mediate between the “animal rights and welfare” movement and the idea of “sustainable use”, as
381 hitherto pursued by governance agencies in Southern Africa for the past decades, becomes
382 increasingly remote.

383 Our results show that the conflict is also rooted in different personal values resulting in a lack of trust
384 between stakeholders. Young et al. (2016) confirmed trust to be a central element to biodiversity
385 management, especially in areas of conflict. As illustrated by this study, conflict and mistrust
386 characterise the interactions of stakeholders in the CBL-industry (Fig. 2). According to Covey & Merrill
387 (2006), trust rests on people’s character and competence, which can be promoted by sharing values
388 and knowledge, respectively (Cvetkovich and Winter, 2003; Young et al., 2016).

389 In terms of values and character, the value iceberg (Fig. 2) describes two different levels, above and
390 below the surface. The polarised debate above the surface represents a taboo trade-off (Tetlock,
391 2003). Sacred values like preserving the natural environment stand against secular, monetary
392 valuations of scarce resources. As in the case of CBLs, taboo trade-offs lead to harsh character
393 judgements (“*lion breeders are bad or dodgy people*”), and these deep-seated beliefs generate moral
394 outrage and a reluctance to deal with the issue *or rather not engage with the industry*)
395 fuelling the polarised extremes. Trust-building through value-sharing exclusively refers to core values
396 in the submerged part of the iceberg and must not be confused with secular valuations central to the
397 polarisation above. According to Schwartz (1994), core values are motivational goals transcending
398 specific situations which guide people’s evaluation of behaviour, events and people. Based on
399 Schwartz’s circular continuum of values, people tend to arrive at similar or different judgements
400 dependent on whether they apply compatible or opposing values. As an illustration, the self-
401 transcendent motivation of the values “responsibility for nature” and “protecting animal welfare” in Fig.
402 2 make them by and large compatible and easier for people to align their opinions. In contrast, the
403 drive for self-enhancement inherent to the “ambition to achieve top-quality” competes with such self-
404 transcending values, making it more difficult to agree.

405 However, core values cannot be changed for conservation purposes (Manfredo et al., 2016).
406 Consequently, conservation advocates would be wise to respect that personal values vary across
407 human beings and that a different set of values does not automatically turn them into bad or dodgy
408 people. Much rather, exploring ways how differing core values could be mobilised to achieve
409 conservation goals could prove more constructive than rendering general, intolerant judgements about
410 different groups of people who hold different sets of core values and provide the potential to leverage
411 the opportunity for trust-building through value sharing. In the case of the CBL-industry, all emerged
412 core values of stakeholders are principally compatible, except for the opposing nature of the ambition
413 to achieve top-quality, which is, however, still socially desirable to strive towards (Schwartz and Bardi,
414 2007; Teed et al., 2019). It, therefore, does not appear impossible for the various stakeholders to
415 mutually appreciate each other’s underlying core values with the potential to move the moralised
416 debate about the breeders’ bad character to a more nuanced and potentially trust-building discussion
417 (Young et al., 2016), especially when key-parties interact in small groups to share values and
418 knowledge and evaluate policy-options (Biggs et al., 2017). Nevertheless, such progress requires
419 involved parties to let go of the taboo trade-off debate, seemingly grounded in their worldviews about
420 the validity of business needs linked to the sustainability concept discussed above.

421 Besides the core values, knowledge-sharing also advances the development of trust (Young et al.,
422 2016). This trust-related function of knowledge often remains overlooked in favour of the commonly
423 accepted purpose to contribute evidence for management decisions and policy definition (Dickman et
424 al., 2015). Conservationists often work on the assumption that for people to change their viewpoints
425 and behaviour, it is merely necessary to share knowledge and educate them (Kidd et al., 2019).
426 Sophisticated levels of knowledge might, however, be detrimental to trust-building when scientists and
427 policymakers are reluctant or even refuse to engage with local types of expertise, such as the
428 experience of breeders, that might be deemed short of rigour or merit (Young et al., 2016). All in all,
429 acknowledging and deliberately making use of value- and knowledge-sharing appear to play a vital
430 role in transcending the existing extremist views and assuming responsibility for a sustainable solution
431 despite differing core values.

432 Our study found lots of potential for dialogue between conflict parties based on common ground,
433 compatible or at least socially acceptable core values and a potential to bridge different worldviews by
434 transcending the existing wildlife economy model in favour of a “nature and people” approach to
435 conservation (Mace, 2014). However, if worldviews and personal values in the form of unquestioned
436 beliefs prevent stakeholders from being interested in identifying common ground and searching for
437 solutions to resolve complex conservation issues, this should be concerning to conservation
438 professionals. Especially worrisome is the tendency of some animal rights actors to categorically reject
439 any way forward other than banning CBLs altogether. If pursued by governance agencies, such a
440 simple solution in a context of complex social-ecological systems might also prompt unexpected and
441 unintended consequences, constituting a significant risk to biodiversity conservation. In the light of
442 these developments, we propose that the traditional, knowledge-focused way to resolve conservation
443 conflict has to be rethought, even when supplemented by consensus-building methods.

444 **5 Conclusion**

445 Our study has broader implications for conservation practitioners and policymakers. The results
446 emphasise the importance of conservation-related worldviews and trust as prerequisites to applying
447 scientific knowledge in polarised conflict situations. This study set out to explore how scientific
448 knowledge and conservation value can contribute to resolving the polarised conflict characterising the
449 captive lion sector. However, the in-depth, inductive research uncovered the socio-psychological
450 nature of the conflict and how deep-seated, belief-led positions rendered the conservation
451 value/scientific knowledge approach impotent.

452 In our research on CBLs, we found that CV-appraisals only helped to polarise the debate further
453 instead of assisting in identifying common ground and co-constructing solutions supported by all
454 involved parties. Our findings suggest that conservation practitioners and policymakers must
455 understand that differing belief systems underpin stakeholder values and worldviews and must be
456 regarded as legitimate and key aspects of any conflict resolution process.

457 This study emphasises the importance of establishing a conservation frame mindful of the worldviews
458 of all stakeholders as well as enforcing efforts to develop trust through sharing core values and
459 knowledge. We, therefore, recommend that the conservation sector is equipped with the competencies
460 and skills to address different human beliefs and personal value systems to gradually prepare the
461 ground for the design and implementation of solution-building processes in addition to evidence-based
462 problem-solving. Pro-actively addressing worldviews and existing character judgements about
463 breeders will serve as a precursor to solution-building, but without preparing the ground, it is highly
464 unlikely that relevant stakeholders will accept any rational, analytical approach yielding little hope for
465 resolving the conflict.

466 Above all, progress will depend on the openness of stakeholders to participate in a solution-building
467 process. Applying the insights from this study, we propose conservation to be at a turning point in an
468 increasingly belief-led world, where it is crucial to understand, acknowledge and integrate the inherent
469 anthropocentricity when faced with complex problems embedded in social-ecological systems. Due to
470 the increasing heterogeneity of our societies, we conclude that conservation professionals need to
471 introspect and emerge from their safe space of exclusively creating more scientific knowledge for
472 evidence-based problem-solving. Taking a stand by creating the platforms for dialogue about
473 worldviews and personal values towards shared visions that are transparent to the public might
474 constitute the missing link to ignite the co-creation of new, unforeseen solutions to serve biodiversity
475 conservation long-term.

476 **Data availability statement:** The interview data generated and analysed during the current study are
477 not publicly available due to the necessity to uphold confidentiality and anonymity of the part-taking
478 interviewees.

479 **Competing interest statement:** The authors declare that there is no conflict of interest.

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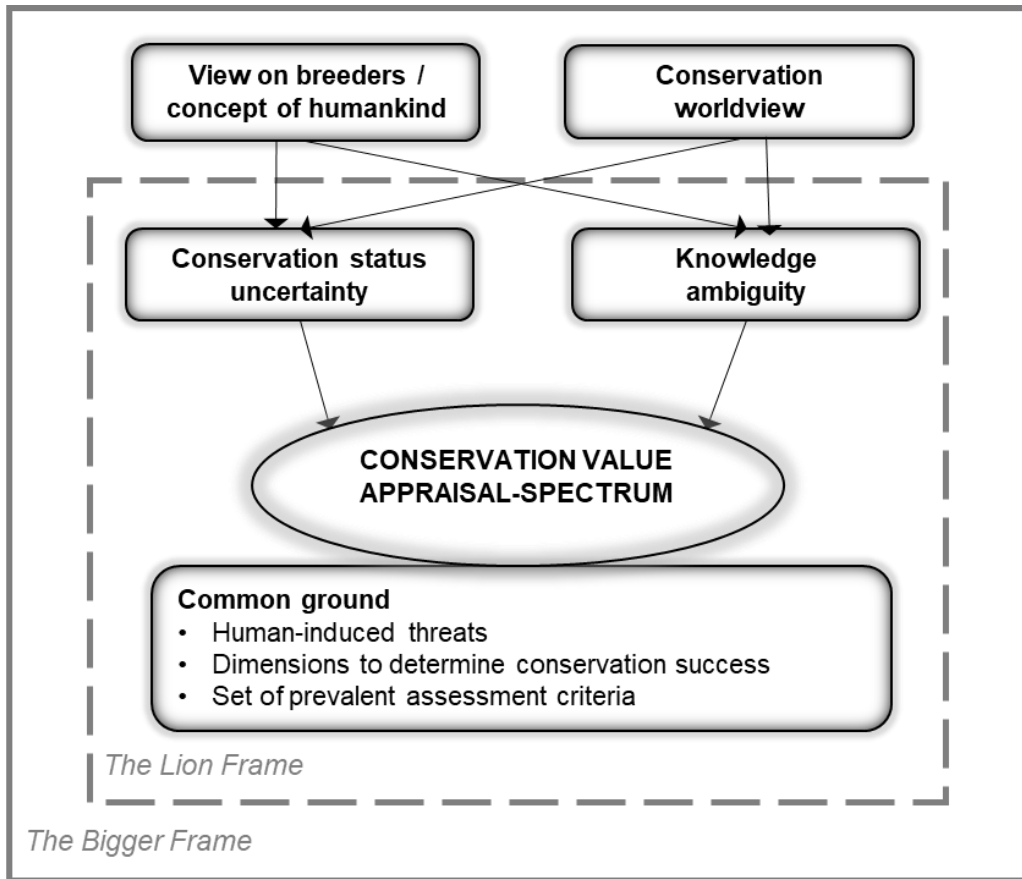
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- 639

640 **Table 1** Number of interviewees and their roles relating to the captive lion industry

Role	Male	Female	Total	%
Owners/managers of captive lion facility	12		12	42.9
Representatives of captive lion association	2		2	7.1
Scientists (with expertise on both with captive and free-roaming lions in terms of genetics, physiology, conservation biology and conservation management)	5	3	8	28.6
Policymakers (concerned with predator conservation in South Africa)	1	3	4	14.3
Other key-informant (lion welfare organisation specialised in rescue operations)	1	1	2	7.1
Total	21	7	28	100
%	75	25	100	

641



<i>Theme</i>	<i>Full theme description</i>
Conservation value appraisal spectrum	The conservation value of captive-bred lions is contentious with a broad appraisal spectrum.
Common ground	Areas of common ground exist for assessing the conservation value of captive-bred lions.
Conservation status uncertainty	Uncertainty regarding the future conservation status of lion populations in different geographical regions serves as a mechanism to argue for a specific conservation value appraisal of captive-bred lions.
Knowledge ambiguity	Ambiguous knowledge inherent to assessment criteria serves as a mechanism to argue for a specific conservation value appraisal of captive-bred lions.
View on breeders / concept of humankind	A person's judgement of the character of lion breeders based on personal values affects their conservation value appraisal for captive-bred lions.
Conservation worldview	A person's conservation-related worldview affects their conservation value appraisal for captive-bred lions.

642

643 **Fig. 1** Conservation value appraisal framework showing the main emerging themes and their
 644 interrelations relevant for assessing the conservation value of captive-bred lions. Factors in the bigger
 645 frame affect how people interpret the factors in the inner frame to suit their conservation value
 646 appraisal

647 **Table 2** Quotes from interviews with representatives of the captive lion industry and key-informants on
 648 the conservation value (CV) of captive-bred lions illustrating their common ground, values and
 649 conservation worldviews (quote numbers referenced in Results in square brackets)

Theme of conservation value appraisal framework			
Quote code			
Interviewee-ID (KI...key-informant; CL...captive lion owner/manager; F...female; M...male)			
Quotation			
Common ground	1	CLM95	<i>"So as long as you can't do anything about the human population, there's nothing you're going to do about the habitat. Therefore, there's nothing that you or anybody is going to give us any guarantee that the wild lion population is not declining."</i>
	2	KIF73	<i>"At the end of the day we are looking at ecosystem processes that are functioning. We're looking at species playing their role within that. And positive human outcomes in that."</i>
	3	CLM49	<i>"The definition of conservation is any activity, and by that I do not exclude anything, any activity which promotes or supports the species in the wild."</i>
	4	KIM11	<i>"Conservation in general ... is about maintaining diverse populations with the genetic diversity that gives these populations a sort of enough standing variation to cope with whatever changes evolution throws at them ... so, the word is about conserving evolutionary potential."</i>
View on breeders/concept of humankind	5	CLM03	<i>"That was my goal, to do my own breeding, get my own ranches and do my own businesses. ... Of course I'm benefit out of it, but my animals also benefit out of it because they put me to the position to be able to buy more land so that I can give them back something."</i>
	6	KIM20	<i>"But the overriding principle is the selfishness of individual humans. So, the breeders are trying to maximize their income and their personal well-being. It's not just money, it's about self-interest and greed."</i>
	7	KIM33	<i>"I think ... with the lion, I think it's just too emotional. So I don't know if you're going to find a middle ground on the lion issue."</i>
		CLM38	<i>"I haven't got any trust in the people that's doing the researches for nature conservation on the moment."</i>
	8	CLM58	<i>"I would say that ... in the same sentence that ... green societies or whatever you call them, that's only in it for the money as well."</i>
		KIM33	<i>"Born frees and others are generating huge amounts of money because of their campaigns to fight it [captive lion industry]. They are business models. So, basically that's what they are. And so they've got massive vested interests."</i>
	9	CLM58	<i>"I'm a farmer ..., it was born into me to protect the animals. There's a lot of good guys out there, a lot of good intentioned people. So what a farmer do, he never takes the money, he reinvest everything."</i>
		CLM03	<i>"I feel the people are not fair. Give us that opportunity."</i>
	10	CLM38	<i>"I wanted to breed the top-quality, good lion in my opinion. That's my passion or what you call it."</i>
	11	CLM95	<i>"People that is in the lion business industry, they are mainly businesspeople and they are animal lovers. I see myself as somebody that really loves nature per se and not necessarily an animal. And we are the custodians of all these animals, the wildlife, the nature, the diversity of Africa. We are the custodians of it with little to no say."</i>
	12	KIF48	<i>"I'm actually quite a greenie. Just on a personal level, I'm highly opposed to animals like lions living within ... a confined area where they cannot behave like a lion."</i>
	13	CLM60	<i>"I mean, as far as I'm concerned, the one who just has lions to produce bones is the most reprehensible sort of type of human being. He lacks morality in a true sense of the word. I mean I've been saying it for 20 years. It's really simple. Ban captive breeding."</i>
	14	KIF29	<i>"From a conservation point of view the approach is to mimic natural systems as much as possible ... and the other thing with ... conservationists is to air on the side of caution."</i>
	15	KIF29	<i>"But we know that there's a lot of these captive people are slippery customers. [Therefore,] presumably still most people in the small reserve and bigger reserve management are very anti-captive lion breeding."</i>

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Continued

Theme of conservation value appraisal framework			
Quote code			
Interviewee-ID (K...key-informant; CL...captive lion owner/manager; F...female; M...male)			
Quotation			
Conservation worldview	16	KIM40	<i>"The keeping and breeding of these lions in South Africa must be understood within the larger context of the South African wildlife and conservation management model. By giving game animals an economic value, an incentive is created to protect and conserve the wild animals on the owner's land as well as the habitat in which they can thrive."</i>
	17	KIM20	<i>"Probably one of the most effective ways of achieving a rational society that looks after biodiversity is reducing the demands within society and that's reducing numbers again. It comes back to: we're doing half for the planet."</i>
	18	KIM33	<i>"For me, every model that we've got in Africa has its strong points and its weak points. The South African model: our numbers have increased. But the downside is that you've ended up with intensification as one component of it. The Kenyan model: you've got much more expansive wildlife. You've got your big ecosystems and all that. Their downside is the animal wildlife conflict. They lost a lot of their wildlife. And there is absolutely no way South Africa can put those resources into all of those [rhinos, lions, leopard, ...]."</i>

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652 **Table 3** Quotes from interviews with representatives of the captive lion industry and key-informants
653 illustrating the evaluation criteria (A-H) and appraisal spectrum (1-4) for the conservation value (CV) of
654 captive-bred lions (quote codes A1-H4 referenced in Results in square brackets). Interviewee-ID is
655 indicated within brackets in bold letters after each quote (KI, key-informant; CL, representative of
656 captive lion industry; F, female; M, male)

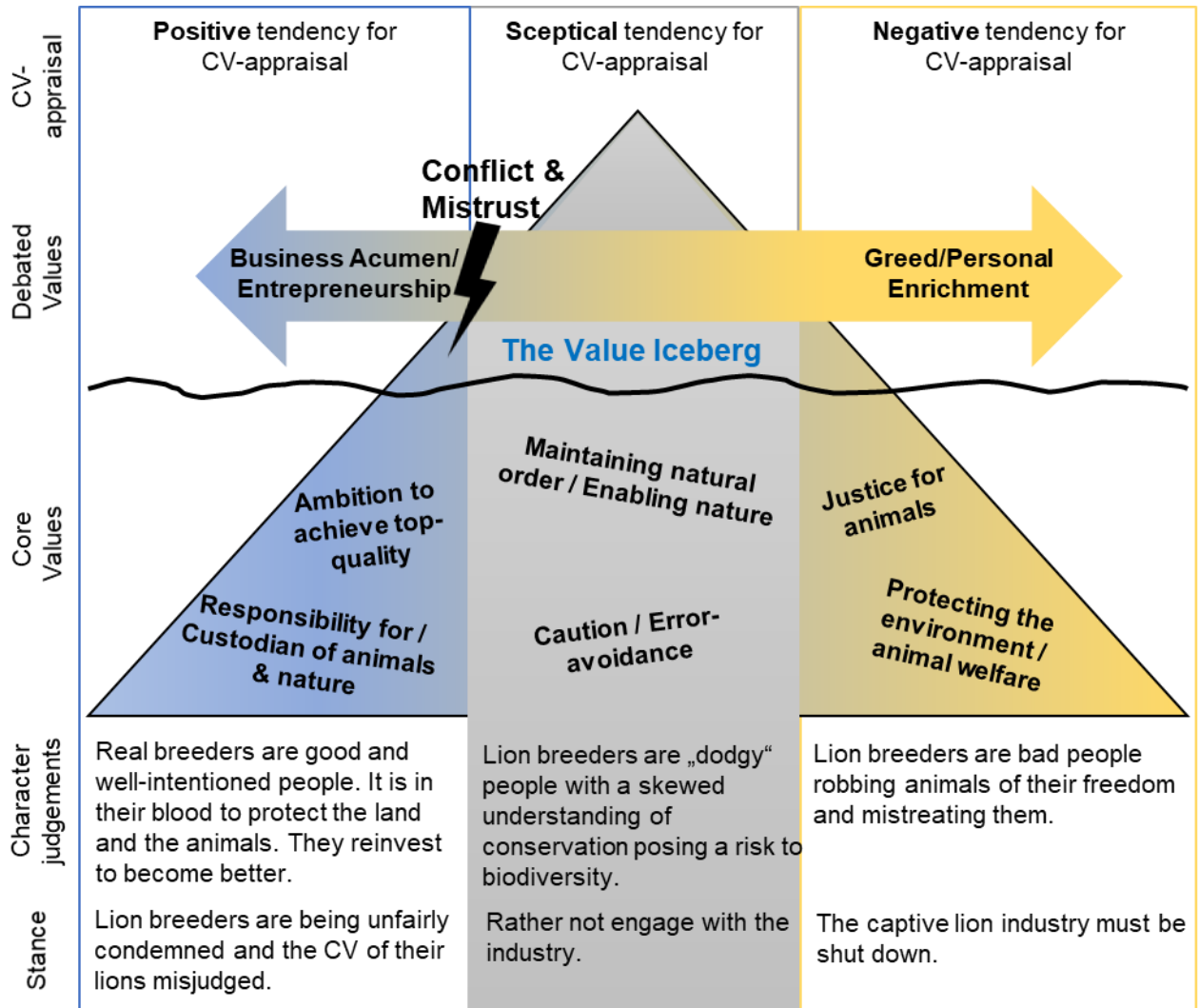
	1: No Conservation Value	2: Potential Conservation Value	3: Limited Conservation Value	4: Existing Conservation Value
A: Genetics	<p>"Are the activities of the lion breeders maintaining heterozygosity and the answer is no, because they're in-breeding. Also, selective breeding, exactly the same, very rapid decline in heterozygosity, high risk of fixing alleles.... big mane versus small mane alleles. And then out breeding where they don't care where the hell their lions come from. All of these lead to loss of heterozygosity. And are they maintaining viable populations and the answer is no. They're not managed as a meta-population." (KIM20)</p> <p>A1 (3KI 1CL)</p>	<p>"The breeders will say they've got some genes that don't exist in the wild anymore. And then the purest conservationist would say well they're just all bad because they've been doing all sorts of things and breeding. But we don't have any evidence either way." (KIF59)</p> <p>"That continuum between inbreeding and outbreeding. The categorical answer right now is, we don't quite know yet and that's because we don't have these lion genomes to scrutinize</p> <p>A2 (9KI)</p>	<p>"Where you do have a problem is the unethical breeding of lions (mainly in SA) where lions are bred for size, manes and so on. So the breeders mingle genetic material to get the morphological attributes that appeal to a hunter." (CLM15)</p> <p>A3 (1CL)</p>	<p>"The interesting thing is that the one thing we are probably accused of most is inbreeding. We've got scientific proof that our animals are more genetically diverse than those in the Kruger Park, the wild populations." (CLM49)</p> <p>A4 (10CL)</p>
B: Reintroductions	<p>"There is no known way of successfully reintroducing a captive lion. It might hunt and survive but will it have all the social knowledge to survive when there is a wild pride?" (KIF29)</p> <p>B1 (5KI 1CL)</p>	<p>"At the moment the industry because of the pressure saying they've got no conservation value have taken captive lions and have put them into extensive systems. But, I think there is still a lot of work to be done in the captive industry to see whether they have a conservation value as far as ecosystem and the "being a functional lion in the system" is concerned." (KIF73)</p> <p>B2 (2KI 3CL)</p>	<p>"My sense is that you're not going to get a huge value from inserting animals into the wild from captive-bred lions. For a couple of reasons. One, is because it's a really difficult thing to do properly and to make sure that they integrated into wild populations. And secondly, ... it seems that you could do it from other stocks." (KIM33)</p> <p>"The guys have proven it. You know, they have put lions in game reserves where there are no other lions and they've done well. But, put a lion in a system like Kruger National Park where there's existing lion populations and existing social structures and the prey are accustomed to co-exist ... these lions are likely to die." (KIF73)</p> <p>B3 (2KI 1CL)</p>	<p>"We released five lions in the end of 2016. ... They were released after six weeks [in a boma] and three months later they gave birth to 14 cubs born on 22,000 hectares. They need proper habitat that's looked after, no human conflict, and they need prey. That's all they need." (KIM28)</p> <p>B4 (1KI 8CL)</p>
C: Safety-Net Population	<p>"Whereas the scenario where we suddenly end up with no wild lions and available suitable habitat would never exist because we'd always have pockets of wild lions ... and relocate from the habitat it's in." (CLM60)</p> <p>C1 (4KI 1CL)</p>	<p>"But if farmers want it, I suppose they've got a point. It is a reserved gene pool and because it's only been around for 20 years there probably hasn't been enough time for super, weak genetics to propagate. We probably could use them as a reserve gene pool but the chances that we'll get to that situation one day is just, is highly unlikely. ... I don't see wild lion populations completely disappearing. I see them stabilising in the next 100 years and then improving in the next 200 to 300 years." (KIM62)</p> <p>C2 (2KI)</p>	<p>"There's limited scope for the re-introduction of captive lions into the wild. So, there's going to be a couple of places that's going to take these guys away and they might be able to send it out to a couple of other countries, a couple of lions - but then it's saturated." (KIF73)</p> <p>"A lion falls under natural, renewable resources. It's extremely renewable because it breeds like a rabbit." (CLM97)</p> <p>C3 (1KI 1CL)</p>	<p>"We maintain a studbook on all lions so that their origin and genetics is known. If there was an event that decimated lions suddenly we could help repopulate." (CLM15)</p> <p>"It makes no sense to only take care of the ones in the wild because maybe those won't even survive in the next few years. So, we have to use the animals that are in the wild and the animals that are inside ... those are valid animals that belong to the same species." (KIF02)</p> <p>C4 (2KI 6CL)</p>

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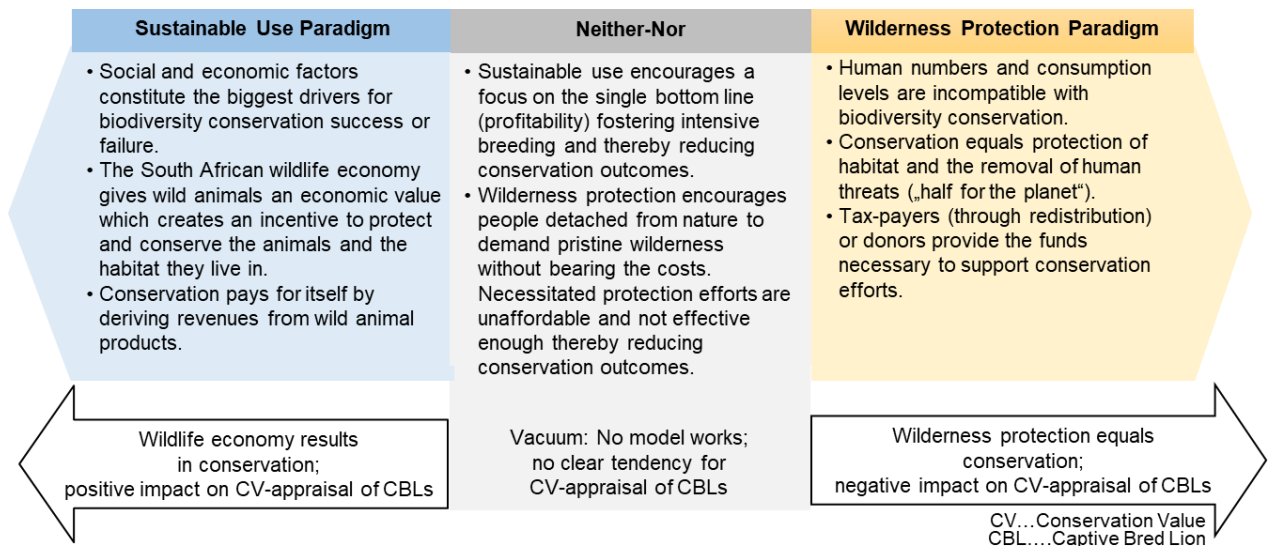
Continued

	1: No Conservation Value	2: Potential Conservation Value	3: Limited Conservation Value	4: Existing Conservation Value
D: Habitat Protection	D1 (3KI 1CL) "So, is a 1000 hectares effective conservation of habitat? And the answer is probably no. They would need to scale this up to 100 000 hectares, to really start making a difference for the other biodiversity, let alone for lion populations." (KIM20)	D2 (2KI) "The lion is, I think, one of the most expensive hunts and just releasing a lion every now and then, is probably allowing that land to stay like it is and not be converted to a cattle farm or whatever. There's no evidence yet." (KIF59)	D3 (1KI) "What's less clear is that whole group of 250 odd ... that are kind of involved in captive breeding and canned or captive lion hunting, ... which of those actually have some bigger estate and actually contribute to lion conservation, and which of them are really just breeding facilities for captive breeding?" (KIM33)	D4 (1KI 5CL) "No one is putting more land out there for conservation. That's why there is a privately industry and we as ranchers, we are trying to do it." (CLM03)
E: Wild Population Buffer	E1 (4KI 2CL) "There's always going to be a market for the wild product. So the wild product always has a higher value, so there's always going to be pressure on the wild product. The more we supply the demand of the buying market, the more sophisticated that buying market is going to become." (KIM11)	E2 (3KI) "The reality is, we know that there's a demand ... and we know that the captive-bred lions have been meeting that demand. The big un-known is if you had to stop the supply, is the demand just going to disappear? I think if we can show that the demand is being met largely from the captive-bred lion and it's stopping people ... getting bones from other sources, then that would be a conservation value." (KIM33)	E3 (2KI) "I don't agree with [captive-bred hunting] but if you have to shoot a lion, I would rather have a canned lion hunted. [But] China has got billions of people there and ... we can export a hundred thousand lions a month, they'll absorb it in a heartbeat." (CLM93)	E4 (2KI 10CL) "If they're close it up, it's going to be going to the black market. Then you have no control over it... If the thing is regulated and is going through the right channels and it's controlled in a controlled environment, you can see that it's done humanely." (CLM58)
F: Research	F1 (1KI 1CL) "Research, firstly, um, at this point in time there's, there's really no need. Physical research that hasn't been undertaken that still needs to be done. We don't need to discover anything about lions that we don't already know." (CLM60) "You want to do any genetic studies or studies on any diseases, go and study your wild lion populations." (KIM20)	F2 (2KI) "Maybe those facilities can somehow be linked to say the zoo or something to further improve their conservation value." (KIF29)	F3 (1KI) "I have no doubt that they can contribute to research, but do we need them for research?" (KIF73)	F4 (2KI 2CL) "In the wild is that you need a lot of researchers to do the same kind of work that I have been doing. I've been collecting blood samples and vaginal smears, pictures of the back quarters every day or every two days and now I've got a huge pool of samples to analyse and to say, "Listen, this is how lions work day by day." This was something impossible if these animals were not in these facilities." (KIF02)
G: Raising Conservation Awareness	G1 (1CL) "If you want to educate a guy on a lion go to the wild, go to Kruger Park ... You don't educate a guy by walking on a leash with a lion." (CLM97)	G2 (3KI) "I honestly don't think that many of these facilities has an educational value. I think they potentially could have in doing things the right way. Touching, feeling is extremely valuable to humans. Those type of things sink in deeper than a story I tell you about an animal. But then we also have got to take that into the bigger perspective and when we do these things, not to sell the western love of Simba, the lion ... and actually understanding the role of predators in a system." (KIF73)	G3 (1CL) "That's a very difficult one. People who will probably never get the opportunity to see a lion in the wild can come here and see what a lion looks like. It all boils down to semantics of what is the actual message that having an animal in captivity gives. My education messages is basically: look how horrible our species is to animals." (CLM60)	G4 (3CL) "What we are trying to achieve is ... we are looking to educate the next generation and the importance there is of conservation of wildlife ... because Africa is so unique with the different kinds of wildlife. We need to teach the next generation that they can actually co-exist with our wildlife." (CLM19)
H: Conservation Funds	H1	H2 (1KI 1CL) "What those people are doing is not conservation. It's a financial enterprise. So, some of that money can be channelled towards real conservation endeavours. Then I might be a lot more comfortable with it. It would mean that the work that they do finally does actually have real conservation value." (KIM62)	H3 (1KI) "If I had to put a conservation value on it, it would be bringing revenue into the country. Bringing revenue into the country and hopefully some of that revenue gets channelled back into conservation." (KIM11)	H4 (1KI 6CL) "But I think the biggest one and we're working with government to implement it ... that money goes to the conservation fund and use that money to ... look after the wild animals or put lions back in Africa in reserves or something like that." (CLM13)



CV... Conservation Value

662 **Fig. 2** Stakeholder values resulting in contrasting character judgements of lion breeders, which are
 663 transferred to captive-bred lions and lead to positive, sceptical or negative tendencies when assessing
 664 their conservation value



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Fig. 3 Conservation worldviews relevant in the case of captive-bred lions leading to positive, scattered or negative tendencies when assessing their conservation value