

A Force for Nature: Assessing the
impact of the IUCN Species Survival
Commission

Jennifer Christelow
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DECLARATION OF OWN WORK

I declare that this thesis, "A force for nature: Assessing the impact of the IUCN Species Survival Commission" is my own work. In all cases where the work of others is utilised, it is appropriately referenced, and/or appropriate acknowledgement given.

Signature:



Name of Student: Jennifer Christelow

Name of Supervisors: E.J. Milner-Gulland
Mike Hoffmann
Richard Young

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LIST OF ACRONYMS

IUCN	International Union for the Conservation of Nature
df	Degrees of freedom
KII	Key Informant Interview
M&E	Monitoring and Evaluation
p	Probability
SG	Specialist Group
SSC	Species Survival Commission
TOC	Theory of Change
X ²	Chi-Squared

WORD COUNT

6,032 words

1 **ABSTRACT**

2 There is a growing need for conservation organisations to assess the impact they
3 have. Not only do impact assessments highlight what is being done well, they
4 also provide useful knowledge on where improvements can be made. Resources,
5 for example, may be targeted more appropriately to achieve desired goals.
6 However, conducting impact evaluations is not an easy task. There are
7 complexities both within and outside of the control of conservationists. For this
8 reason, it may be best to apply a model, such as the theory of change used in this
9 research, to simplify the process by setting out the stages (inputs, activities,
10 outputs, outcomes) that need to be reached in order to achieve impact.

11

12 The IUCN Species Survival Commission, a voluntary network comprising 10,000
13 expert conservation members from around the globe, has never directly had its
14 impact assessed. At the end of its 4-year strategic period, it was an ideal
15 opportunity to conduct this research. A theory of change was designed, building
16 from key informant interviews (KIIs) and literature reviews. A questionnaire
17 was then developed to test the validity of the theory of change, which was sent
18 out to all members of the Commission to gain representation from across the
19 organisation.

20

21 Overall, it was found that the Species Survival Commission is far from achieving
22 its impact, but it is enhancing the ability of individual members to make a greater
23 contribution to conservation. Furthermore, due to the scale of the organisation,
24 there are many inferences that can be applied to wider conservation. For

25 example it takes a long time to see an impact, this affects how individuals view
26 their achievements and the success of the intervention.

27

28 **KEYWORDS**

29 Impact assessment, monitoring, evaluation, conservation, organisational
30 effectiveness, theory of change

31

32 **ACKNOWLEDGEMENTS**

33 Specific thanks go to E.J. Milner-Gulland, Mike Hoffmann and Richard Young for
34 supervising this research. I am also grateful for additional support provided by
35 Rachel Hoffmann, Jon Paul Rodríguez, Simon Stuart and Claire Santer.

36 **INTRODUCTION**

37 The Species Survival Commission (SSC) is one of six commissions that form a
38 global network of expert volunteers for the International Union for the
39 Conservation of Nature (IUCN). With over 10,000 members spread across 140
40 Specialist Groups, the SSC is the largest volunteer network of conservationists in
41 the world (Rabb & Sullivan 1995) and so forms a vital part of the global
42 conservation movement. The SSC brings members - from conservationists to
43 government representatives - together to address current conservation issues.

44

45 Established shortly after the IUCN, SSC has been in existence for over 65 years.
46 Despite this there have been relatively few attempts to assess its progress, and
47 ultimately the impact it has had, with no large-scale review undertaken of SSC
48 members' views. Previous attempts to research SSC do provide a number of
49 interest findings though, with SSC seen to be an overall “positive force” but with
50 an “overcentralisation of power” in Holdgate’s (1999) review. This is an
51 especially interesting summary as Holdgate is a former Director General of the
52 IUCN. An external review by Bruszt & Turner (2000) highlighted the benefits of
53 knowledge generation by the SSC, but was unable to determine any discernable
54 impact due to the lack of monitoring and evaluation (M&E) capacity within such
55 a voluntary organisation. A more focused review by Turner (2000) found that
56 SSC is far from reaching its ultimate goal of “halting the loss of biodiversity”.

57

58 Overall the consensus is that SSC is genuinely benefitting conservation, however,
59 there are significant gaps inhibiting its progress including member disconnect,
60 operational inefficiency and financial constraints (Price 2001; Turner 2000). In

61 an internally commissioned voluntarism study of select SSC members (Price
62 2001), a number of these views were reflected but again echoed the conclusion
63 that SSC is ultimately a driving force for good within conservation.

64

65 While the research is unanimous in its belief that SSC is making a positive
66 difference, there is little demonstration of how this is actually occurring. This not
67 only makes it difficult to highlight and expand on success, but also makes it
68 difficult for SSC to focus its future efforts and resources. Rondinini et al (2013),
69 Kapos et al (2008) and Wagner et al's (2009) research is just some of a growing
70 number showing that conservation organisations are having to focus increasing
71 efforts on understanding their impact. Limited resources and funding within the
72 conservation arena means a greater focus on outcomes is required to ensure
73 resources are directed correctly. Measuring impact is the current challenge for
74 conservationists, but how does one define impact and consequently how does
75 one measure it?

76

77 Extensive research has been conducted into addressing the challenges associated
78 with M&E. Some identified challenges are out of the control of conservation
79 professionals, for example environmental and political factors, but they should
80 still be incorporated into the planning process, not ignored (Brechin et al 2002,
81 Margoluis et al 2008). Recent studies have attempted to find ways of alleviating
82 these externally-generated complexities within the evaluation process, whilst
83 still accounting for them in the overall picture through the use of conceptual
84 models (Margoluis et al 2009).

85

86 Despite this, many factors are within the control of conservation professionals
87 that should be given special consideration when planning conservation projects
88 or setting conservation goals. These include the allocation of resources, the
89 activities being carried out and the overall strategy. By focusing on the factors
90 that one can influence, there may be a greater chance of achieving a desired
91 impact as the targets can be tailored, whilst still being aware of the wider context
92 of the situation. Regardless of acknowledging the complexities surrounding
93 conservation work in general, it still remains that there is not one universal way
94 of measuring impact (Ferraro & Pattanayak 2006).

95

96 Defining the term “impact” in itself proves complex, often with a lack of clarity
97 within objectives (Kapos et al 2008). Conservation organisations, projects and
98 governments each work to their own specified impacts, targets or goals. At the
99 organisational level there may be set targets, but differing project targets that do
100 not obviously feed into this overarching target. As such, before impact evaluation
101 can be carried out, there must be an overall consensus on the definition of the
102 impact being evaluated (Kleiman et al 2000). Having clearly written targets is
103 also highlighted in conservation leadership literature, where a “clear purpose
104 will inform a relevant view of the future” (Black, 2015). As a leader, you need a
105 clear goal to inform an effective strategy to achieve this.

106

107 The growing focus on M&E in conservation has seen the emergence of methods
108 often associated with business auditing (Christensen 2003, Black & Groombridge
109 2010). Such models are useful, because they not only highlight what is working,
110 but also what is not. When assessing impact, it is as important to address

111 failures, in addition to achievements in order to maintain effective strategies
112 going forward (Kapos et al 2010, Saterson et al 2004, Crees et al 2016, Stem et al
113 2005). Creating logic models, theories of change and conceptual models at the
114 onset of a project is becoming widely accepted as a useful tool for addressing this
115 (Funnell & Rogers 2011; Rogers, 2014). These tools are adaptable, enabling
116 conservationists to visualize projects, or organisational goals from end to end,
117 whilst allowing for assumptions to be made, which accounts for aforementioned
118 factors that are uncontrollable. Ferraro (2009) argues, “environmental
119 programmes should at a minimum formulate complex Theories of Change with
120 causal hypotheses and explicit assumptions”.

121

122 One way of evaluating conservation impact is to assess what the situation would
123 have been in the absence of an intervention – the counterfactual (Rodrigues
124 2006). In the first major assessment of the IUCN, Holdgate (1999) speculates that
125 the situation would be far worse without any global conservation movement, but
126 argued that this is something too complex to assess. Nearly 20 years on, an
127 increasing number of conservationists argue that the counterfactual is in fact a
128 necessity in gauging conservation impact. Ferraro (2009) additionally argues,
129 “Counterfactual thinking is important in any evaluation seeking to identify
130 program impacts”. An example of its application is in Hoffmann’s et al (2010)
131 analysis of the effect of conservation on the status of the world’s vertebrates,
132 where a counterfactual analysis is used to conclude that regardless of the
133 species’ current status, the situation would have been worse had there been no
134 intervention. More recently research by Durrell Wildlife Conservation Trust has

135 been used to inform their 'Durrell Index' (Young et al 2014), by also using
136 counterfactual analysis.

137

138 With this in mind, the overall objective of this research paper is to try and
139 establish whether SSC had enabled its conservationists to achieve an impact that
140 would not have been possible without the organisation's existence. A secondary
141 objective is to establish the factors leading to any differences in perception of
142 whether there had been an impact, such as length of membership or gender.

143 **METHODS**

144 SSC commissioned this research at the end of the 2013-2016 quadrennial period.
145 As the organisation was going through a transitional phase, a decision was made
146 to conduct research into the level of impact the SSC is having, and to get the
147 views of the members that it supports. In doing this, the SSC could implement
148 any necessary strategic changes.

149

150 An initial launch meeting was held with senior members of SSC, including the
151 incumbent Chair Simon Stuart. We discussed the background of SSC and
152 previous efforts to review its work, the reasons this research had been
153 commissioned and what SSC hoped the research to achieve.

154

155 Following this, I attended conservation conferences and meetings; including an
156 annual Red list Committee meeting at Cambridge in April 2016. Here I was able
157 to meet with a number of conservation experts, laying the groundwork for
158 establishing contact with a number of senior level Species Survival Commission
159 members and identifying topics to be discussed in the KII.

160

161 KIIs were arranged with Specialist Group (SG) Chairs, Steering Committee and
162 Red List Committee members with the purpose of understanding the day-to-day
163 work of SSC and identifying major and recurrent themes that would help us to
164 develop a Theory of Change (TOC) model. The idea being that this would later be
165 tested through response of SSC members to a questionnaire. Understanding what
166 activities were being done and what outcomes were being seen as a result was a
167 main aspect of these initial conversations. In total, 25 semi-structured interviews

168 were carried out, either in person, or on Skype in accordance with ethical
169 guidelines as stipulated by Imperial College London. A list is provided as
170 supplementary information.

171

172 The KIIs highlighted various complexities within SSC. These included significant
173 differences in the conservation issues facing SGs, for example the Cetacean SG
174 focuses more on international policy, whilst the Crocodile SG focuses more on
175 industrial farming practices of crocodilians. The areas SGs focus their efforts on
176 may also be fluid, changing over time in response to whatever conservation
177 problems arise. I therefore decided that an overarching TOC would be developed
178 that was a suitable representation of *all* SGs contributing to the desired impact of
179 SSC, regardless of the conservation issues they were addressing.

180

181 The key component of my TOC was the overall 'impact' of SSC, which as
182 previously mentioned relies upon the goal of the organisation. I reviewed SSC
183 literature to find their overriding goal to be: "The species extinction crisis and
184 massive loss of biodiversity are universally adopted as a shared responsibility
185 and addressed by all sectors of society taking positive conservation action and
186 avoiding negative impacts worldwide" (SSC membership welcome pack). This is
187 supported by 4 additional strategic objectives that cover the intersessional
188 period from 2013-2016. Further reading and interviews led me to a simplified
189 statement as 'halting biodiversity loss'. For the purpose of my questionnaire, I
190 decided it would be more suitable to define impact as 'a genuine improvement in
191 population or Red List status of a species'. This is because it easier for individuals

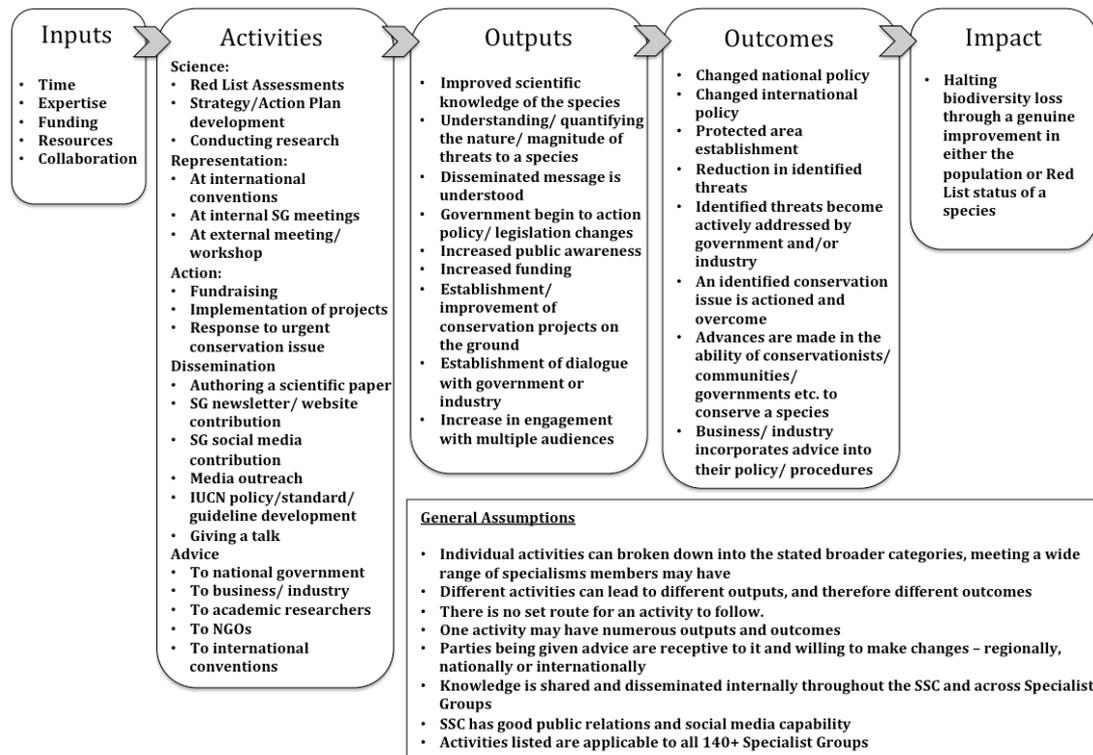
192 to understand an impact they have made within their own SG, at the species
193 level, that contributes to the SSC's overall goal.

194

195 TOC models typically encompass a series of pathways or components – input,
196 activities, outputs, outcomes and impact (Funnell & Rogers, 2011). The wide use
197 of TOC and lack of a set style has led to multiple definitions of the terms outputs,
198 outcomes and impact. My approach utilised those provided by Kapos et al (2010)
199 and successfully employed by Washington et al (2014). The specific activities,
200 outputs and outcomes were decided upon through the literature review and the
201 KIIs. Due to the large number of activities identified, they were also subdivided
202 into 5 categories for ease of analysis: science, representation, action,
203 dissemination, and advice.

204

205 The model chosen for my final TOC was based on a technique utilised by Rogers
206 (2014). The technique used is one where a detailed TOC is produced, inclusive of
207 all complexities and mindful of the external factors when addressing a large
208 scale, global organisation like the IUCN SSC. A simplified version is then
209 developed, enabling a clearer focus on the key aspects of the sequence, therefore
210 making it more user-friendly. This was chosen because it is a model used by an
211 intergovernmental organisation (UNICEF) working on a global scale, and so was
212 more applicable to the context in which this research was being conducted. An
213 overview of the final TOC can be seen in Fig 1. The full TOC is available as
214 supporting information.



215

216 Figure 1: Outline Theory of Change

217

218 The questionnaire was designed around the TOC. This was so I could test its
 219 viability and strengths in relation to the SSC's goals, whilst also keeping the
 220 counterfactual in mind ('would this be the case if the SSC did not exist?') when
 221 designing the questions. Additional questions were included to give context to
 222 responses, and also to gain deeper understanding of the members and their
 223 opinions (the full questionnaire is attached as supporting information).

224

225 The questionnaire was fine-tuned through discussions with supervisors. Verified
 226 translations in French and Spanish were produced to maximize the potential
 227 response. It was created in Qualtrics, as this enabled easy distribution,
 228 translation and formatting. I piloted the questionnaire on non-SSC members to
 229 check for flow and understanding of the questions, it was then sent to all SSC
 230 members on file at the IUCN. All members were approached as this had not been

231 attempted before and it was important to get the views of all members, not just
232 those in positions of authority. This member-wide distribution strengthened the
233 results, as bias from only asking SG Chairs was removed, with all members able
234 to give their opinion.

235 **RESULTS**

236 **Respondent Characteristics**

237 The questionnaire was successfully sent to 9,014 SSC members. Of these, 1,038
238 questionnaires were completed - an overall response rate of 11.5%. There was
239 representation from 122 SGs, giving valuable feedback from across the entire
240 SSC. 22% of respondents fulfilled a senior position within the SSC (SG Chair, Red
241 List Coordinator, Subcommittee Chair or Steering Committee Member).

242

243 Over 130 nationalities were represented in the responses. The gender
244 breakdown of respondents was 25% female and 75% male. As there is limited
245 data collected on file for gender of SSC members, I could not determine the
246 accuracy of this in comparison with the actual split.

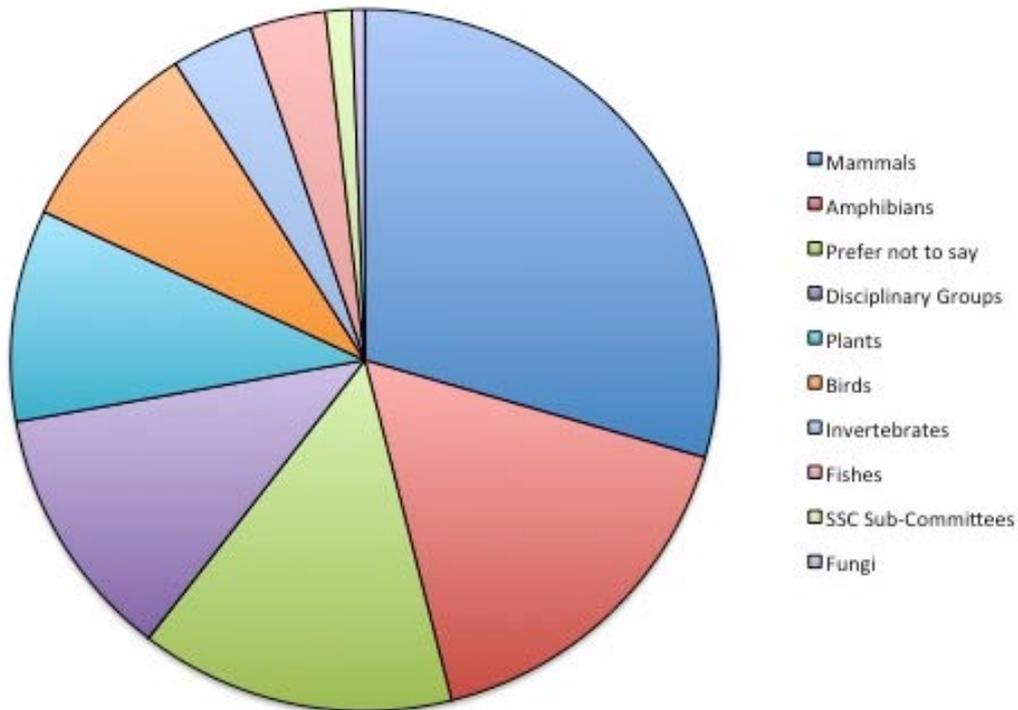
247

248 Respondents were asked to list, in order of their level of engagement, SGs they
249 were members of. For this reason, the first given group was taken as being the
250 primary SG. For ease of analysis, SGs were divided into their overarching
251 categories (Amphibians and Reptiles, Birds, Fishes, Fungi, Invertebrates,
252 Mammals, Plants, Disciplinary Groups (including Task Forces), and
253 Subcommittees). Responses from these groups are displayed in Fig.2. Due to low
254 sample sizes, some overarching categories were left out for certain analyses.

255

256 The IUCN provided a current membership database enabling us to establish
257 accurate response rates for overarching SGs. The highest response rates were
258 from Mammals (9.9%), Fungi (9.5%) and Amphibians and Reptiles (9.3%).
259 Lowest response rates were from Birds (3.6%) and Subcommittees (2.6%).

260



261

262 Figure 2: Overview of respondents according to their overarching SG affiliation

263

264 Respondents were members of, on average, 2.2 different SGs. This is in
265 comparison with the IUCN database, which records an average of 1.3 SGs per SSC
266 member. Coupled with the high response rate from members in a position of
267 authority, this suggests that responses are from more engaged members and as
268 such there is a level of bias to be acknowledged.

269

270 **Membership and Activities**

271 The reasons why people became a member of SSC are potentially important
272 determinants of their engagement with, and contribution to SSC's impact. From a
273 multiple-choice selection, we determined that the main driving factor was for
274 'networking opportunities with other conservationists' (26.3%), followed by

275 giving 'greater access to species information' (18.1%), 'access to information
276 regarding publications and results' (15.9%), and 'giving greater influence
277 internationally' (15.5%). By far the lowest response was for 'prestige' (4.5%).
278 These responses were consistent within each overarching SG as well. Of the 241
279 members that selected 'other', 50.2% gave their reason for joining as being
280 because they are simply passionate about conservation and want to increase
281 their chance of having a genuine impact on conservation.

282

283 The average number of activities selected by each respondent was 4.08 out of a
284 possible 23 (these were subsequently split into 5 subcategories). The largest
285 category was activities related to 'advice' (32%), with fewest members
286 undertaking activities related to 'representation' (9.9%). 10.9% of respondents
287 selected 'other'. This suggests that we were accurate in the production of
288 activities put forward for the TOC.

289

290 Results showed that there was a significant association between membership
291 duration and time spent carrying out activities for the SSC (X^2 test, $X^2=62.123$,
292 $df=35$, $p=0.003$). As membership duration increased, more time was spent
293 conducting SSC-related activities.

294

295 **Outputs and Outcomes**

296 To validate the TOC it was necessary to gauge the outputs (short term
297 consequences) and outcomes (long term consequences) that respondents felt
298 SSC membership was leading to, whether these were in line with the TOC or not.

299

300 Outputs were provided as a multiple-choice list; 1,038 respondents made a total
301 of 3,117 selections. Most commonly selected outputs were 'improved scientific
302 knowledge' (21%) and 'understanding, or quantifying the nature and magnitude
303 of threats to a species' (20%), followed by 'increased public awareness' (16.2%).
304 Least selected outputs were 'increased funding' (5.8%), 'discussions established
305 with government bodies as a result of formal intervention' (5.5%) and
306 'governments begin to implement policy or legislation changes' (5%). 4% of
307 respondents did not know if they had seen an output.

308

309 Outcomes were also displayed as a multiple choice list; 1,038 respondents made
310 a total of 2,064 selections - over 1,000 less than selected for outputs. Most
311 frequently selected outcomes were: 'research advances the ability of
312 conservationists, communities or governments to conserve a species' (21.3%),
313 'identified threats become actively addressed by governments and/or industry'
314 (14.2%). The least frequently selected included 'changed international policy'
315 (4.5%), 'industry incorporating their advice into their policy or procedures'
316 (5.2%), and 'overcoming a conservation issue or threat' (5.6%). A total of 13.8%
317 respondents did not know if their had been an outcome.

318

319 **Perception of Impact**

320 Respondents were asked whether they felt SSC had hindered or enhanced their
321 ability to have a conservation impact. The majority of respondents (70.3%) said
322 that their conservation impact had either been enhanced or significantly
323 enhanced, whereas less than 1% of respondents believed that SSC membership
324 had hindered or significantly hindered their conservation impact. No significant

325 association was found between SG and whether the SSC affects their ability to
326 have a conservation impact (X^2 test, $X^2=27.583$, $df=21$, $p=0.152$).

327

328 In addition, respondents were invited to provide examples of how, if at all, the
329 SSC had helped or hindered their ability to have a conservation impact. The most
330 common responses for hindering work included the amount of voluntary time it
331 takes to contribute to SSC work, political factions within SGs, poor SG leadership
332 and lack of funding. It is important to highlight that 70% of respondents 'did not
333 know' and the most common response for those who provided a text response
334 was 'no hindrances' (53.2% of the 173 text responses provided), but this should
335 not undermine the views provided by the other respondents.

336

337 A larger number of examples were given for 'enhanced' impact (697 text
338 responses equating to 60.5% of all respondents). Examples included: giving
339 better credibility and influence, ability to disseminate information to a wider
340 audience, networking opportunities, authoring opportunities, coordinating
341 global conservation efforts, better cooperation from outside parties (e.g.
342 governments and businesses), and informing policy decisions. Few respondents
343 provided a 'none' response; 28% of all respondents said 'I do not know', 0.6%
344 specifically wrote 'none'.

345

346 When asked about 'impact' in relation to the definition put forward in the TOC,
347 SG members were less positive about their impact as a direct result of their
348 specific contribution to SSC activities (see Fig.3). 26.0% of respondents, or less
349 within each overarching SG had seen a genuine improvement in the population

350 size of a species with which they work. Amphibians and Reptiles recorded the
 351 highest 'yes' response (26.0%) and Birds provided the lowest 'yes' response
 352 (9.7%). Conversely, Birds provided the highest 'no' response (40.9%) whilst
 353 Fishes recorded the lowest (20.0%). The largest response was 49% of total
 354 respondents who did not know if their SSC activities had led to a direct impact.

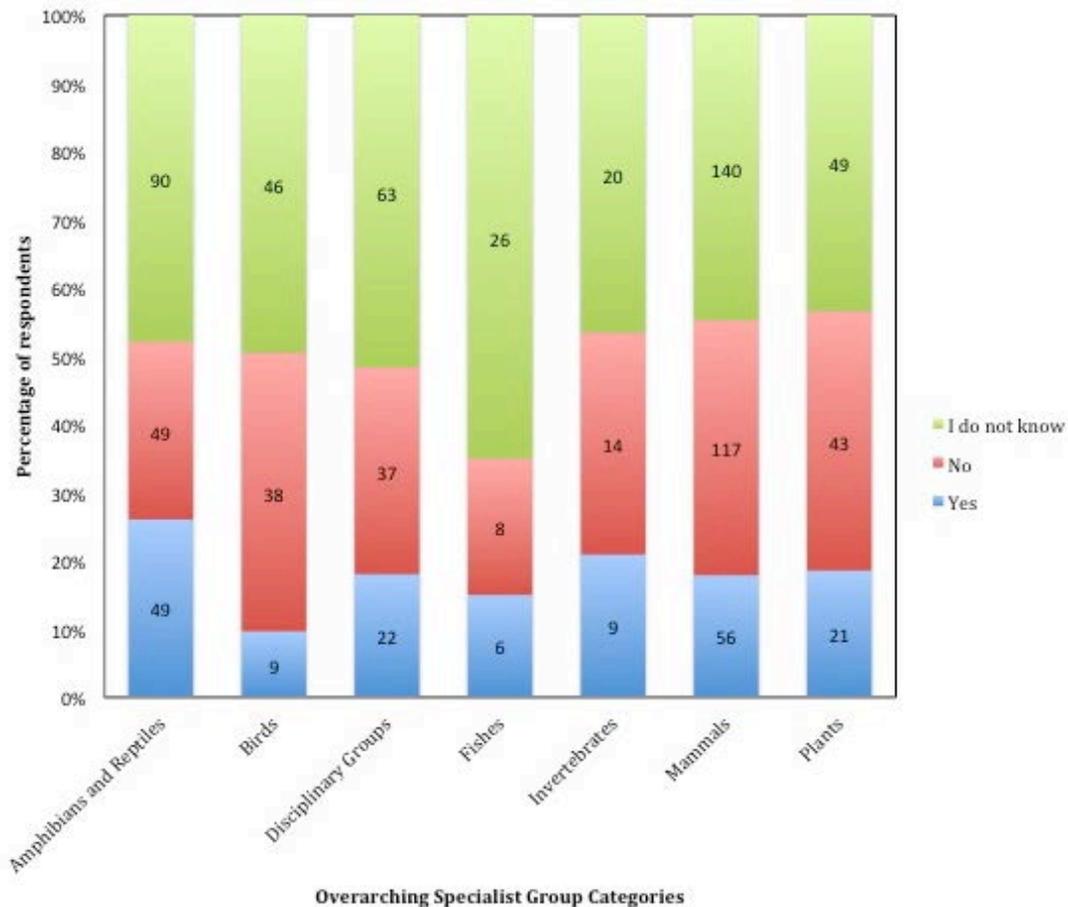


Figure 3: Response to 'Have the SSC activities in which you have been involved led to a genuine improvement in either the population, or Red List status of a species?'

355
 356 Respondents who said they had seen a direct impact were subsequently asked to
 357 provide an example evidencing their response. Of the 188 responses, only 21
 358 'yes' respondents gave a clear instance of an increase in population or Red List
 359 status. An example of this is the population of Bukhara deer rising from 350 to
 360 2400 over a 16-year period. Other responses fitted more with the definitions

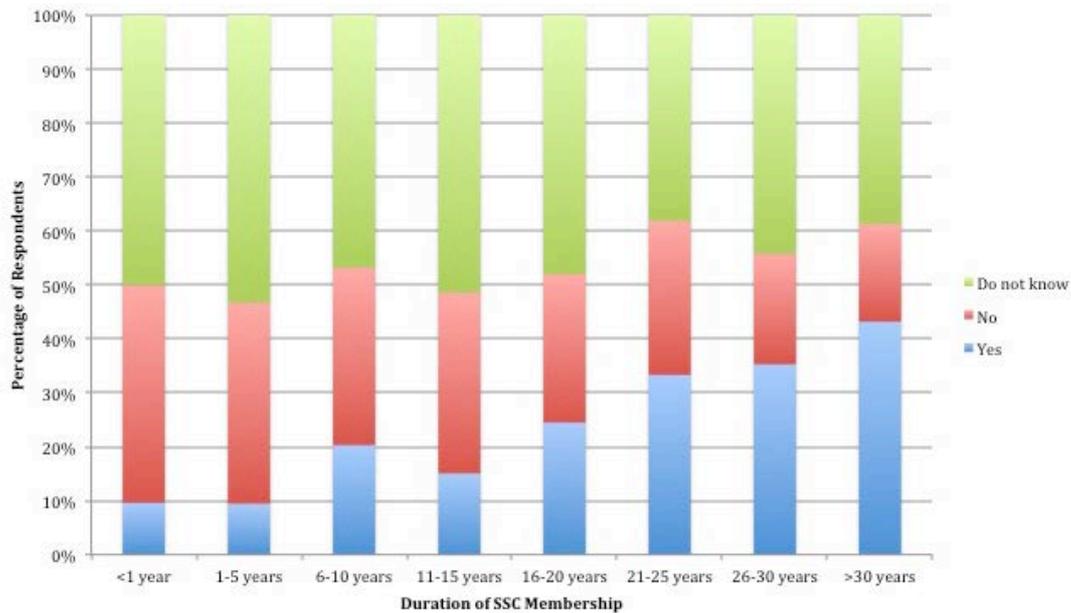
361 associated with 'output' or 'outcome', rather than impact, for example
362 'conservation action plans have been implemented as a result of Red Listing data
363 collection'.

364

365 No significant association was found between SG and respondents' view of an
366 SSC-related impact (X^2 test, $X^2=23.503$, $df=14$, $p=0.053$), so further tests were
367 done to see if there were correlations elsewhere. The most significant trend was
368 found to be the length of time dedicated to SSC activities ($X^2=57.052$, $df=10$,
369 $p<0.001$). As length of time spent undertaking SSC activities increased, the more
370 positive respondents were about the impact they had seen.

371

372 Membership duration is also seen to influence impact. A significant association
373 was seen when tested against perception of impact ($X^2=61.339$, $df=14$, $p<0.001$).
374 The proportion of 'yes' responses rose from 9% for members of less than 1 year,
375 to 43%, for members of over 31 years. The opposite was true of 'no' responses,
376 which decreased as membership length increased. Nonetheless, across all ranges
377 at least 38% of respondents did not know either way. This is displayed in Fig.4.



378

379 Figure 4: Relationship between SSC membership duration and perceived impact from SSC-related activities

380

381 The degree (negligible, minor or major) and scale (locally or globally), which
 382 respondents felt the SSC had enabled them to have an impact on biodiversity was
 383 also addressed (see Fig.5). 66.5% of respondents selected at least one impact. Of
 384 these, most respondents selected 'minor global' (23.4%), but overall most
 385 respondents' feel their impact has been at the minor or major 'local' level
 386 (41.2%), this compares with 36% who have seen a minor or major global impact.
 387 When compared with SGs, a maximum of 18% of respondents from each group
 388 had seen a negligible/negative impact at either a global or local level. This
 389 compares to 56%-84% who state that minor or major impacts have been seen at
 390 a local or global scale. Despite this, 23.5% of respondents remained unsure.

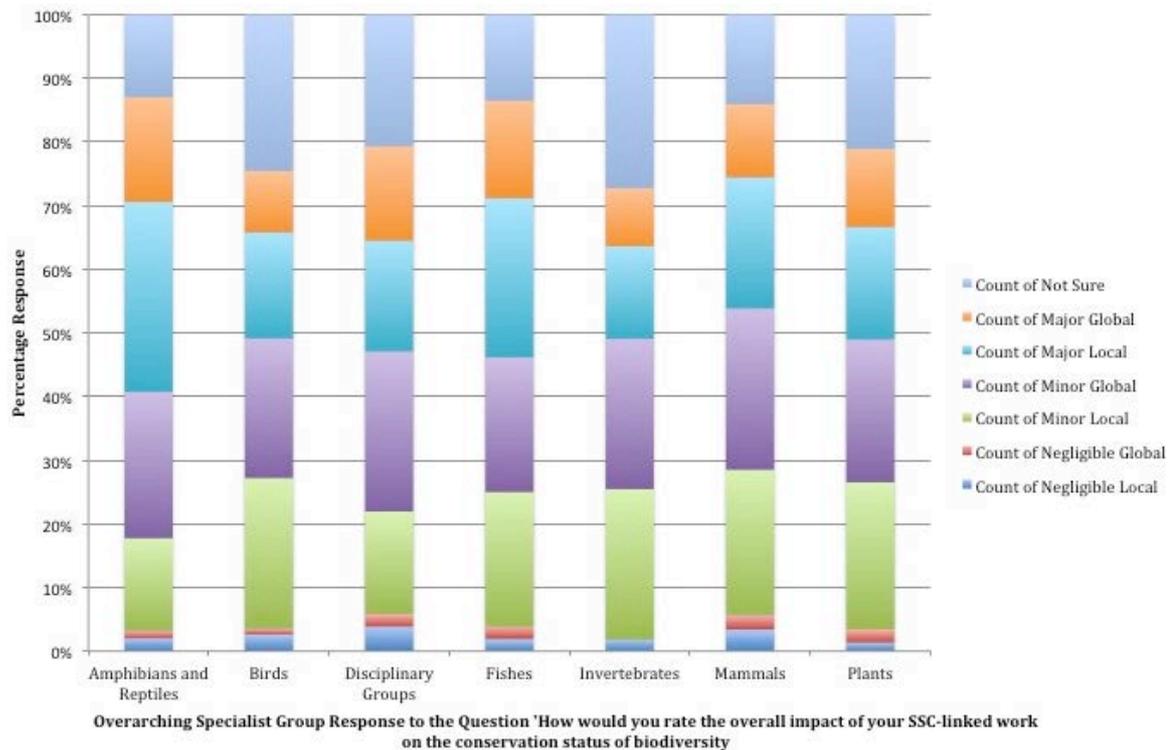


Figure 5: SG response to the scale and breadth impact on the status of biodiversity

391

392

393 Interestingly, a significant association was found between gender and view of
 394 impact ($X^2=12.286$, $df=4$, $p=0.015$). Males were more positive about impact than
 395 females, reporting a 20.2% 'yes', compared with 12%. The 'no' response was
 396 recorded as 39.7% for females and 30.8% for males. Just under half of both
 397 groups reported that they did not know either way.

398

399 Theory of Change

400 From these results, we can surmise that the drafted TOC is, as far as possible, an
 401 accurate representation of the processes that lead to the SSC's desired impact.
 402 Less than 11% of the respondents provided the response of 'other' for any of the
 403 categories 'activity', 'output' or 'outcome'. This suggests that we had accurately
 404 covered the majority of options in each case.

405 **DISCUSSION**

406 Complexities associated with conducting impact assessments (Ferraro &
407 Pattanayak, 2006) have been reflected in these results. The TOC that was
408 developed attempted to alleviate these complexities and simplify the process by
409 guiding the direction of the analysis towards how an impact is achieved. This
410 was, in part, because of the scale and breadth of the SSC. The total response rate
411 of 11.5% provided us with a good representative sample, with responses from
412 almost 85% of the total SGs. This is the largest response rate from any study
413 conducted on the SSC to date.

414

415 Although results prove the TOC to be correct in its design, it is important to
416 gauge whether it is working in practice with detailed case studies (Funnell &
417 Rogers 2011), ensuring the TOC is both practicable and indeed happening.

418

419 **Factors affecting perception of impact**

420 Although no significant link was found with overarching SG, Bird SGs had the
421 lowest positivity of impact, and also had the lowest response rate. Amphibians
422 and Reptiles SGs alternatively, were the most positive. One reason could be that
423 Bird SGs are less reliant on the SSC for additional support due to the strength of
424 organisations such as BirdLife International. Amphibian SGs may not have the
425 same external platform of global support, and so rely more on the SSC. It would
426 be interesting to look at this in more depth and see what caused this discrepancy.

427

428 The overall low response to there being an impact as a result of activities could
429 be due to the definition of impact put forward not being a true reflection of what

430 some SGs are able, or striving to achieve. For example, there may be species with
431 declining populations, regardless of input from the SSC. In this instance, the
432 conservation goal is likely to be different. Furthermore, a number of Disciplinary
433 Groups do not work across taxonomic groups, so do not specifically target single
434 species. The Sustainable Use and Livelihoods SG for example promotes
435 conservation and sustainable livelihoods, so they will not have such a species-
436 specific goal. As Stem et al (2005) argue, conservation impact is as hard to define
437 as it is to measure.

438

439 A trend was highlighted between gender and view of impact, with males being
440 more positive than females. There is not enough data from my results to
441 speculate why this is happening, but due to the trend, it is certainly a potential
442 area of further research. It could be that males have been members of the SSC for
443 longer, or as discussed by Spooner et al (2015), is it indicative of gender issues
444 within conservation?

445

446 Leadership is not something we set out to investigate, but it became apparent
447 that a number of responses linked their view of the SSC's impact to the SG
448 leadership. Numerous comments echoed the sentiment "active and engaged
449 leaders are fundamental to having an effective group". On the other hand, a
450 dissatisfied member argues his SG has been "...hamstrung by poor leadership
451 and exclusionary leadership policies. As such, the best work on the species is
452 occurring outside the SSC and has been so for some time". Although not
453 necessarily a reflection of an entire SG, respondents went out of their way to

454 mention 'leadership' and so it should not be dismissed. As discussed by Black &
455 Copsey (2014) perhaps conservationists need a new method of leadership.

456

457 My results indicate that the longer an individual is a member of the SSC, the more
458 chance they have of observing an impact as a result of the activities they have
459 carried out. Wider research conducted on the interrelationship between these
460 two factors has indicated a wait of 16.3 years before an impact is observed
461 (Young et al, 2014). It can be surmised that it takes a very long time to achieve an
462 impact, which could explain why some members had not yet seen an impact.
463 This is also in addition to uncontrollable factors that play a role in conservation
464 interventions as highlighted by Margoluis et al. (2008). Conservation is by no
465 means a straightforward task, but members of SSC must be seeing some benefit
466 to remain a member for over 30 years.

467

468 **SSC: A platform for members to make a greater contribution?**

469 Individuals join SSC for overwhelmingly positive reasons, aiming to benefit
470 conservation as a whole. This suggests that SSC has a reputation as being a force
471 for good. Although the impact perceived by many respondents is not "impact" as
472 defined by the TOC (more an 'outcome') a majority still perceive themselves to
473 be better placed to achieve an impact because of SSC. These outcomes may not
474 conform to SSC's strategic targets, but it certainly does suggest that SSC is only
475 adding to a member's ability to have an impact, both on a local and a global scale.

476

477 For the individual, the networking opportunities SSC offers are invaluable.
478 Members are given access to knowledge sharing that is unrivalled in any other

479 voluntary or non-voluntary conservation organisation (Rabb & Sullivan, 1995;
480 Holdgate, 1999). This is what the IUCN prides itself on, and numerous
481 respondents referred to the networking opportunities throughout this research.
482 Opportunities given were not just internal, but with contacts in governments and
483 businesses that may not otherwise be accessible. A united and active SG that
484 utilises these links will arguably have more chance of achieving an impact. SSC
485 should continue to build on this, and perhaps share lessons across the
486 conservation field to maximize potential conservation impact.

487

488 Despite this, 23.5% of respondents were unable to say their SSC-linked work had
489 impacted the status of biodiversity on either a local or global scale. Location of
490 occupation appeared to have an effect on the ability of members to achieve an
491 impact. Countries in South America and Central Africa, for example, were
492 highlighted as receiving little support or funding for conservation from SSC. This
493 is something that should be investigated in more depth by SSC to continue to
494 strengthen the network.

495

496 Previous research highlighted a lack of capacity for M&E within the SSC (Bruszt
497 & Turner 2000). Moving forward, the SSC could look to change this, by
498 developing a universal M&E framework using the TOC. A common theme in the
499 results was the amount of time required to conduct SSC-specific work,
500 consequently the framework should be as simple and user-friendly as possible.
501 The aim of the M&E framework would be to clearly present progress towards a
502 target following a TOC-style setup. SGs and therefore the SSC as a whole would
503 be able to document their progress in a visual way, by tracking the activities they

504 have commenced, and keeping track of the consequences of those activities. This
505 would allow the individual SG's, and the SSC's steering committee to track and
506 monitor if these activities were genuinely contributing to achieving conservation
507 targets.

508

509 This is perhaps an idea that could be developed and trialed by selected SGs to see
510 if it works in practice, or whether adaptations will make it workable. The idea
511 would be for SGs to work to their own targets, whilst contributing to the overall
512 SSC targets specified in the 3-year Strategic Plan, and would ultimately form an
513 auditable trail.

514

515 **Is the SSC achieving its desired impact?**

516 The results here suggest the SSC is not close to achieving its overall goal of
517 'halting biodiversity loss'. Only 2% of respondents report a genuine impact in
518 line with the proposed TOC. There are multiple factors affecting this, across SGs
519 and at individual level. However, the SSC is enhancing the individual members'
520 contribution to conservation as a whole. Networking and knowledge-sharing
521 capabilities are its strength, and members do report a high number of outputs
522 and outcomes from activities that may ultimately lead to an impact. Therefore
523 the SSC is definitely making positive changes within conservation, but there
524 needs to be sound M&E capability established to monitor this more effectively
525 going forward, allowing it to provide clear evidence for its additional impact, in
526 relation to a clear counterfactual.

527

LITERATURE CITED

2013. IUCN Species Strategic Plan 2013-2016. IUCN, Switzerland. Available: https://cmsdata.iucn.org/downloads/2013_2016_species_strategic_plan_final.pdf. (accessed April 2016).

2014. Welcome to the IUCN Species Survival Commission. IUCN, Switzerland. Available from http://cmsdata.iucn.org/downloads/welcome_to_the_iucn_species_survival_commission_2013_2016_rev1.pdf (Accessed May 2016)

2015. 2014 Annual Report of the SSC. IUCN, Switzerland. Available from: <https://portals.iucn.org/library/sites/library/files/documents/2015-024.pdf> (Accessed April 2016)

Black SA, Copsey JA. 2014. Does Deming's "System of Profound Knowledge" apply to leaders of biodiversity conservation? *Open Journal of Leadership* **3**:53-65

Black SA, Groombridge JJ. 2010. Use of a business excellence model to improve conservation programs. *Conservation Biology* **24**: 1448-1458

Black SA. 2015. A clear purpose is the start point for conservation leadership. *Conservation Letters* **8**:383-384

Brechin SR, et al. 2002. Beyond the square wheel. *Society and Natural Resources* **15**:41-64

Christensen J. 2003. Auditing conservation in an age of accountability. *Conservation in Practice* **4**: 12-18

Crees JJ, et al. 2016. A comparative approach to assess drivers of success in mammalian conservation recovery programs. *Conservation Biology* **00**: 1-12

Ferraro PJ, Pattanayak SK. 2006. Money for nothing? A call for empirical evaluation of biodiversity conservation investments. *PLoS Biology* **4** (supplement 4): e105

Ferraro PJ. 2009. Counterfactual thinking and impact evaluation in environment policy. *New Directions for Evaluation* **122**:75-84

Funnell SC, Rogers PJ. 2011. Purposeful program theory: effective use of theories of change and logic models. Jossey-Bass, San Francisco

Hoffmann M, et al. 2010. The impact of conservation on the status of the world's vertebrates. *Science* **330**:1503-1509

- Holdgate M. 1999. *The Green Web*. Earthscan Publications, London
- Kapos V, et al. 2008. Calibrating conservation: new tools for measuring success. *Conservation Letters* **1**:155-164
- Kapos V, et al. 2010. Defining and measuring success in conservation. Pages 73-93 in Leader-Williams N et al. *Trade-offs in conservation: deciding what to save*. Wiley-Blackwell, Chichester
- Kleiman DG, et al. 2000. Improving the evaluation of conservation programs. *Conservation Biology* **14**:356-365
- Margoluis R, Stem C, Salafsky N, Brown M. 2009. Design alternatives for evaluating the impact of conservation projects. *New Directions for Evaluation* **122**:85-96
- Margoluis R, Stem C, Salafsky N, Brown M. 2009. Using conceptual models as a planning and evaluation tool in conservation. *Evaluation and Program Planning* **32**:138-147
- Price MRS. 2001. Voluntarism in the SSC of IUCN, the World Union. IUCN, Switzerland. Available from <https://portals.iucn.org/library/node/45969>. (accessed May 2016)
- Pullin A, Knight TM. 2009. Doing more good than harm – building an evidence-base for conservation and environmental management. *Biological Conservation* **142**:931-934
- Rabb GR, Sullivan TA. 1995. Coordinating conservation: global networking for species survival. *Biodiversity and Conservation* **4**: 536-543
- Rogers, P. 2014. *Theory of Change, Methodological Briefs: Impact Evaluation 2*. UNICEF Office of Research, Florence.
- Rondinini C, Rodrigues ASL, Boitani L. 2011. The key elements of a global mammal strategy. *The Royal Society* **366**:2591-2597
- Saterson KA, Christensen NL, Jackson RB, Kramer RA, Pimm SL, Smith MD & Wiener JB. 2004. Disconnects in evaluating the relative effectiveness of conservation strategies. *Conservation Biology* **18**: 597-599
- Spooner F, Smith RK, Sutherland WJ. 2015. Trends, biases and effectiveness in reported conservation interventions. *Conservation Evidence* **12**:2-7
- Stem C, Margoluis R, Salafsky N, Brown M. 2005. Monitoring and evaluating in conservation: a review of trends and approaches. *Conservation Biology* **19**: 295-309
- Turner SD, Bruszt G. 2000. Review of IUCN Commissions. IUCN, Switzerland. Available from: https://www.iucn.org/downloads/ext_review_iucn_commissions.pdf. (Accessed June 2016)

Turner SD. 2000. Review of the Species Survival Commission. IUCN, Switzerland. Available from https://www.iucn.org/downloads/ssc_review_report_final.pdf (accessed June 2016)

Wagner K, Chessler M, York P, Raynor J. 2009. Development and implementation of an evaluation strategy for measuring conservation outcomes. *Zoo Biology* **28**:473-487

Washington H, Baillie J, Waterman C, Milner-Gulland EJ. 2014. A framework for evaluating the effectiveness of conservation attention at the species level. *Oryx* **49**:481-491

Wilder L, Walpole P. 2008. Measuring social impacts in conservation: experience of using the Most Significant Change method. *Oryx*: **42** (4): 1-10

Young RP, Hudson MA, Terry AMR, Jones CG, Lewis RE, Tatayah V, Zuël N, Butchart SMH. 2014. Accounting for conservation: Using the IUCN Red List Index to evaluate the impact of a conservation organization. *Biological Conservation* **180**: 84-96

SUPPORTING INFORMATION

Full TOC (Appendix S1), Questionnaire (Appendix S2), KII list (Appendix S3), interview structure and themes (Appendix S4) and additional results and findings (Appendix S5) are available online. The authors are solely responsible for the content and functionality of these materials. Queries (other than absence of the material) should be directed to the corresponding author.

S1: Full Theory of Change

Stage	List	Measurable Indicators	Assumptions
Inputs ↓	Time Expertise Funding Resources		<ul style="list-style-type: none"> Funding from the IUCN provides a support structure for the SSC as a whole. Members are willing and able to put in time and expertise to the SSC.
<i>INPUTS ARE REQUIRED FOR THE ACTIVITIES TO HAPPEN</i>			
Activities (on behalf of the SSC or individual Specialist Groups) ↓	<p>Science Conducting IUCN Red List Assessments Establishing a conservation strategy or action plan Conducting research funded by, or on behalf of the IUCN SSC</p> <p>Representation At international conventions Attending internal Specialist Group meetings Attending external Specialist Group meeting</p> <p>Action Fundraising for a field-based conservation project Implementation of projects or recommendations in an IUCN action plan Promoting rapid action to deal with an urgent conservation issue</p> <p>Dissemination Authoring a scientific paper Authoring a newsletter or website Authoring a report Input to IUCN SSC social media Media outreach Contributing to the development of IUCN SSC policies, standards and guidelines Giving a talk on behalf of IUCN SSC</p> <p>Advice to: National Government Business or industry Academic researchers NGOs International conventions</p>	<ul style="list-style-type: none"> Number of Red List Assessments undertaken per Specialist Group, per year. Number of strategies and/or action plans completed and disseminated per year. Number of research projects undertaken per year. Number of members attending conventions Number of conventions/internal meetings/external meetings attended Amount of funding raised Amount of SSC projects receiving funding Number of SSC projects established (by which Specialist Group) Number of recommendations published in action plans Number of urgent conservation issues responded to/ how they were responded to Number of papers published by members representing the SSC Number of websites set up, by which SG Number of newsletters published per SG per year Number of reports published Number of active social media accounts per SG Number of articles published by external parties about the SSC/SGs Number of talks given on behalf of the SSC Keeping a log of the number of meetings/calls with documented external agencies. 	<ul style="list-style-type: none"> Individual activities can be broken down into the stated broader categories, meeting a wide range of specialisms members may have Different activities can lead to different outputs, and therefore different outcomes There is no set route for an activity to follow. One activity may have numerous outputs and outcomes Parties being given advice are receptive to it and willing to make changes – regionally, nationally or internationally SSC members attend conventions and meetings in their capacity as an SSC member Knowledge is shared and disseminated internally throughout the SSC and across Specialist Groups SSC has good public relations capability Specialist Groups have the capacity to set up social media accounts These activities listed are applicable to all 140+ Specialist Groups

Stage	List	Measurable Indicators	Assumptions
<i>ALL OF THE ABOVE ACTIVITIES CAN LINK TO ANY OF THE BELOW OUTPUTS (there is not <u>one</u> set path for one activity to follow to reach impact)</i>			
Outputs 	<p>Science, knowledge and understanding Improved scientific knowledge of the species Understanding, or quantifying the nature and magnitude of threats to a species Participants attending workshops/meetings gain a clear understanding of IUCN SSC conservation goals Government(s) understand specific IUCN SSC conservation needs and begin the process of implementing changes to policy and/or legislation Increased public awareness</p> <p>Action Increased funding in your area of specialisation and/or for a conservation project on the ground Establishment or improvement of conservation projects on the ground Discussions, or open dialogue established with industry or government bodies resulting from formal intervention (e.g. writing a letter to government bodies)</p>	<ul style="list-style-type: none"> • Number of species/ ecosystems for which research/ data collection has led to additional species knowledge • Number of threats identified, for which species/ ecosystem? Can plans now be put in place to address these? • Number of social media hits reacting to a workshop/meeting • Total amount of funding raised and where it is being directed (to what SSC project/ cause) • Number of social media follows/ number of requests for quotes/ number of interviews requested • Number of governments/ cases being worked on with governments to begin implementing policy changes • Number of conservation projects established with SSC guidance/ funding • Number of agencies dialogue has been established with to address an intervention 	<ul style="list-style-type: none"> • Compelling and detailed scientific evidence is produced and presented to defend a change in policy. • Threats are identifiable and the scale can be quantified • Plans can begin to form in order to address threats • Government officials working with SSC representatives have the authority to begin the process of making change at a national, or international level • Funding is able to come in (perhaps through an associated partner, i.e. a zoo as Specialist Groups are not legal entities, or from internal SSC funds) • SSC members/ specialist groups have the capacity to improve or establish conservation projects on the ground • Industry representatives respond in some way to formal correspondence.
<i>ALL OF THE ABOVE OUTPUTS CAN LINK TO ANY OF THE OVERLEAF OUTCOMES (there is not <u>one</u> set path for one output to follow to reach impact)</i>			

<p>Outcomes</p> 	<p>Policy Changed national policy Changed international policy (including CITES, CMS, World Heritage etc.)</p> <p>Action Protected Area establishment Reduction in identified threats Identified threats become actively addressed by government and/or industry A conservation issue that was identified as part of SSC work is actioned and overcome Research leads to advances in the ability of conservationists/communities/governments etc. to conserve a species Business/industry incorporates your advice into their policy and/or procedures</p>	<ul style="list-style-type: none"> • Number of national and international policies amended with updated data (including Red List data)/ additional conservation knowledge (e.g. on threats) • Number of Protected Areas (including marine and bird) established with SSC contribution, and where they are located • Number and type of threats removed (e.g. invasive rat species identified and removed from island) • Number of cases governments are working with SSC members to address documented threats • Number and type of external parties working with the SSC to address a conservation issue • Number of policies that have SSC conservation knowledge incorporated into their policies • Number of communities, governments, conservationists and organisations that have benefitted from SSC knowledge to better address conservation issues 	<ul style="list-style-type: none"> • Outcomes that arise achieve the desired goal – e.g. national policy changes put in place are effective and monitored by government. • There is a lack of government corruption enabling outcomes to happen • Threats are able to be overcome, and new threats do not emerge to uproot previous work • Research can be effectively implemented in practice to benefit the situation of conservation on the ground • Changes can be made at the community-level, as well as at government and industry level. • Businesses are committed to making a positive environmental change and incorporate SSC advice into their policy going forward, leading to a behavior change.
<p>Impact</p>	<p>A genuine improvement in either the population or Red List status of a species</p>	<ul style="list-style-type: none"> • Number of species that have recovered, been down-listed from the Red List. • Data is up to date and confirms this • Documented list of species to which this applies • Documentation of the length of time taken to achieve this (when did SSC conservation work commence to achieve this) • What activities resulted in this positive change? 	<ul style="list-style-type: none"> • Foundations have been laid from the all of the previous stages to enable the support of successful species population growth

S2: Questionnaire to Species Survival Commission Members

Q1 (Not A Question)

Dear Species Survival Commission member,

The IUCN Species Survival Commission (SSC) is conducting a survey to get a better understanding of the impact of the SSC and its members. To facilitate independence in analysing the results, the survey is being undertaken in collaboration with Imperial College London, led by Jennifer Christelow.

As a member of the SSC, your input into this survey is critical, as the information produced will allow us to understand the time members are spending on SSC activities, outputs resulting from these activities, and the impacts you have seen happening. We hope also to be able to identify areas where improvements can be made in the performance of the SSC.

The survey should take around **20 minutes** of your time. It is available in English, Spanish and French. All data collected will be collected and reported completely anonymously, so please do answer the questions as frankly as possible.

If you would like further information, or would like to add any additional comments, please contact Jennifer (Jennifer.christelow15@imperial.ac.uk).

Thank you in advance for your time and input. The survey will remain open until **Sunday 17th July 2016**.

Q2 How many years have you been a member of the Species Survival Commission (SSC)?

- Less than a year (1)
- 1 - 5 years (2)
- 6 - 10 years (3)
- 11 - 15 years (4)
- 16 - 20 years (5)
- 21 - 25 years (6)
- 26 - 30 years (7)
- 31 years and above (8)

Q3 Which Specialist Group(s), Task Force(s), Sub-Committee(s), or Disciplinary Group(s) are you currently a member of? Please list all groups below in order of your level of engagement with them (in decreasing order):

- Group 1: (1) _____
- Group 2: (2) _____
- Group 3: (3) _____
- Group 4: (4) _____
- Group 5: (5) _____
- Group 6: (6) _____
- Group 7: (7) _____
- Group 8: (8) _____
- Prefer not to say (9)

Q4 What is your motivation for being a member of the Species Survival Commission? Please select all that apply:

- Gives me greater influence nationally (1)
- Gives me greater influence internationally (2)
- Gives me greater access to information about my species (3)
- Gives me networking opportunities with other conservationists (4)
- Gives me access to information about events and publications (5)
- Prestige (6)
- Other, please specify: (7) _____
- I do not know (8)
- Prefer not to say (9)

Q5 Which one of the options below best describes the sector you work in?

- Private sector (1)
- NGO (2)
- Academic or education (3)
- Government (4)
- Professional, scientific or technical services (5)
- Other, please specify (6) _____
- I do not know (7)
- Prefer not to say (8)

Q6 Which one of the options below best describes your current occupation outside of SSC membership?

- CEO or other (1)
- Director (2)
- Administrator (3)
- Senior Manager (4)
- Junior Manager (5)
- Consultant (6)
- Researcher (7)
- Technical Staff (8)
- Field Conservationist (9)
- PhD Student (10)
- Unemployed (11)
- Retired (12)
- Other, please specify: (13) _____

Q7 What is your current age?

- Under 25 (1)
- 26 - 35 (2)
- 36 - 45 (3)
- 46 - 55 (4)
- 56 - 65 (5)
- Over 65 (6)

Q8 Are you male or female?

- Female (1)
- Male (2)
- Prefer not to say (3)

Q9 What is your nationality?

- Please state: (1) _____
- Prefer not to say (2)

Q10 Do you hold any of the following positions within the SSC? Please select all that apply:

- Sub-committee Chair (1)
- Specialist Group Chair or Task Force Chair (2)
- RLA Coordinator (3)
- Member of the SSC Steering Committee (4)
- Prefer not to say (5)

Q11 How much time have you dedicated, over the last 12 months, to activities which are directly related to your role as an SSC member (e.g. attending SSC meetings, Red List assessments, IUCN reports or missions)

- Up to 1 day (1)
- Up to 1 week (2)
- Up to 2 weeks (3)
- Up to 1 month (4)
- More than 1 month (5)
- I do not know (6)

Q12 In the past 12 months, what activities have you been involved in in your role as an SSC member. Please select all that apply:

- Science: Conducting IUCN Red List Assessments (1)
- Science: Establishing an IUCN SSC-branded Conservation Strategy or Action Plan specific to a species in the remit of your Specialist Group(s) (2)
- Science: Conducting research funded by, or on behalf of IUCN (3)
- Representation: Representing IUCN at international conventions (e.g. CITES, CBD, CMS) (4)
- Representation: Attending an internal Specialist Group workshop or meeting (5)
- Representation: Attending an external meeting or workshop on behalf of IUCN (please specify) (6) _____
- Action: Formal intervention (e.g. writing letters to government bodies or industries) in your IUCN SSC role (7)
- Action: Fundraising for a field-based conservation project (8)
- Action: Implementation of projects or recommendations in an IUCN action plan (9)
- Action: Promoting rapid action to deal with an urgent conservation issue (10)
- Dissemination: Authoring a scientific paper based on SSC work (11)
- Dissemination: Authoring a newsletter or website contribution for your Specialist Group(s) (12)
- Dissemination: Authoring a report based on SSC work (13)
- Dissemination: Contribution to social media in your IUCN SSC capacity (14)
- Dissemination: Media outreach (including interviews and press releases) (15)
- Dissemination: Contributing to the development of IUCN SSC policies, standards and guidelines (16)
- Dissemination: Giving a talk on behalf of IUCN SSC (17)
- Advice: to national Government (18)
- Advice: to business or industry (19)
- Advice: to academic researchers (20)
- Advice: to NGOs (21)
- Advice: to international conventions (22)
- Other, please specify (23) _____
- None of the above (24)
- I do not know (25)

Q13 Have the activities you have carried out in your role as an SSC member had any of the following outputs (immediate results achieved after conducting an activity)? Please select all that apply:

- Improved scientific knowledge of the species (1)
- Understanding, or quantifying the nature and magnitude of threats to a species (2)
- Participants attending workshops/meetings gain a clear understanding of your IUCN SSC conservation goals (3)
- Government(s) understand your IUCN SSC conservation needs and begin the process of implementing changes to policy and/or legislation (4)
- Increased public awareness (5)
- Increased funding in your area of specialisation and/or for a conservation project on the ground (6)
- Establishment or improvement of conservation projects on the ground (7)
- Discussions, or open dialogue established with industry or government bodies resulting from formal intervention (e.g. writing a letter to government bodies) (8)
- Other, please specify: (9) _____
- I do not know (10)
- Prefer not to say (11)

Q14 Have the activities you have carried out in your role as an SSC member led to any of the following outcomes (long-term results) throughout your time as a member of the SSC? Please select all that apply:

- Changed national policy (1)
- Changed international policy (including CITES, CMS, World Heritage etc.) (2)
- Protected Area establishment (3)
- Reduction in identified threats (4)
- Identified threats become actively addressed by government and/or industry (5)
- A conservation issue that was identified as part of your SSC work is actioned and overcome (6)
- Research leads to advances in the ability of conservationists/communities/governments etc. to conserve a species (7)
- Business/industry incorporates your advice into their policy and/or procedures (8)
- Other, please specify (9) _____
- I do not know (10)
- Prefer not to say (11)

Q15 Have any of the activities in which you have been involved as an SSC member led to a genuine improvement in either the population or Red List status of a species, which would not have been possible without your involvement in the SSC?

- Yes (1)
- No (2)
- I do not know (3)

Q16 If you answered 'yes' to the above question: Please provide an example and briefly describe how this was achieved, and how the SSC facilitated it/what the SSC's role was:

Q17 Please identify the single most influential activity you have carried out in your time as an SSC member, which you would not have undertaken if you had not been a member of the SSC. Please indicate when it was and why it was particularly influential.

- Please provide response in the box: (1) _____
- I do not know (2)
- Prefer not to say (3)

Q18 Thinking back over your time as a member of the SSC, how would you rate the overall impact of your SSC-linked work on the conservation status of biodiversity?

Please select all that apply:

- Negligible or negative impact locally (1)
- Negligible or negative impact globally (2)
- Minor impact locally (3)
- Minor impact globally (4)
- Major impact locally (5)
- Major impact globally (6)
- Not sure (7)
- Prefer not to say (8)

Q19 Do you feel that being a member of the SSC has enhanced or hindered your ability to have conservation impact, compared with if you had not been a member?

- Significantly enhanced my conservation impact (1)
- Enhanced to some extent (2)
- Neither hindered, nor enhanced my conservation impact (3)
- Hindered to some extent (4)
- Significantly hindered my conservation impact (5)
- I do not know (6)
- Prefer not to say (7)

Q20 Please list up to three (3) examples of how your SSC membership has enhanced your ability to make a conservation impact, and that would not have been the case if you had not been a member of the SSC:

- Example 1: (1) _____
- Example 2: (2) _____
- Example 3: (3) _____
- I do not know (4)
- Prefer not to say (5)

Q21 Please list up to three (3) ways your SSC membership has hindered your ability to have a conservation impact, and that would not be the case had you not been a member of the SSC:

- Example 1: (1) _____
- Example 2: (2) _____
- Example 3: (3) _____
- I do not know (4)
- Prefer not to say (5)

Q22 Is there anything you would suggest that would improve the conservation impact and running of the SSC overall, or specifically your Specialist Group(s)? Perhaps your Specialist Group(s) does something well that you would like to share? Please make any additional comments below:

S3: Key Informant Interview Participants

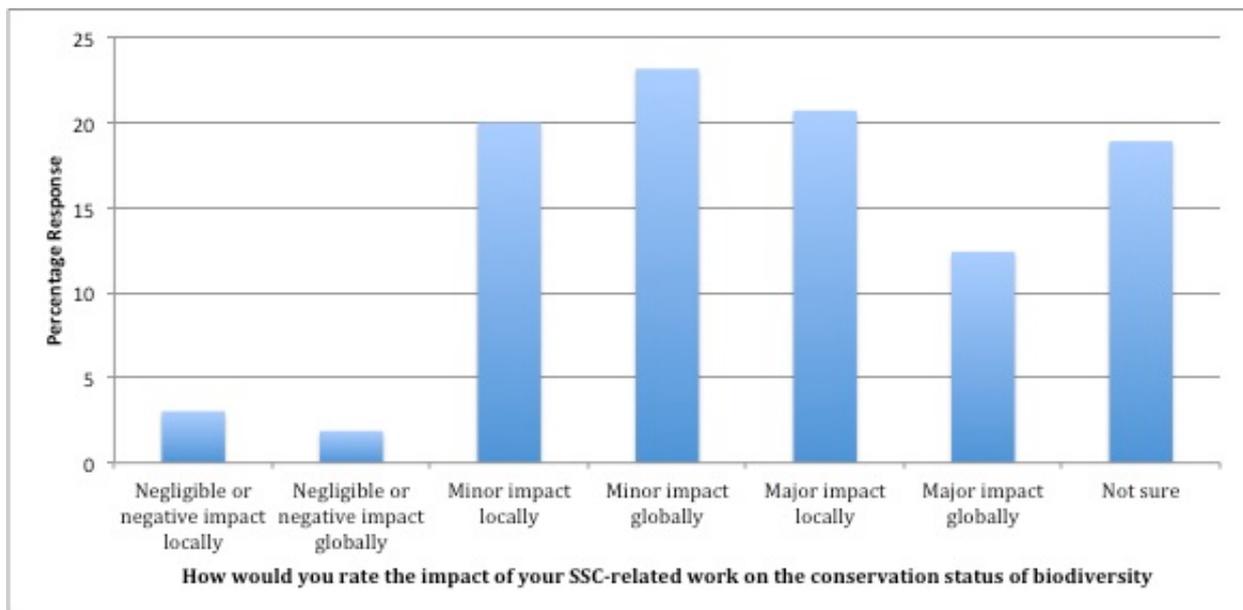
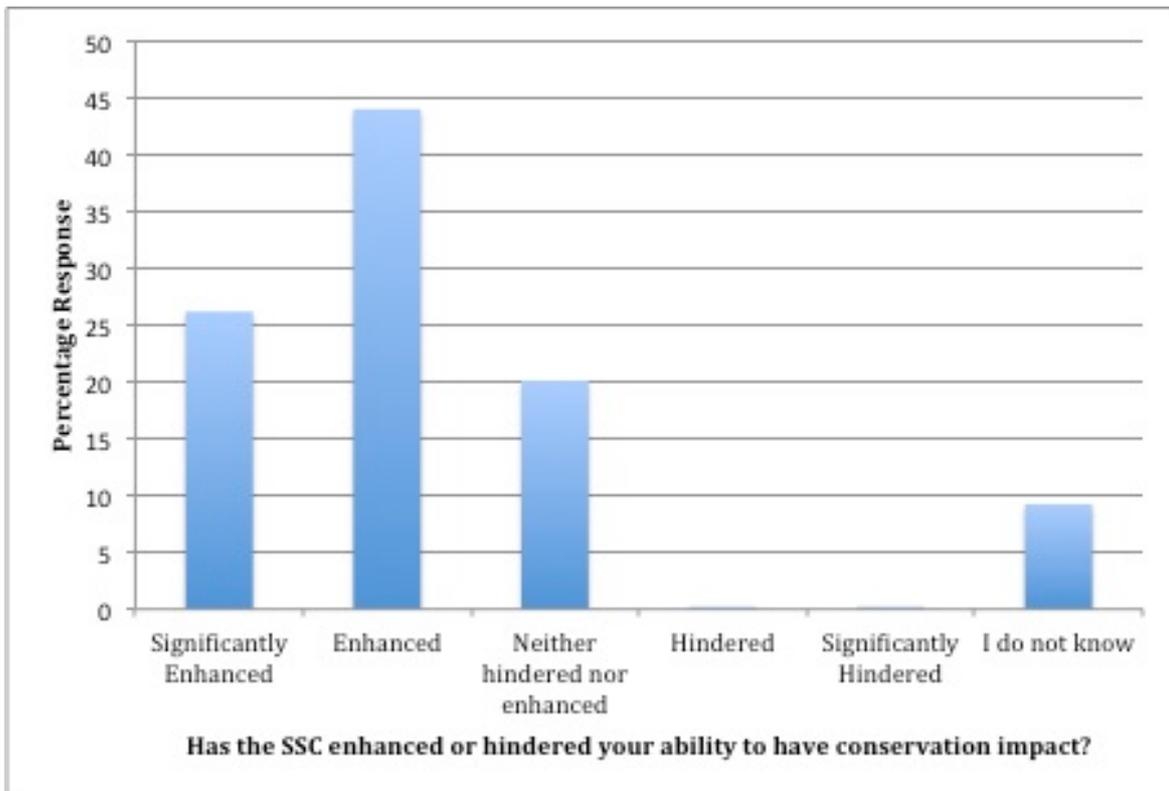
Key Informant Interview Participants	Current Role within the SSC or IUCN Red List Committee
1. Amanda Vincent	Seahorse, Pipefish and Stickleback Specialist Group Chair
2. Ana Rodrigues	Centre d'Ecologie Fonctionnelle et Evolutive, Montpellier. Researcher and Red List expert
3. Barney Long	Global Wildlife Conservation. Asian Wild Cattle Specialist Group member (Saola Working Group)
4. Caroline Pollock	Programme Officer, IUCN Red List Unit
5. Craig Hilton-Taylor	Head of Red List Unit
6. David Keith	Red List of Ecosystems Co-Chair (Commission on Ecosystem Management)
7. David Mallon	Antelope Specialist Group Co-Chair
8. Domitilla Raimondo	Southern African Plant Specialist Group Chair
9. Elizabeth Bennett	WCS Observer on the SSC Steering Committee, Primate Specialist Group member, Candidate for SSC Chair 2016-2020
10. Jane Smart	SSC Steering Committee member and Global Director of IUCN Biodiversity Conservation Group
11. Justin Cooke	Cetacean Specialist Group member
12. Katherine Secoy	National Red List Working Group Chair
13. Lucas Joppa	Red List Informatics Working Group Chair
14. Mark Stanley Price	SSC Steering Committee member and Species Conservation Planning Subcommittee Chair
15. PJ Stephenson	Afrotheria Specialist Group Co-Chair
16. Rajeev Raghavan	Freshwater Fish Specialist Group (South Asia Region) Co-Chair
17. Stuart Butchart	Climate Change Specialist Group Steering Committee, Red List Committee member, Bird Red List Authority member
18. Viola Clausnitzer	Dragonfly Specialist Group Co-Chair
Additional SSC members who provided time to help develop my SSC knowledge	Role within the SSC
1. E.J. Milner-Gulland	Antelope Specialist Group member
2. Jon Paul Rodriguez	SSC Deputy Chair, and Candidate for SSC Chair 2016-2020
3. Mike Hoffmann	Senior Scientific Officer
4. Rachel Hoffmann	SSC Network Coordination Officer
5. Richard Young	Small Mammal Specialist Group Chair
6. Simon Pooley	Crocodile Specialist Group member
7. Simon Stuart	Incumbent SSC Chair

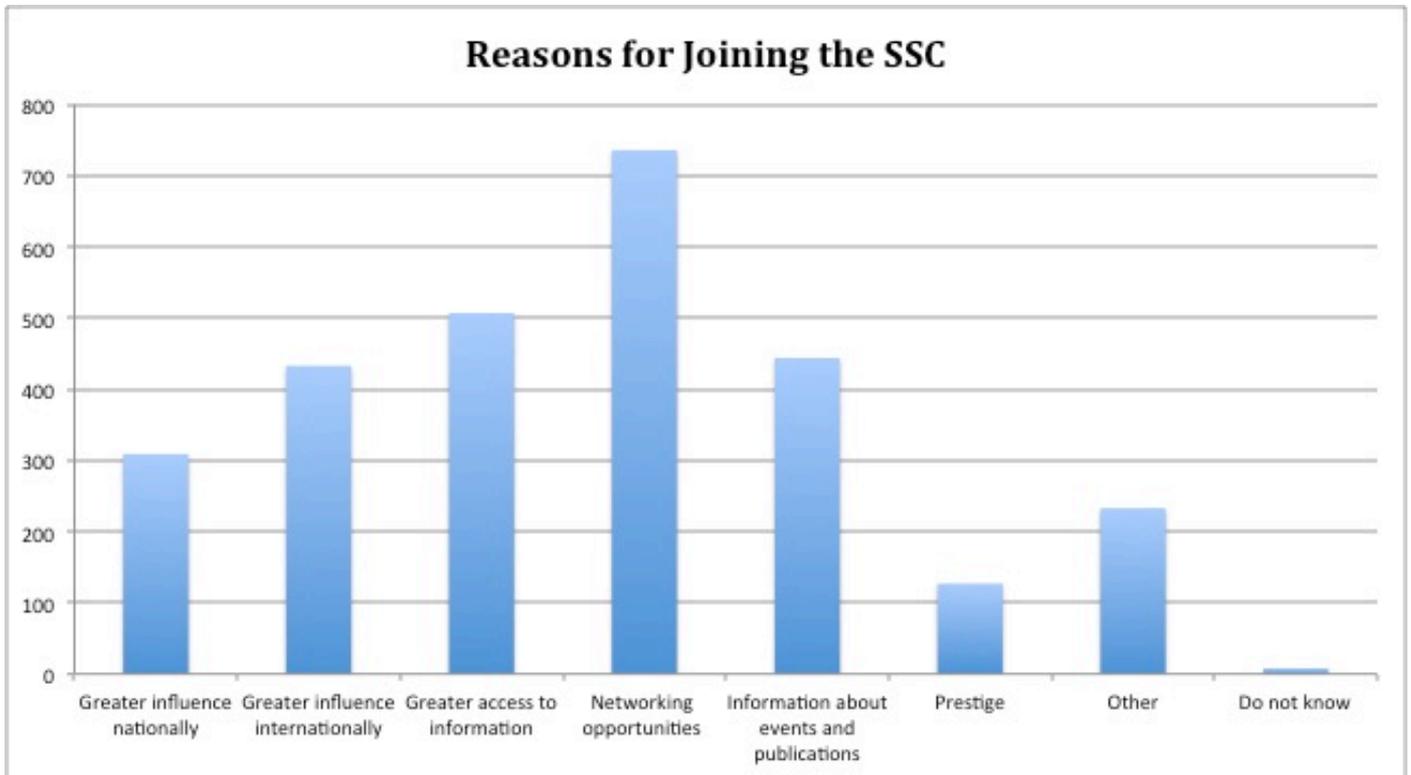
S4: Interview Structure and Themes

- What is your role within the Species Survival Commission/ involvement with the Red List
- What activities do you do for the SSC?
- What is the main goal of the Specialist Group to which you belong? (policy change/ industrial intervention etc.)
- Do you work with external parties, for example governments, other NGOs
- How does your SSC work fit in with your everyday work?
- Why did you join the SSC?
- What do you think are the benefits?
- Is there anything about the SSC you think does not work?
- Is there anything you would like to find out from the results of this research?

S5: Additional Results and Findings

The following results form a brief overview of responses to questions. Many more analyses were conducted to find interrelations and trends between responses. I wanted to get the most out of these results as possible, but some of those results do not translate well in graph format. For this reason, in my Supplementary Information, I present simple and effective findings that give the best overview from respondents, and best show any additional trends:

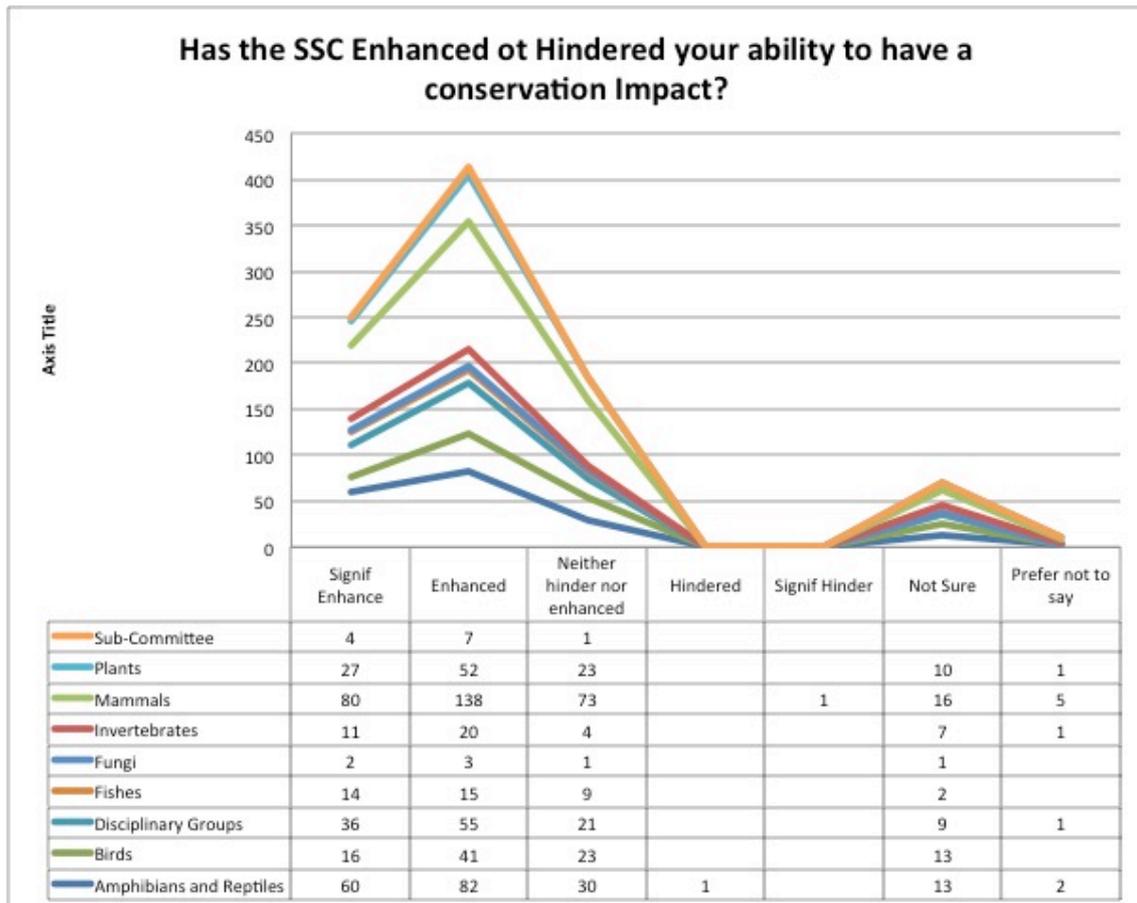




Count of Overarching Groups			
Groups	Questionnaire Respondents	Membership (as stated in the IUCN database)	Response Rate by group (%)
Amphibians and Reptiles	188	2027	9.27
Birds	93	2561	3.63
BLANK (unspecified)	107	N/A	N/A
Disciplinary Groups	122	1870	6.52
Fishes	40	641	6.24
Fungi	7	74	9.46
Invertebrates	43	549	7.83
Mammals	313	3152	9.93
Plants	113	1458	7.75
Sub-Committee	12	464	2.59
Grand Total	1038	12940	(7.02% Average)

The above table displays the actual number of responses received in comparison with the response rate as a percentage of the total overarching Specialist Group membership

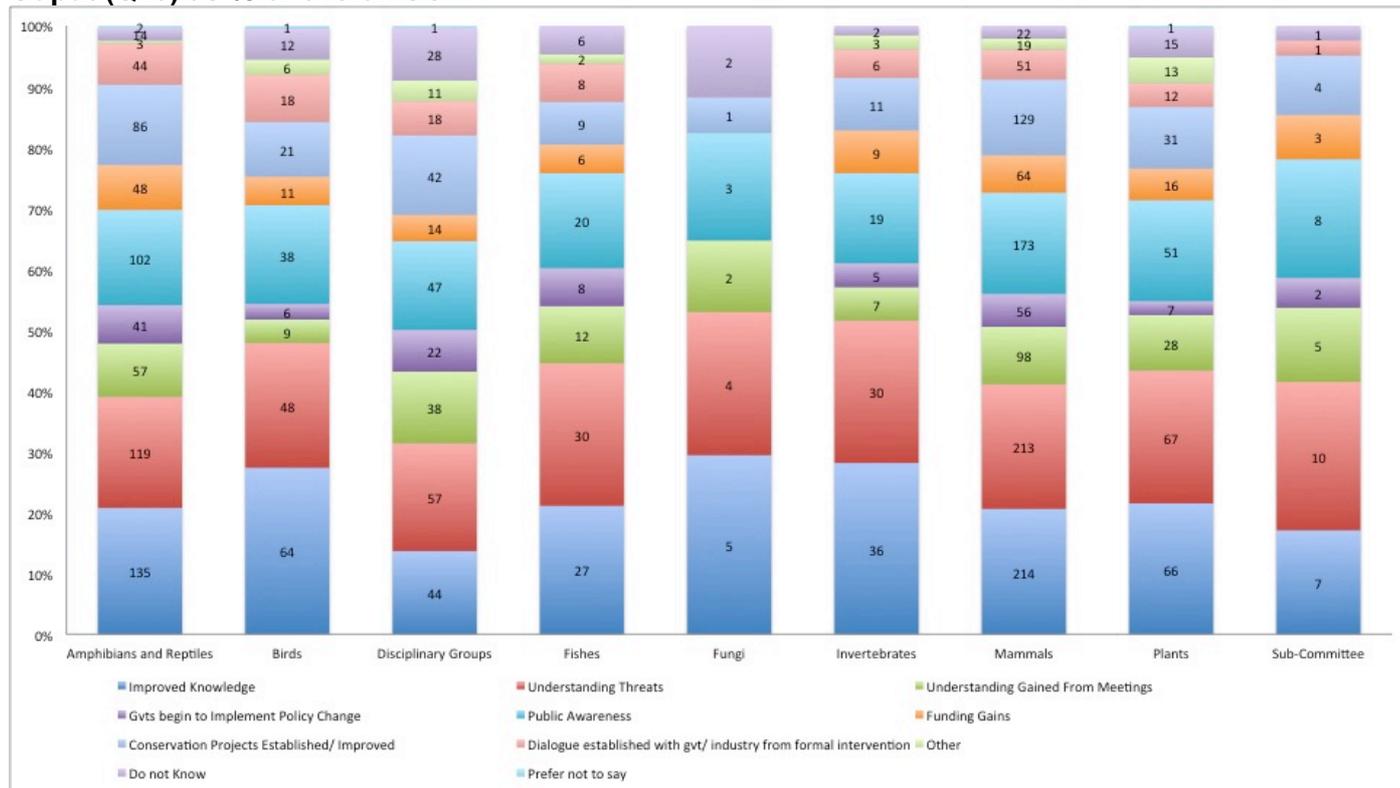
Overarching Group response to the question of whether the SSC has enhanced or hindered the conservation impact of its members



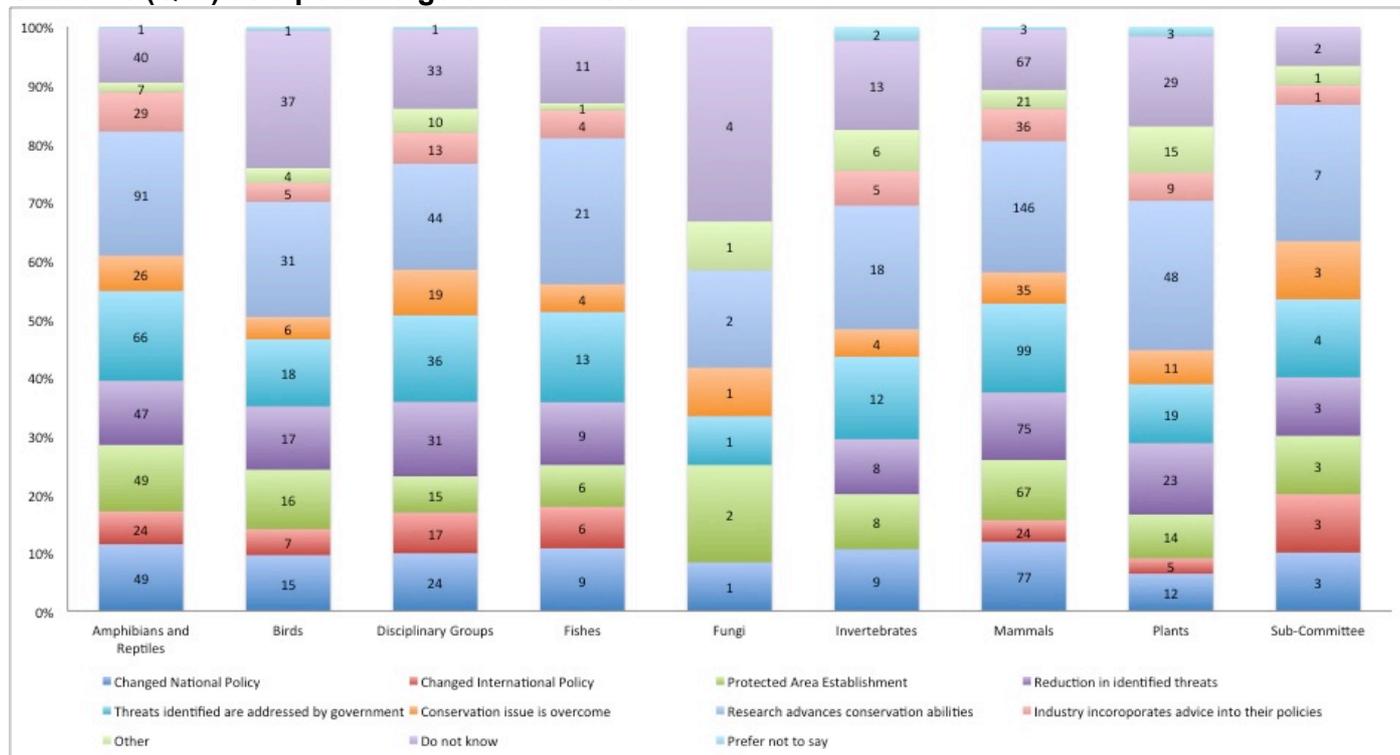
- Across all groups, the majority of members agree that the SSC has either enhanced or significantly enhanced their conservation impact.
- Overall, 70.3% of members said either enhanced or significantly enhanced, whereas less than 1% of people believe SSC membership has hindered or significantly hindered their conservation impact.

Output, Outcome and Impact across overarching Specialist Groups:

Output (Q13) as % of overall SG



Outcome (Q14) as a percentage of overall SG



- Note the increase in 'do not know' responses as output progresses into outcome
- Most popular responses across all groups for Outputs was 'improved knowledge', 'understanding threats' and 'public awareness'