

Abstract

This study builds on Rastogi et al.'s (2013) finding that tiger conservationists share a moral viewpoint despite many other differences. Qualitatively examining the morality of tiger conservation from an interdisciplinary perspective, this finding is replicated for other conservationists. The nature of the moral duty is articulated, its sources and limits defined, and the grounding in affect examined by using thought experiments to test the moral reasoning and intuitions of conservationists. Casting new light on the intrinsic/instrumental environmental ethics debate, and with implications for conservation advocacy, conservationists constitute a moral community. Conservationists prioritise intrinsic over instrumental values, driven by affective neuroscience defined CARE and SEEKING systems oriented at cognitively defined higher order biological systems, but professional instrumentalism leads to "moral dumbfounding" on introspection, and a trend of goal capitulation. Couching conservation arguments primarily in instrumental terms may be perceived as inauthentic and have negative effects for enlarging the conservationist moral community and achieving its aims. A teleological approach to aligning natural science and social science approaches is proposed to empower conservation advocacy and ground effective persuasion.

1. INTRODUCTION

According to the *International Union for Conservation of Nature's* (IUCN) Red List of Threatened Species, the tiger (*Panthera tigris*) is critically endangered, with flagship numerical indicia being approximately 3000, (of which perhaps 1000 are breeding females), reduced from estimates of 5000-7000 in the 1990's, a reduction in tiger range of about 50% in three tiger generations, and a present range extending to a mere 7% of its historical range. Of eight morphologically distinct subspecies, three, the Bali, Javan and Caspian tigers are already extinct.

This paper qualitatively examines the question "Why save the tiger?" as a lens through which to view the moral duty, if there is one, for preventing extinction of the tiger in the wild and conserving tiger habitat. It builds on findings by Rastogi et al, (2013) that tiger conservationists share a "moral viewpoint" despite many other differences of view, and accepts his invitation to examine the moral viewpoint from an interdisciplinary perspective in the hope that such an examination might benefit the united organisation of tiger conservationists. The study has implications for conservation and biodiversity projects more generally – if conservation professionals cannot create socially persuasive rationales, either instrumental or intrinsic, to preserve wild tigers, then it follows that it is unlikely that persuasive rationales can be found to preserve species with lower value. Whilst its charisma may have some detrimental effect because the cultural visibility of the tiger is a driver of poaching as well as conservation efforts, its critically endangered status unarguably generates intensive conservation efforts.

The decline of the wild tiger and the unsuccessful conservation attempts to conserve it in the wild have been thoroughly documented - a recent compilation of more than 100 'expert' contributors, Tilson and Nyhus (2010) assessed the biological status of the tiger, conservation efforts, and the economic and political context, and gave a picture that was pessimistic in all aspects.

One fact that seems often to be overlooked is that the tiger has a real propensity to harm people and livestock, and for this reason has been considered a dangerous pest. Tilson and Nyhus report 373,000 reliably recorded human fatalities by tigers, 1800-2009. The authors do not calculate livestock depredations for a comparable period, but 1822 records for Khandesh District, Bombay Residency, accredit 20,000 head of livestock being lost to carnivores, principally tigers, as well as 550 human fatalities (Gouldsbury, 1915). Similarly Madhusudan et al (2003) estimate that in mixed use

forest landscapes 12% of the livestock can be lost to tigers. This toll of fatalities far surpasses that caused by other charismatic carnivores, such as wolves (McNay, 2002).

Walston et al (2010), writing in a year which was the Chinese Year of the Tiger, the International Year of Biodiversity, and the year of the Tiger Summit, argued that focussed conservation strategies can nonetheless be successful in increasing tiger populations if proven methods of wildlife conflict mitigation, wildlife management, law enforcement and scientific monitoring are applied to identified and localised “source sites” that comprise less than 6% of current distribution. This approach is coherent with the empirical literature on the effectiveness of “land-sharing” versus “land sparing” strategies in effecting biodiversity conservation (Phalan, 2011; Hulme, 2013).

In addition to numerous studies of tigers and their habitats, tiger conservationists (perhaps nearly as or more numerous than wild tigers), also have been subjected to enquiry. The conservation values debate is sometimes framed as being between those espousing “intrinsic” values and those espousing “instrumental” values (Justus, 2009; Oksanen, 1997) where the former values biodiversity for its own sake, and the latter, for its importance in maintaining, for example, ecosystem services. Maier (2012) in a comprehensive moral philosophy analysis and ultimate rejection of purported sources of value for biodiversity, lists these as:

“unspecified moral reasons; that it is valuable as a resource; a service provider; as a sustainer of human life; as a key to human health, both as pharmacopoeia and as an inoculation against infection; as the progenitor of human biophilic tendencies; as a generator of (more) value; as font of knowledge; as having option (and quasi-option) value; as transformative; as having experiential value; and as an expression of the natural order.”

Sandbrook (2011) reached the opposite conclusion from Rastogi et al on the desirability of uniting conservationists, stating that the:

“...diversity of values empirically challenges recent proposals for conservation professionals to unite behind a single philosophy. Attempts to forge an artificial consensus may be counterproductive to the overall goals conservation professionals are pursuing.”

This paper adopts Rastogi’s suggestion, arguing that the issue of persuasive conservation values is key where the community expressing conservation values is pursuing ambitious conservation goals, rather than documenting a failure to do so.

Conservation science is an unusual discipline in that the epistemic authority of scientific method is harnessed to an often rather poorly defined end, an end which is value driven. The “conservation institution” cluster of social institutions driven by an emotive and cognitive response to anthropogenic change in the biological environment, yet the traditional view of science is that values are a separate domain. As Feynman aptly states science asks:

““if I do this, what will happen?” ... Questions like, “should I do this?” and “what is the value of this?” are not of the same kind.” (Feynman, 1963).

Offering assistance in exploring the values domain, there is now a considerable experimental literature on the relationship between moral reasoning and moral intuition, and on trade-offs between values and interests, and neuroscience may offer insight into the roots of morality as a social tool and its function in generating integrated social behaviour .

Haidt (2001, 2007) has experimentally determined that moral judgment is more a factor of moral intuition than moral reasoning, and has explored the phenomenon of “moral dumbfounding” where

subjects, presented with hypothetical morally charged fact sets (covering for example, incest or cannibalism), give answers on appropriate conduct that they are unable to articulate a case for on the basis of a morally reasoned “harm” approach, showing that the reasoning (we could call it the instrumental motivation) is often subordinate to the intuitive moral response. Reviewing the relevant literature he proposes a model of morality that is socially functional rather than truth seeking, and which encompasses the evolutionary importance of morality in forming moral communities and cultural institutions.

Tetlock (2003) takes an informative approach to the reconciliation of what he terms “sacred” and “secular” values in a paper where “taboos” are discussed, and in considering the instrumental and intrinsic value divide in environmental ethics, or the stretching of instrumental values to cover non-economic goods like aesthetic or cultural importance, the findings that framing of moral dilemmas is very important in driving outcomes, and that trade-offs are much more easily made when framed either as “routine” or an opposition of two “sacred” values (a “tragic” trade off in his vocabulary) is very pertinent. Tetlock asserts that sacred values, which are said to be incommensurable with secular values, are a universal in human societies with particular institutional and psychological barriers set up to maintain them. DeScioli and Kurzban (2009) consider the social evolutionary functions of morality, and assert that morality is universally rooted in condemnation, with a condemnation avoidant conscience mechanism as its corollary.

Conservation science self-defines as interdisciplinary, linking natural and social sciences.

Accordingly, acting on Rastogi et al’s suggestion that conservationists views’ are subjected to investigation that “saving the tiger” derives from a “moral viewpoint”, and that this is best done by an interdisciplinary study, it is of interest to see if Rastogi et al’s finding that there is a high level of agreement amongst conservationists that saving the tiger is a moral duty is replicable.

Second, it is necessary to unpack what respondents mean by a “moral duty”, what its limits are (is it absolute or conditional, and if the latter, upon what factors?) and what the source of that moral duty is and how it relates to other moral duties.

Third, it would be practically helpful to synthesise the responses in such a way as to reach conclusions that would help to define a coherent research path forward which would benefit conservation goals.

In many ways, “*Why Save the Tiger? They Scratch*” is a fool’s question – but as noted by Feynman:

“In talking about the impact of ideas in one field on ideas in another field, one is always apt to make a fool of oneself. In these days of specialization there are too few people who have such a deep understanding of two departments of our knowledge that they do not make themselves fools of themselves in one or the other.”

Yet it seems unproductive to add to the florid elaboration of neologisms that often characterises biodiversity values discourse (for example, Wilson coined “biophilia” in 1984 which was taken up as a concept by many others including Simaika and Samways (2010), and others have ventured the “conservation ethic” (Sagoff, 2007)) or “land ethic” (O’Neal, et al., 1995). This paper will explore if behind the cognitive value concepts often used there are common affects; are the confusing plethora of biodiversity values concepts a cognitive mask for affect, and if so how can this help in defining a research agenda?

2. METHOD

This paper seeks to explore the affective components underlying the values expressed by informants. Values are cognitive elements which may interact with or produce or be produced by affective arousal, and the interaction between underlying motivational affective systems and how these parlay into cognitive symbolism, and institutions and collective human action, is capable of empirical examination. This paper utilises the affective neuroscience approach of Panksepp (1998) who conducted and reviewed extensive animal research with a view to casting light on emotional systems in the human "BRAINMIND" he neologises. His essential insight, which is opposed to behaviourism (Watson, 1994), though aligned with earlier thinking about emotions and values by writers from Hume (1739), to Smith (1759), to Darwin (1872), is to place the internal reward and punishment experiences of affect squarely at the centre of mammalian mental life. He follows MacLean (1990) who visualised brain anatomy from an evolutionary perspective as a triune organ, consisting of (a) the basal ganglia (the reptilian brain) responsible for amongst other things some crude motor responses; (b) the limbic system (the mammalian brain), which amongst other things elaborates emotional responses common to mammals and (c) the neomammalian brain, which is where learning/cognition and rational thought are organised, and which is particularly highly developed in humans.

Panksepp's work focusses on an empirical study of affect, developing an evidence driven taxonomy for primary emotional systems distinctly identifiable as linked to particular anatomies or neurochemistries or combinations thereof, initiating behaviour and physiological and psychological preparedness and actions in a predictable way. These primary affects are seven, four primal systems SEEKING, FEAR, RAGE and PANIC, and three more specialised socioemotional systems that become active at appropriate times in the lives of mammals, PLAY, CARE and LUST. Panksepp capitalises the terms to distinguish them from folk psychology uses of the terms, and to link them to their specialised meanings.

Unstructured interviews, a focus group and semi-structured interviews were all used to conduct a qualitative investigation of the issues.

Following a series of conversations with postgraduate MSc students at the University of Kent between September 2012 and June 2014, an impressionistic overall understanding of the issues was obtained in conjunction with a literature review, and a questionnaire drawn up which formed the basis for a series of "semi-structured" interviews (Appendix 1 Parts 1 and 2).

This contained factual questions about age, occupation, religion; questions about the values of the respondent; questions about the emotions of the respondent, and a number of thought experiments posing hypothetical situations for the respondent to reflect upon the conditionalities in relation to their expressed values and opinions. Thought experiments as tools for enquiry are extensively discussed by Sorenson (1992), and have been used in the moral philosophy/jurisprudential domains by Rawls (1971) and in the physical sciences by Galileo (1628). They are particularly valuable for testing limit cases of deontological principles, such as the moral rules asserted as mandatory norms for action.

In addition, respondents were given a sheet of paper or an electronic file which set out a list of Panksepp's seven primary emotional systems, in order to prime and assist respondents' introspection (Appendix 2). Respondents were advised that they could refer to this list in answering the questions.

The questionnaire, sub-titled “A Conservation Conversation” to emphasise its intent to provoke discussion rather than direct a bounded conversation, was tested on colleagues and amended slightly for clarity, but thereafter applied consistently.

In the first instance it was articulated with five individuals participating in a conference organised by members of DICE, the University of Kent and the British Ecological Society who were recruited to form a focus group. Following this, it was administered either in person or via Skype (3rd July - 5th August 2014). Respondents gave permission to have the interview recorded and assured that their information would remain anonymous. The interviews were then fully transcribed into an Excel spreadsheet for later analysis and coding.

Coding involved the use of network diagrams to identify emergent themes and developed iteratively during the drafting process, and the transcripts spreadsheet loaded into Nvivo 10.

Interviewees were primarily sourced from DICE’s Conservation MSc pathways, through the University nexus by referral.

Interview Sample Characteristics

In the event seventeen individuals were interviewed, five men and twelve women, all between 20 and 35 years old save for one 45-50 year old, with all but one self-identifying as conservationists whether as student or professional. Apart from two Christians and one Muslim, none expressed a religious affiliation, although self descriptions of the religiously unaffiliated ranged from atheist, agnostic, no religion, to “spiritual” but not religious.

3. RESULTS

3.1 The Focus Group and Unstructured Interviews

The background and purpose of the questionnaire was explained, and participants introduced themselves. Two of the participants were conservation biologists working with tigers. The “Emotions” document was presented. Before working through the questionnaire the matter was opened up to general discussion, where it quickly became apparent that the naïve nature of the question “Why Save the Tiger?” and the emphasis on values and affect was very difficult for this cohort of respondents to address in a semi-public forum amongst peers. Respondents seemed extremely uncomfortable, and a discussion of core values and feelings about something as “obvious” as the desirability of tiger conservation was not one participants wanted to engage in, especially when the types of hypotheticals involved addressed beliefs important to personal values and professional identity. Respondents were clearly very uncomfortable, betraying this in avoidant eye-gaze and posture.

In itself this was an interesting outcome, and was illuminated by subsequent conversations with other conference attendees and two of the participants, who agreed to individual interviews. In response to a precis’ed version of the question testing the willingness of the respondent to sacrifice biodiversity for instrumental values - one conference attendee gave a telling response:

“well as a professional conservation biologist it is all about the fact that [species] do [this, this and this] which are very useful. But as me [first name], it’s just that I love [species].”

3.2 The Interviews - Overview

Interviews lasted about an hour, with the questions usually eliciting very personal and affect-rich disclosures (see Appendix 3 for transcript samples).

3.3.1 Living Near Tigers; Misperception of Tiger Risks (Question 2)

None of the respondents lived near tigers, and their responses were no doubt situationally coloured by this fact. However, some were able to draw on relevant experiences; for example analogous field work with other large carnivores or species in high conflict with humans, some referencing human wildlife conflict mitigation strategies. A substantial minority of respondents were unaware of the extent of the human tiger conflict, specifically the high number of fatalities.

3.3.2 The Draw To Conservation (Question 1)

The answers to the first question were highly varied and rich, reflecting the varied backgrounds in terms of culture and professional path to the conservation career pathway that all but one of the interviewees had followed. The roots were nearly all in childhood experience and enculturation, although one Russian conservation economist had happened into the career by chance, and although expressing a generalised love for nature during childhood, and had stayed in it because “... *the people are better than in other sectors*” and now could not imagine working anywhere else. Perhaps unexpectedly, no respondent mentioned direct parental influence, although one mentioned a biologist aunt, and another a prohibition on television except wildlife documentaries. Responses were affect rich, using highly emotionally valenced words. Love or respect for animals was a strong theme, wonder at nature and a mission to save something in danger of disappearance another. In some cases a clear pathway was described from exposure to wildlife documentaries to internship in wildlife sanctuaries resulting in clear life choice decisions. As one respondent, whose early exposure to wildlife documentaries had led to an epiphanic experience in a chimpanzee sanctuary, ruminated – “*perhaps if I had not seen any wildlife documentaries I would be in [town] with a little house, a little family and a little car and I would be quite happy.*” Another common trope was a maturation of interest from a highly affective love for animals to a more cognitively mediated respect and admiration for complex ecosystems and an acknowledgement of human reliance upon them informed by scientific study and understanding or experience of relevant domains. In these cases the early love and empathy for other animals appeared to sublime into a wonder and awe at the complexity of natural systems.

3.3.3 Should We Save The Tiger? Who Is “We”? (Question 3)

With a few reservations, the answer to the first part of the question was an overwhelming yes, with many respondents explaining why, in their view, that should be the case. Many of the answers were clearly affectively driven, with respondents highly engaged and enthusiastic about the reasons they elicited:

- Of course we should
- Tigers Have existed longer than we have
- Ecological necessity; control of prey populations and therefore maintainer of habitat
- beauty, majesty, power, smart, noble, magnificent
- Amazing behaviour
- Huge cultural element in human myth and legend
- Existence value
- “*would show that we are intelligent because it is hard, an obligation is imposed on the global community*”
- Bequest value

- *“The planet is 4 billion years old and severing even one lineage is a terrible thing; if we kill the tigers there will never be another and we have an obligation deriving from our knowledge and sentience to preserve the species”*
- *“if feasible and reasonable the way I see it the biological entity tiger is the result of a process that has only happened on our planet and is unique and evolution being complex it does make it, as with any other species – given the history of the biosphere - something not to be taken too lightly”*
- *“A one time opportunity; last chance; losing tigers is a loss of pride; I cannot even describe myself as a national of [NATION STATE] if it loses its tigers.”*

Reservations on this overwhelming enthusiasm for saving the tiger were few, but nevertheless present, and expressed regretfully, with some measured recognition of the complexity of the issue: *“if pressed I should say yes, but there are many answers, and I don’t like the word “save” as it implies that there is an end rather than a continuous process of management”*.

In relation to the *“who is the “we”?”* who should be charged with the task of saving the tiger, answers were equally diverse:

- Range countries assisted by developed countries funding and skills and knowledge
- Collective species level obligation
- Government has to make the people want it
- Consumers
- Public
- Global humanity
- Locals
- NGO’s
- Conservationists and zoos
- Empowered locals
- Developed and less developed countries
- The local environment ministry
- Conservation professionals, ecologists, scientists,
- People in power
- Politicians
- Us

This diversity of response supports the idea of a distributed responsibility where no one is responsible. If the question was *“who is responsible for driving the extinction process”*, it would be similar – although perhaps business and capital would play a role.

3.3.4 Yes, Saving The Tiger Is A Moral Duty (Question 5)

Respondents’ were overwhelmingly of the opinion that *“saving the tiger”* is a moral duty – with only two straight *“no’s”*. However there were almost invariably caveats posited, and some highly conditional responses, so that the value of the putative moral duty and its precise content was hard to discern on further enquiry. Some further elaboration of views and thoughts expressed were as follows?

Relativity/subjectivity of morals

The most common caveat was recourse to the idea of the subjectivity, or relativity, of morals. For example: *“yes; but morals are very subjective; they change from person to person”*. A more colourful and emotionally framed version of the same idea was: *“I would say as an animal lover yes, but understand that if it had eaten your child you might feel differently.”*

In essence, this “strong relativism” results in a position where there is an accepted moral duty for those least well placed to affect the outcome of tiger extinction by reason of their distance from the object of moral concern, and an acceptance that there is no duty if one might be adversely affected by the object of moral concern or has insufficient resources to mitigate conflict.

This reluctance to grant the rule any universal application resulted in a clear unwillingness to assert that others should be bound by such a rule in some cases.

The Source of the Moral Duty

Respondents who assented to the proposition that there was a moral duty to save the tiger, were asked what the source of the moral duty was. Most were secular, but even the religious ones agreed that the source of the moral duty was nothing to do with their religion. However, exactly where it was derived from was not easy for most respondents to identify. Some felt it needed no justification, but offered value laden statements that employed the language of rights and obligations, though not grounded in any obvious foundation – true intrinsic value arguments based on a variety of equity extending to the nonhuman:

“[The] world is not only for people it is also for other organisms - no right to get rid of any animals.”

Others attributed it to a complex combination of enculturation through family, books and films, an inherent moral compass capable of being triggered by external stimuli, or an evolutionary timescale perspective of the extraordinary nature of tigers as an evolved lifeform on a fragile planet; a perspective which combined with human sentience and power, imposes an obligation to keep complex natural systems and species intact.

One respondent noted that the fact that saving tigers is difficult, combined with his view that life should be respected of itself, imposes an obligation upon global humanity, as success would demonstrate humanity’s intelligence; this could be termed the argument for the demonstration of the best of humanity.

The Limits of the Moral Duty

Some respondents considered the limits of moral duty, and while there was insufficient clarity in responses to formulate any kind a decision rule, the subjective nature of the rule generally contemplated clearly envisaged that risk, resource, education and power were core to the extent of this duty. Respondents considered all of these variables adverse to the imposition of the moral duty to save tigers upon local communities contiguous with tiger ranges. The issue of the moral considerability of the non-human was raised by more than one respondent, and the responses may imply that along with a moral duty to save the tiger there is also an emergent duty to deal with human population growth, or other inchoate anthropogenic issues that bear on tiger extinction.

3.3.5 For Me Safe But Meaningless; Maybe Safer For Locals, But What Risks Replace Tiger Risks? (Question 4)

The respondents’ perception of safety was in some cases skewed by misapprehensions of the level of lethal tiger attacks in mixed landscapes. Where this was apparently the case, the respondent was informed of relevant statistics. The overall picture was that respondents’ correctly identified that the

world would be safer for tiger range inhabitants inasmuch that they would be shielded from tiger risk, but not for them, but some noted that the picture was somewhat complex, in particular paying no regard to risks (for example road accidents or ecosystem fragility) that might replace the tiger risk.

3.3.6 Affect in a Wild Tiger Free World (Questions 6, 9 and 10)

After the questions about whether tigers should be saved and whether there was a moral duty to do so, the questionnaire explored the affective domain. The respondents were asked first how they would feel in a world free of wild tigers, and second how they think they would feel in the event that they were a smallholder in a tiger range in two contrasting conditions (a) exposed to the risk of tiger depredation and (b) not exposed to the risk of tiger depredation. Here, the answers were much simpler.

Affect – As Self (Question 6)

The predominant emotions expressed for themselves, were sadness, disappointment, grief and rage. A self-confessedly cognitively biased respondent, keen to emphasise that it was not a visceral response, was “concerned”, but most language was strongly emotionally valenced.

Other feelings reported were:

- Boring and empty
- Grief and fear
- Upset; sense of loss; guilt – as if my fault; bleak
- Impoverished
- Rage fear and panic; shame and sadness
- *“I would be quite angry but then accept it and move on as not every battle can be won and I’ve not played a role in that if I had personally invested in it I’d be angry for longer - this is the state of the world”*
- A sense that this is the thin end of the wedge
- Concern about implications for conservation strategies – given that what needs to be done is known but not executed.

One interesting theme was guilt – a number of respondents felt that they would feel as if they should personally have done more to prevent the extinction event. Another passionate response was simply a projected angry incredulity – *“I just can’t imagine that. Just no - that can’t happen if that actually did happen it would be anger.”*

In sum, the answer was a palette of negative emotions centring around sadness and anger, with a little resignation and fear for the future and the deep concern as to what tiger extinction signals for conservation and ecosystem integrity that such an event would portend.

Affect - Hypotheticals (Questions 9 and 10)

These questions required respondents to make a further imaginative step, and describe how they thought they would feel in the event that they were a smallholder in a tiger range, in one case exposed to and in the other case protected from, tiger risk.

Results were again simple and consistent with the relative morality world-view and pragmatism of the respondents.

In short, the respondents' thought that if in a tiger range, the tiger went extinct, and they were (a) exposed to tiger risk, they would be happy, relieved or pleased to have a potential danger removed from their life; and (b) if not exposed to tiger risk, largely indifferent, but perhaps a little sad.

Perhaps the most illuminating remark came from a tiger conservationist who, in the country where she operated, noted that the key demarcation to attitude to tiger extinction would be whether the local in the tiger range was (a) a local who had grown up with the local traditions of co-existence – a melange of habits of tolerance and non-interference and belief systems identifying the tiger as being identified with ancestral spirits that would only kill somebody who had done something bad or (b) a part of the migrant community that has moved into tiger ranges with increased population mobility, members of that population being simply scared of the predator and without a co-existence culture. In the first community individuals would be dismayed at tiger extinction; in the second, relieved, as lack of familiarity had not enabled them to build cultural tools assisting tolerance.

3.3.7 Tolerance (Question 7)

The question asking whether it was reasonable to ask range inhabitants to be “tiger tolerant” attracted some of the most diverse responses of all of the questions, and some interesting comments from respondents with practical experience in other difficult human wildlife conflict situations.

Some of the responses are set out in full below:

- *“Really difficult. Pretty hard... Not really okay to tell others what to do but feel conflicted”*
- *“within reason but they either need to benefit sadly in money driven society or they need to exist at a low enough density for them not to become a conflict”*
- *“they were there all the time; so it is reasonable; but also reasonable to kill them, could be argued, have to ask them... (laughs); previously managed to rub along but understand the opposite point of view”*
- *“based on evidence there is a possibility to share the landscape but depends on people to reduce conflict - we have the capacity to avoid conflict so can be done - need space and prey - they only are here to eat and naturally avoid eating people - don't take their prey and conflict risk could be reduced.”*
- *“Yeah, don't think it is unreasonable – it might be a fantastic rural existence”*

Analogous situations and strategies to mitigate conflict were described: one respondent alluded to crop-raiding chimpanzees in Sierra Leone, where chimpanzees were hated and hunted, and any idea of co-existence from primarily Western conservationists was considered extremely alien and dismissed summarily; another adverted to successful economic incentive programmes in relation to wolverines in Sweden, where payment for breeding wolverines had been successful in creating acceptance by the Sami reindeer herder population, and to mitigation strategies currently being undertaken in relation to tiger conflict in the Sunderbans enabling toleration in relatively densely populated country.

In sum the challenges of toleration were well accepted, and there was appreciation of the granular nature of the mitigation strategies required to make toleration effective, but there was an underlying appreciation of the population pressures adding to the conflict but generally reluctance to engage with that issue professionally.

3.3.8 Bearing the Costs of Conflict (Question 8)

The breadth of the question, which was similar in its scope to the “who is the “we” who should save the tiger?” question in many ways, elicited a similar extensive list of agents (see above), with a loose consensus that agents in countries with high tiger preservation concerns should be funding and offering skills and knowledge transfers to countries with tiger ranges. However the focus on costs and the funding mechanism brought out some new and interesting themes.

For example, an institutional perspective was brought to bear by a non-conservation social scientist PhD student, who felt that the funding should come from the highest levels, but enforcement should be, by application of a subsidiarity principle, at the lowest levels. Other issues were whether transfer payments should be through tax or voluntary payments, and concomitant equity issues. No truly coherent answers to these questions emerged.

Once again, respondents brought their own experiences to bear. One contrasted the case of the attitude to livestock loss of Kenyan Somali's as compared to Maasai benefiting from a livestock predation fund incentive scheme. The Somali community had cultural tolerance for a degree of livestock loss to hyena. The Maasai, intolerant of livestock losses, were given the benefit of a livestock compensation fund to permit some payment where a cow was killed, but the organisers found that a result of this mechanism was that the Maasai would say to the organisers of the scheme *“One of your lions has killed one of my cows.”*, detracting from their ownership of the problem, and the respondent felt that this was quite unhealthy, demonstrating the complexity of implementing mitigation schemes. By contrast, another adverted to a successful Himalayan mutual insurance scheme where the herders paid into a compensation scheme, paying out on predator proof of kill, with the local economic and management participation controlling fraud and free-riding.

The most relevant answer came from a practicing expert in tiger conservation., By way of case history, the respondent related how following a tiger kill on a palm oil plantation, her organisation had worked successfully to eliminate further kills to date, by a combination of educating the workforce and employer about tiger habits – stay in after 4pm when tigers begin to hunt; work only in a group, and clearly demarcate plantation and forest. Using these strategies, the local industry in the target area had learned to minimise tiger conflict, and bore the cost successfully.

3.3.9 What Are The Inputs To The Answers About Your Emotional Responses? (Question 11)

Respondents asked to consider what “weighed most heavily on their mind” in considering their emotional responses were in general agreement.

A clear split was made between “emotional response as conservationist” and “emotional response as hypothetical smallholder”. For the former, higher order cultural and mythic concerns, concerns for ecosystem health, a sense of guilt or responsibility, and compassion figured strongly. In the case of the latter, fear, both in terms of risk to self, family and assets were the dominant consideration, and morals or a sense of the mythic and cultural importance a secondary concern.

The tiger conservationist with practical experience put the tiger range inhabitant considerations succinctly:

“Fear for both locals and migrants, but for locals there is also respect for the tiger embedded in beliefs.”

3.3.10 No Compelling Principles To Balance Development And conservation (Question 12)

The question of how to balance development and conservation by having recourse to a principle was quite hard to grasp for some respondents trained in a more granular and practical approach.

Most responses centred on the principles of balance and compromise, and an indicative list summarising the sorts of responses shorn from their surrounding narrative, as follows:

- Find a win-win solution
- Precautionary principle
- Intrinsic value
- Humanitarian principles require addressing poverty and tiger extinction hand in hand
- Pricing degradation to make investment more expensive by forcing internalisation of environmental damage
- Sustainability/ sustainable development
- Case by case analysis

An interesting lacuna was that nobody mentioned legal or regulatory compliance, and indeed the biodiversity legal framework was not mentioned by any respondents in answer to any question, although there were some references to trade bans and therefore by implicit reference to the Convention for International Trade in Endangered Species of Wild Fauna and Flora 1973 in the questions relating to who should be responsible for “saving” the tiger.

Essentially no compelling principle was offered, and there was an emphasis on compromise.

3.3.11 Affect for Wild Tigers (Question 13)

This question was aimed at determining the extent to which respondents were affectively or otherwise motivated in relation to their views about tiger conservation.

I'm a Scientist not an Animal Welfare Person

The overwhelming trope was that their prime motivation was scientifically motivated, and grew from a concern with ecosystems and the species in general, not individual animals. This sober cornerstone point of view was expressed well by one PhD student:

“I don't really think about individual tigers; more tigers as a species, a viable population; I'm not emotionally tuned in to the plight of an individual tiger; much more the abstract view of biodiversity; I associate the individual tiger point of view with animal welfare people; I don't want to see animal suffering but don't have an initial emotional response, and much more a reaction as a trained biologist.”;

And again:

“I don't like animals suffering but haven't even considered the individual animal. I believe in the greater good - Q a cognitive response? A yes unless I was myself killing the tiger - can't get attached to the individual it does not help anyone”

Sympathetic Breakthrough – “You've got me now...”

One interesting response was where the framing of the question expressly elicited an unexpected (to the respondent) answer from an individual strongly invested in professional minimisation of sentiment for the greater good – a strong advocate of economic incentives and critic of sentimental and welfare oriented approaches to wildlife concern was as follows.

“You’ve got me now - because until you actually mentioned them I wasn’t thinking of them but now you’ve brought it up I would have strong feelings for the individual. Q I’ve found a button to press? A yes - I’d hate to allocate a percentage - Framing is everything until now it would be a much more intellectual thing.”

This can be characterised as a “sympathetic breakthrough” (Glover , 2001) where an affective response to an unexpected detail causes a category shift in perception and corresponding cognitive conflict when carrying out an operation for the perceived greater good of an “in-group” at the expense of an “out-group”.

3.3.12 Infrastructure Restriction *qua* (a) Conservationist and (b) Hypothetical Smallholder (Questions 14 and 15)

Two questions directly investigated habitat encroachment and development issues by asking respondents, first speaking for themselves and secondly having projected themselves into the position of the hypothetical smallholder used for previous hypotheticals, whether they would advocate for restricting infrastructure.

Taking the first limb, the respondents had diverse responses with varying degrees of qualification. Five of the respondents were unambiguous advocates of restriction; a greater number referred to compromise, balance, trade-offs or a case-by-case analysis. One, in line with her other responses, expressed her perception of inevitability of development. The necessity to prioritise human development over non-human species was adverted to by more than one respondent, as was the futility of imposition of restrictions.

Does Perpetual Compromise equate to Capitulation?

One of the strongest themes, compromise, was explored in one conversation, questioning whether the compromise approach simply shifted the baseline downward over time as each time a compromise bargain was struck between development and conservation, the baseline was set for a further future compromise:

“no there has to be a balance. It is not ideal - we have national parks - balance Q is this just capitulation? A the solution has to be worked and designed so it is not giving up - it is a strategic move. We can’t just say that we have to have these areas - there has to be a balance – we can’t have protected area’s which are sacrosanct. Q are we selling the farm? A I would concede a little at the edge.”

When the second limb of the hypothetical was considered (considering a local smallholder in tiger range asked the same question), the response was more clearly that the individual would be for infrastructure and development, however it was contemplated that in some cases a person with a satisfactory life might wish for no change, or might prefer an opportunity to move to a new location, or that such person might set a value by nature.

Typical answers were summed up by:

“Of course - bring in the 10 pin bowling alley...!”

Though the tiger conservation professional noted that some central planning was required in sensitive habitats:

“Knowing the nature of the people more than fifty per cent would say bring the mall! But government is important as we can’t satisfy everyone and need to educate people that school and access to market will be provided - so give them what they need not what they want.”

3.3.13 Tiger Rugs And Context (Question 16)

The question “*What emotional response does the idea of a handsome tiger skin rug in your living room evoke?*” brought out a range of responses, many of them very emotive.

Friends and backstories

The responses ranged from one word answers evocative of strong negative affect, to longer reasoned responses where the question of potential value in tiger trade was canvassed. However two strong themes emerged. The first was that such an item would be very symbolically powerful in terms of eliciting social condemnation from friends in the circles in which many of the respondents moved; one would not mind the rug, but felt that it would be impolitic; another had walked out of a friend’s house because they had one, and never spoken to that friend again.

The second was that the backstory of the animal and the acquisition – a number of respondents agreed that if they had shot the tiger themselves in self-defence, the rug became acceptable.

Another reason for not having a tiger skin rug was because of the fear that it would feed into enlarging demand for tiger product to the detriment of the wild tiger population.

3.3.14 Sacrificing Biodiversity for Utilitarian Instrumentalism (Question 17)

Testing the predominance of instrumental values amongst conservationists, this question sought to examine the commitment of conservationists to instrumental or utilitarian ends in their conservation activities, by postulating a “minimise biodiversity/maximise happiness” hypothetical case.

Only one of the respondents, who was not a social scientist, answered with a “yes” (with some riders that will be examined later), and the question, while it generated some complex discussion and subsidiary themes, was generally answered with some emphasis and relatively high affectual content.

Some answered “no” questioning the premise that happiness could be maximised in this way.

Some respondents emphasised that they were answering for themselves alone and would not necessarily have a right to impose such values on others, and also that the issue brought up a “taboo” subject of human population issues.

The difficulty of the question was directly addressed by some respondents, recognising that it pitted a rational against an intuitive answer.

For some, biodiversity reduction has been as minimised as it could be already, with no obvious increase in happiness, empirically falsifying the premise of the question by natural experiment:

In most cases, faced with an impossible choice between a personal value and an incommensurable “rational” argument in direct contradiction to it, responses were to have recourse to a detached perspective challenging the argument that human happiness or wealth is an appropriate ultimate end to be attained, or that it can be opposed meaningfully to the value of non-human life, or to a simple intrinsic value argument.

Some simply made a case for moderation and restraint.

Respondents evinced some discomfort or frustration in answering the question, expressed in laughter or other verbal frustration cues such as hesitation and denoting that they were being presented with a dilemma which was hard to resolve with moral reasoning approaches.

Dissent

The one dissenter, a social scientist but not a conservationist, took a view that differed in that he first felt obliged to answer the question “yes”, ie he would sacrifice biodiversity for human happiness, but then on exploration of his answer found that a “moral” dimension inhibited his confidence in the answer, perhaps best expressed as a sense of proportionality.

A direct implication of his line of moral reasoning was that the harm principle as envisaged by the respondent applies to the non-human, and the conversation turned to the issue of moral considerability and whether resource limit approach and stress were necessary triggers for extending the objects of moral concern to cope with new problems.

3.3.15 Intrinsic Value, Aesthetics And Spiritual Value: Emotions and Meaning (Question 18)

The final question in the questionnaire sought to establish the affectual grounding, if there was any, of somewhat loose abstract concepts that had been expected to emerge in answers to other questions, and what the concepts meant to respondents. In fact, the answers to the earlier questions did bear out that these were concepts used by respondents in thinking about endangered wild tigers and biodiversity issues in general, and answers were often expansive, multi-faceted and anecdotal.

A number of respondents either did not, or were unable to, answer the limb of the question about affect, and concentrated more on what the concepts meant to them. Possibly they would have answered the question more completely if pushed more with follow up questions, but coming at the end of the questionnaire there were limits to the time I wanted to take up of individual respondents' time.

A Hard Question

Again, a theme that emerged in the answers was that this was a difficult question to answer. Some respondents who eventually gave an answer to the “affect” limb of the question, were only able to do so when pushed, and more recourse (it was difficult to be sure because of the remote conduct of most of the interviews) seemed to be had to the Appendix 2 list of emotions than on other questions.

The predominant affective themes were seeking, care, compassion and love. Calm, peacefulness and a sense of transcendence, by removal from quotidian human concerns were repeated ideas. Grief, loss and rage at the thought of losing species and biodiverse landscapes was a clearly expressed, sentiment, and some answers combined a rich palette of emotions.

In some cases a degree of discomfort on being asked to access personal emotions was apparent, with the first response being to surmise how others might feel.

One respondent was critical of such value laden terms, considering it an instrumentally strategic attempt to change a debate which must involve trade-offs into one where infinite value “moral” values are recruited to avoid such a debate.

An evolutionary role for an aesthetic sensibility and care was alluded to.

In sum, the responses were diverse but instrumental values were a minor theme, and wanting to understand a complex system combined with care were predominant themes in the emotional reports and verbal descriptions of the meaning attributed to the high order adjectives often used to characterise non-instrumental biodiversity value.

3.4 Comments On and Engagement With The Questionnaire

Respondents were very positive about the questionnaire, seemingly enjoying the opportunity to discuss the values associated with biodiversity in a systematic way which directly confronts the dilemmas and clashes of values in the conservation domain.

4. CONCLUSIONS

4.1 Conclusion 1 – This Study Strongly Bears Out that the Consensus of the sample group of Conservationists was that there is a moral duty to save the tiger.

The strength of the belief that there is a “moral duty to save the tiger” was striking. Even the two dissenters in the group on deeper examination used the language of duty “should/shouldn’t” and set out reasoning that could equally well have been consonant with there being a moral duty contingent on other factors (such as a primary duty to humans) or a prohibition on the imposition of moral duties on others. Accordingly, despite an avowedly different methodology, and known issues with replicating studies in the social psychological domain (Earp et al. (2014)), the conclusion is that this sample asserted a moral duty to save the tiger.

4.2 Conclusion 2 – Framing, Sourcing and Limiting the Moral Duty

Beyond the fact of existence of a “moral duty” Rastogi et al. did not attempt to frame, specify the sources of, or limit the moral duty that was the subject of his respondents’ imputed moral obligation.

Synthesising the answers to the questions, there are many ways to address these issues, but one coherent unpacking and articulation of the respondents’ emergent conservationist moral duty might be as follows:

- The moral duty extends to all life and ecosystems;
- The source of the moral duty is a combination of anthropogenic power to harm, knowledge of the capacity to harm and the complexity of the biosphere, an appreciation of the evolutionary origin of life over geological time with its corollary of species interdependence and similarity, the uniqueness of each species, the rarity of life as a natural event, the inherent secular human desire to understand the natural world, the inherent capacity of humans to care for and extend equity to the non-human;
- The limit of the moral duty is that the moral duty is not applicable to individuals who are unable to secure their own well-being in terms of access to resources and safety, or who are unaware of the effect of their actions. Such individuals have a supervening moral duty to themselves and their kin, and their obligation to other species is conditional upon first satisfying those more proximate obligations.

A further collective obligation might be to order human institutions, in terms of population control, education, funding and capital allocation, development pathways and laws so as to minimise the number of people falling outside the moral duty and maximise the ability to fulfil that moral duty. However this collective moral duty is hampered by a strong sense of subjectivity and relativism of

morals, obliging advocates of the conservation moral duty not to “impose” it upon others with different moral values.

In the language of moral considerability, contra Singer (cited in De Grazie, 1997), the right to moral considerability does not arise from the subject’s ability to suffer, but is an inherent right for organisms to fulfil their own biological expression without disproportionate anthropogenic disturbance.

4.3 Conclusion 4 – Diversities of Opinion, Similarities of Affect

Whilst the opinions expressed were diverse, affective responses to the questions showed considerable similarities. Parsing the language used, CARE and SEEKING, in Panksepp’s terminology, were strongly associated with (i) the draw to conservation and (ii) contemplation of the intrinsic, aesthetic and spiritual qualities of biodiversity; GRIEF/PANIC, FEAR and RAGE strongly associated with contemplation of loss of biodiversity as embodied in the tiger. Direct experience and cultural product were both triggers for the affective response, and in nearly all cases had been responsible for individuals making major life choices.

This finding offers a potential research pathway for affective neuroscientists and moral philosophers - if there are somatic or other markers for instantiation of the CARE and SEEKING systems, investigation of different groups in different situations for their non-verbal arousal of these systems for non-human organisms could hypothesise conservation likely behaviours with greater predictability than verbal response alone, and could permit assessment of educational initiatives aimed at producing pro-conservation results.

4.5 Conclusion 5 – Moral Dumbfounding Occurs on Presenting an Instrumental Case for Minimisation of Biodiversity

The results relating to the question which pitted minimisation of biodiversity against the maximisation of wealth happiness can be characterised either as one in which two “sacred” values are set against each other, or as one in which the secular values of happiness and wealth are set against the “sacred” value of biodiversity. However one characterises the dilemma, it is clear that for this sample, the biodiversity moral duty prevails. An element of the “moral dumbfounding” identified by Haidt in situations where moral reasoning and intuition conflict occurs, in that respondents’ reasoning for their choice seemed to be laboured and uncomfortable, forced to directly oppose strongly held “sacred” value against reasonable instrumental gain.

4.6 Conclusion 6 – Strong Expressed Adherence to Instrumental Reasons Alone for Preserving Biodiversity is Inauthentic, and May be Adverse to Effective Advocacy

Conclusion 5 suggests that whilst much conservation policy advocacy is couched in the instrumental language of ecosystem services, most conservationists will if asked a hypothetical question testing the extent of their commitment to instrumental values, choose an answer consistent with an “intrinsic value of biodiversity” viewpoint. Doonan (2007) demonstrates that perceived producer authenticity influences, amongst other things, the price that consumers are willing to pay for a service and the likelihood of them purchasing it. It could be that, considering the conservation institution as a whole, a failure to advocate for biodiversity from an intrinsic value perspective as well as an instrumental perspective will lead to a perception of inauthenticity resulting in less effective achievement of conservation outcomes due to diminished persuasiveness. A programme of research to explore this result could easily be established.

4.7 Conclusion 7 – Population Control is a Taboo Area in Biodiversity Discourse

A frequent trope was the deleterious effect on biodiversity of human population growth. Equally, it was felt that this was not a matter that ought to be directly addressed by the conservation community as it risked being seen as “anti-human”. It was suggested by one respondent that it was not something that a politician would wish to tackle. It might be suggested that this is a theme that should be addressed head on by the conservation community, but addressed in a distinctly and explicitly “pro-human” way by alluding to the quality of life improvements that could be achieved by reducing birth rates and undermining the narrative that the decline in economic growth that such a policy might be thought to lead to is necessarily an undesirable outcome, as individual quality of life would improve.

4.8 Conclusion 8 – Conservationists Comprise a Moral Community, and it is Distinct and Separate from the Animal Welfare Moral Community; Conservationists are Tentative About Enforcing Their Moral Norms

In the sense defined by Tetlock, conservationists comprise a moral community adhering to a distinctive set of values. To substantiate this assertion further would require further sample groups from different communities, and could be tested by further thought experiments pitting sets of values against one another. It is likely that there is a distinctive animal welfare moral community as well, and we could hypothesise that it would have a slightly different affective profile, for example, stronger on the CARE dimension, the object of which would be individual animals, as opposed to higher order systems in the case of conservationists; we could hypothesise that animal welfare moral community members would be weaker on the SEEKING dimension. This is a testable proposition. Similarly it would be possible to map the same factors other relevant communities, such as emerging market investors. Objects of concern and affective profile may be simple ways to model moral communities, which may well be key to both personal identity and effective institution building. One of the features identified by DeScioli and Kurzban is that, typically, moral communities are condemnatory of those who violate their norms, particularly when within their moral community. The beliefs that conservationists subscribe to in terms of relativity of morality make it relatively hard for them to condemn norm violators and implies a need to think about how to assert against or recruit competing moral communities.

4.9 Conclusion 9 – Conservation Interdisciplinarity - A Teleological Approach

The respondents recognised overwhelmingly that tiger conservation is a complex networked institutional and human problem.

Despite this, ideas about effective institution building to advance conservation goals only rarely emerged in discussion. This was particularly apparent in the responses to the question seeking to define where the responsibility lay for “saving the tiger”. A highly unsystematic cluster of answers illustrated the difficulty of identifying the funding sources, management responsibilities and competing ideologies in relation to biodiversity conservation. Although some interesting case studies and examples of effective methodologies for (example prolonging negotiations as long as possible to permit mutual understanding of opposing points of view to develop, and embryonic ideas for conservation funding through links between species’ and brands) they were the exception. There was no concerted discussion the key funding and legal issues inhibiting conservation. The need for institutions to fund conservation often came up, but discussion was in generalities. The legal framework aimed at biodiversity preservation only emerged in a brief discussion of trade and was otherwise entirely ignored.

Given that the need for inter (or multi) disciplinarity is already a staple of conservation discourse, a teleological approach is suggested, where the different disciplines in the conservation academy focus on their area of expertise in a structured way, and there is a feedback loop to further ideas generation and testing.

Conceptualising such an approach, the first step would be to settle on ambitious outline desired ends. Given the respondent identified dynamic of a tendency toward reactive compromise, with consequent fatalism and a sense of inevitable decline, creating a moving downward baseline of biodiversity, an approach aimed at a more ambitious extension of biodiversity using a land sparing systematic planning approach might be desirable. By clearly uniting both instrumental approaches (land sparing appears to be a more effective approach to biodiversity conservation than land sharing) with the more romantic intrinsic value visions that are now achieving some popular currency (Monbiot, 2013), and broadcasting successes (Balmford, 2012), the narrative of continued and inevitable despeciation could perhaps be countered with high affect narratives of ambitious re-imagining of land use and successful outcomes, advertising the success of past approaches.

Second, conservation academics should arguably enter broader policy debates on economic, health and demographic matters with more vigour. There is scope to empirically challenge existing dominant narratives on economics – a dogmatic adherence to free-market solutions by conservation economists advocating the importance of providing mechanisms for pricing endangered species fails to take notice and comment on the demonstrable fact that free-market solutions have been comprehensively abandoned, in practice if not by rhetoric, by their chief advocates, in favour of the intrinsic values of social stability and security (from one perspective) and in favour of entrenchment of power (from another). Entering the debate on the funding of conservation activities, and the social justice element of ensuring that development targets are not sacrificed for conservation ends from a perspective of empirical criticism of economic ideology (eg the demonstrable preferences of agents for “just” rather than profit maximising solutions to distributional problems (Fehr & Schmidt, 2014) might be fruitful and harness political support.

Third, conservation should make common cause with animal welfare advocates as well as social justice advocates in the bid to develop quality of life arguments for conservation which are pro-human, and mobilise sentiment as well as instrumental values for conservation. Such a course of action could also involve developing the arguments that population growth is a major cause of impoverishment and instability as well as despeciation, and that conservation management and more focussed land use is a coherent strategy for maximising quality of life.

Fourth, conservation academics should avowedly nurture original, affectively powerful and new approaches to institution building and continued development of objective metrics for assessing their efficacy, stressing outward focus on persuasion, mobilisation, and alliance building. The proper response of conservation advocates arguing for their values and seeking to expand their moral community is not to adopt the mechanism of assumption of epistemic authority granted by the “science” label, but to empirically undermine the competing moral community, and advocate the merits of its own values, which requires at least as much attention to social institutions and the nested affect and cognition that generate and enforce them, as to other biological systems.

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APPENDIX 1

Part 1

WHY SAVE THE TIGER? THEY SCRATCH QUESTIONS AND THOUGHT EXPERIMENTS FOR CONSERVATION CONVERSATION

Name:
Address:
Gender:
Religion or equivalent:
Age:
Email:
Profession/livelihood:

1. What drew you into conservation?
2. Do you live near any wild tigers?
3. Should we save the tiger? Who is the "we" you imagine when answering the question?
4. Would the world be a safer place without tigers?
5. Is saving the tiger in the wild a moral duty?
6. How would you describe your emotional response when imagining a world free of wild tigers?
7. Is it reasonable to expect those living in a tiger range to tolerate a life and resource threatening predator?
8. Given the likelihood of human wildlife conflict where human and wild landscapes conflict, whose responsibility is it to bear the cost?
9. Imagine being a smallholder with three children, and some livestock next to a tiger reserve with porous boundaries. How would you describe your emotional response to a world free of tigers?
10. Imagine being the same smallholder with no livestock, and no porous borders. How would you describe your emotional response to a world free of tigers?
11. What are the factors that weigh most heavily on your mind to affect your emotional response to these questions?
12. When considering conflicting goods such as human development and wildlife conservation, what abstract principles would you propose to affect decision making to balance conflicting priorities?
13. When considering the extinction of wild tigers, to what extent, if any, does your emotional response (if any) rely on a feeling of empathy for individual tigers threatened with habitat loss and eventual demise, and to what extent is it predicated on a more abstract view of the desirability of biodiversity?
14. Would you advocate for a restriction of infrastructure that is conducive to human development in tiger ranges?
15. Would your answer to this question change if you were the hypothetical smallholder referred to earlier?
16. What emotional response does the idea of a handsome tiger skin rug in your living room evoke?
17. Would you be content to sacrifice the bulk of biodiversity if the instrumental value of wealth creation and human happiness could be demonstrably maximised by minimising biodiversity?
18. Sometimes people allude to, amongst other things, aesthetic, spiritual, or intrinsic values being exemplified by non-human species or environments containing them. What do such concepts mean to you, and what emotional states arise in you when contemplating such abstract values?

Part 2

SUPPLEMENTAL QUESTIONS AND FOLLOW UP

On a number of questions, standardised follow up questions or explanations were used if required (for example, "What is the source of the moral duty?" was a follow up question to those who believed that there was a moral duty to save tigers, and on question 12., asking the respondent for principles to assist in decision making in balancing development and wildlife concerns, the respondents were offered a standardised vignette of an embattled local Minister being courted on the one hand by an eager palm oil developer offering votes, jobs, schools, clinics, local prosperity and a cut of the business, and on the other by a conservationist seeking to retain the habitat, and it

was pointed out that the developer could tap into a well understood and powerful intellectual framework of economics and finance investment decision making to demonstrate that when contemplating an investment decision, all that matters is that a positive net present value can be shown on the present and future cashflows.)

APPENDIX 2

PLAY

RAGE

PANIC/GRIEF

FEAR

CARE

SEEKING

LUST

APPENDIX 3

INTERVIEW EXTRACTS SUPPORTING RESULTS

3.3.1 Living Near Tigers; Misperception of Tiger Risks (Question 2)

NA

3.3.2 The draw to conservation (Question 1)

NA

3.3.3 Should we save the tiger? Who should do it? (Question 3)

NA

3.3.4 Yes, saving the tiger is a moral duty (Question 5)

“Yes, though some have more values than others, but at the absolute level - people through rapport –I don't know if it is a duty, but it is a moral thing. Q What is the source of morals? A. They come from my family, books I read, experience, core values from family, good understanding of what is good and what is bad; religions can help, nothing against them but church can be manipulative; friends, environment, the seeds of good in me. Q what is the seed of good? I know killing is bad. When you do something wrong you know when it is wrong - there is an internal compass - even those who do wrong know they are doing wrong, everyone has it though some have more values than others, but at the absolute level people through rapport understand this; Q is there a link between my stimulating play and care and good/evil - A there are some triggers of good and bad in people - a child, or a tiger cub triggers something good in people. Q if there is a secular world this is important as in a religious world you can have recourse to those values, so how do we motivate a moral argument in a secular world? Inflicting pain bad, extending care good? A answer would be how would you feel if somebody did this thing to you; Q Most belief systems have golden rule “do as you would be done by?” This does not extend to the non-human as there is no reciprocity possible. Is there an argument for extending beyond people? A We are a part of nature, human does not stand by itself; would you feel better in a crowded place or in the forest; so values are not only humans but should include what is around humans; we should take care of the environment; if you want humans to be healthy we need a healthy environment; no matter what we think of ourselves when we die we're burnt or buried and we are back to nature - humans have forgotten this.”

“Q What is the source of this duty? A A species is the end of long slow fascinating process and it is great and we should be proud of it as no life on other planets so special so we should mitigate our impact as life is the result of something that took millions of years and cannot be easily replaced Q unpacking value inheres to things that took a long time to evolve - is it our knowledge and our power and proclivity to extirpate life to organise things for ourselves? - A it is the time and notion that chance etc if we were to recreate earth it would happen differently and these lifeforms are unique and would never appear again it is a long time and delicate and intricate process and one that generates a unique product (end or middle since species always changing), A would this apply to a crystal that took an age to produce - is this the same as a lifeform - definitely similarities - an interesting question - it is something to do with something being alive - even world heritage

recognises geology sometimes - I guess it is my own interests in animals and plants - the fact something is living makes me more interested - it is more exciting - it does things by itself - a cell a plant a lizard A is the key factor agency and able to flourish or not? A yes that is a nicer way to put it."

"I think yes it is but that is from me with my privilege and benefits of my upbringing we should protect the diversity of nature as we have the insight that we are losing it but for someone living in the Sunbderbans it is different and morality is a different thing since stopping the suffering of their family is more urgent. Q what is the source of your morality? A Ooh how do I answer that - I like to see humanity put in the bigger system of the universe evolution and extinction are natural processes and therefore we could argue that no point in protecting but we are the first organism that has the awareness and through this lens we have the responsibility to protect as we are the only organism that has evolved that capacity Q so sentience and power lead to the emergent quality of morality? A yes Q A heartless alien or Louis would then say on the contrary if you dispense with traditional morality and importance of life due to there being a god, given we are all going to die and life is meaningless and the sun will kill us all so what is the difference between getting rid of everything including humanity now? A yes everything goes to dust so why not do it now? A lot of people argue this but then why stop a child from starving - a very interesting point. Hadn't come across this before."

"Q What is the source of these morals? A accountability for human impact on the planet. Maintaining our environment not heading toward total destruction for that environment Q why does this matter? A We will suffer ultimately and there is an intrinsic value to conserving it as well."

"I like all of your interviewees are biased and I love animals so I would say "yes" of course. Q what is the source of the moral duty - can you provide colour? A could say all relative and morals change as humans evolve so don't know if there is a gold standard; Q if we wanted to be rational would we not commit mass infanticide to spare them the misery of mortality? A in terms of the morality of the bigger picture it might be best for people to kill themselves and their children for the rest of the world knowing full well the impact of the children - if your strongest moral is ensuring the continuance of the world and biodiversity A so other life forms are a legitimate subject of moral concern as per Singer - not a traditional moral position, as animals and other life forms do not have duties. A I think that point of view is dated and anthropocentric as we depend on the wild and are screwing up - I think we should reduce human populations if we are to think holistically about morals. We can't just think of humans - most people would feel bad if they saw a puppy being kicked to death in the street so there must be some inbuilt compassion to other beings. Q moral philosophers argue man doing the kicking is not fulfilling his own humanity or is setting a bad example or that there is a "slippery slope" effect, though I'm not sure I agree with that. A it is not just humans that have compassion toward other beings - it makes sense evolutionarily for those that depend on you and vice versa - you need to feel compassionate if your mother is being beaten or child being run over. Q this is true for social animals and mammals needing to nurture young through a period of learning - does this then apply to mosquitoes or trees? A As we can become compassionate to other things - there should not be a cut-off point, as we have an understanding of hurt and pain so we should do our best to mitigate even to eg mosquitoes that carry disease."

"Yes, I think so Q What is the source of that moral duty? A in large part because humans have caused the problems which gives them a moral responsibility to bring them back; they have the right to be there because we caused the problem in the first place. Q we have a duty they have a right, can a tiger have the right? Can you have an obligation without a right? Would a tiger understand it has a right? A no but it is not relevant - 1000% a baby has a right not to be brutalised without

understanding its rights. Q Can a tree have a right, A [pause] that is a difficult question - yes Q Does a rock have a right A no Q so life implies a right? A I think so Q does a mosquito have a right A yes but given moral responsibilities to other humans I think human rights outrank mosquitoes rights Q does it (human rights) outrank tigers A no Q where is the dividing line? A tigers are more intelligent - we place more value on them including myself for their beauty role in ecosystem services and their cultural importance."

The "Nos" Arguments.

"erm - no. moral... arguably - an element - what do you mean by moral? I think that the reason for saving the tiger - there are many reasons - economic - contributes much - non-economic value can be captured quantitatively - think about the whole package - I think we benefit from it just existing - knowing this iconic species is still there and we contributed to continuing existence - it has always been there - this is really hard - we shouldn't contribute to it going away - carnivores have iconic presence - sexy - tiger has something about it that even cheetahs lions don't have; even though I've never seen one - mystical magical appeal others don't have. Q are we programmed to react to dangerous predators - not skunks? A culturally conditioned reading about myths legends, apex predator on top of everything - the lion king - culturally conditioned thing. Rarity - anthropogenic effect - all these things come together to make it important"

"no Q that is interesting: why not? A I'd love to hear the argument as to why it is - it is a difficult one - Q what do morals mean to you? A doing the right thing and being a good person and not killing things so I guess that gets swept into it - it is all subjective - that is a weird one because it is not really a moral duty its more doing the right thing and who is to say what it is but I personally think it should be saved but don't know Q "should" seems to imply an obligation A people have their priorities - it's a reach to say saving tigers up there. I am not in a position to tell people. I personally think it can all be interlinked and would love that to be the case so we do not have to have this kind of question."

3.3.5 For me Safe but Meaningless; maybe safer for locals, but what risks replace tiger risks? (Question 4)

"for who? All about constituencies and scale - person living next to tigers, yes. LPW global aggregation of risky events? Absolutely no idea and anybody who says so is a fraud and an idiot - we would get over a loss of tigers and move on - personally I am turned on by them - would someone in Gaza care - nah! on aggregate it doesn't matter"

"safer maybe but meaningless; depends if people want to live meaningless lives - need something to admire: there is landscape, but empty if no tigers - tigers are appealing - keep a living landscape."

"um from perspective of livestock cow people would say yes, and probably from huge amounts of people in Sunderbans and stupid Texans. Also if you are a wild prey animal. So if you are threatened would be best if gone. [Follow on question: what about if the locals modernise and get into human scooter accidents] - well then people become roadkill - so calculus in favour of tigers perhaps"

"We can manage to live with wolves in Europe - it is all about how it is managed"

"no [the world would not be safer]- it would be a demonstration of stupidity and if the stupid people win then it is very dangerous"

Slightly safer - but much poorer

"depends how deep you want to go; people argue that tigers are poached by terrorists and drug smugglers but they'd find other things to do but no I don't think so"

3.3.6 Affect in a Wild Tiger Free World (Questions 6, 9 and 10)

"I would be quite angry but then accept it and move on as not every battle can be won and I've not played a role in that if I had personally invested in it I'd be angry for longer - this is the state of the world"

"I just can't imagine that. Just no - that can't happen if that actually did happen it would be anger"

"Depends - a little sad but in the long run indifferent since my exposure limited - not distraught due to lack of direct contact."

"I would not be angry I would be sad for people not to be able to see the beauty of a wild tiger; it would be terrible and for society - people would look back and see it as a failure a very negative thing we need to protect them to show we can have faith in ourselves to do the right thing – does that make sense? Q Yes - more a difficulty in working out what the right thing is? You'd feel sadness and sense of letting down future generations who would otherwise be able to appreciate something that you've personally only able to see on beer bottles and TV?; A Maybe future gens would be happy to see tigers just on a hologram or in the zoo or something, but tigers in the wild will inspire others to keep them alive and other natural systems - if they all go that contact will go; Q Would it be good if the cultural imprint of tigers - documentaries, poems etc went but tigers were still there? A Yes that would be good but I'd prefer both to exist but for me I try and look beyond the human and we are very egocentric whereas we are obviously not the most important thing in the universe; Q There is a humility there and the culture you absorbed triggered a value in something that you might never see; A When I am in a wild ecosystem where no signs of people I get a peaceful feeling and hope this survives because it seems to me that where we are is getting to a place where all there will be is rats and cockroaches, nature will survive and there will be more ecosystems after we have obliterated everything."

3.3.7 Tolerance (Question 7)

"Really difficult. Pretty hard... Not really okay to tell others what to do but feel conflicted"

"within reason but they either need to benefit sadly in money driven society or they need to exist at a low enough density for them not to become a conflict"

"they were there all the time; so it is reasonable; but also reasonable to kill them, could be argued, have to ask them... (laughs); previously managed to rub along but understand the opposite point of view"

"based on evidence there is a possibility to share the landscape but depends on people to reduce conflict - we have the capacity to avoid conflict so can be done - need space and prey - they only are here to eat and naturally avoid eating people - don't take their prey and conflict risk could be reduced."

"Yeah, don't think it is unreasonable – it might be a fantastic rural existence"

"I don't think its fair to make them tolerate them just because people the other side of the world want tigers to exist, so find a way to reduce impact on people impacted that is the nature of conservation they have big impacts they kill people."

"No I don't think you should expect them to tolerate them - you can't just assume they can build electric fences around pasture and things like that - if we want them to be tolerant we need to help"

them as they do not have the monetary resources to put the electric fence up and we should not force tolerance.”

“Yeah... that is a tough question and I think yes because we would expect them to do it; we can't get rid of all animals just because we want to live in more of the world. Q are you into reintroductions? A Not convinced in UK. There is a difference between restoring and stopping losing. Q that seems chronologically biased - do your values extend to making our environment more messy A no I know landowners in Scotland who would be affected and they say it feels like something - that it is something that is being imposed by soft southern scientists and stakeholder consultation not particularly good, but in an ideal world would be keen; I would advocate population control above everything but no politician is going to take it on.”

3.3.8 Bearing the Costs of Conflict (Question 8)

NA

3.3.9 What are the inputs to the answers about your emotional responses? (Question 11)

“Fear for both locals and migrants, but for locals there is also respect for the tiger embedded in beliefs.”

“[giggles] - like erm difficult to tackle there is no answer that is the problem the problem is that species have been dying out so an evolutionary process - great people passionate about it but not sustainable as it is not going to change the outcome - once you die who is going to take over? - the Chinese are taking them over - in [COUNTRY NAME] there will be no chimpanzees in 20 years' time – ‘no matter how many times you come and give us chickens and goats we will kill them and eat them as we have hunger and only think about tomorrow’ so it will be impossible to change a whole thought process. I want to go into conservation education but it is doomed. I think in Brazil a little tiny victory would make me feel better - farm them - nothing is wild - everything is in a protected area... really pessimistic - experiences in [COUNTRY NAME] led to pessimism on chimpanzee and the depressing lectures over the year - everything including ecotourism is bad.”

3.3.10 No compelling principles to balance development and conservation (Question 12)

NA

3.3.11 Affect for Wild Tigers (Question 13)

“I don't really think about individual tigers; more tigers as a species, a viable population; I'm not emotionally tuned in to the plight of an individual tiger; much more the abstract view of biodiversity; I associate the individual tiger point of view with animal welfare people; I don't want to see animal suffering but don't have an initial emotional response, and much more a reaction as a trained biologist.”;

“I don't like animals suffering but haven't even considered the individual animal. I believe in the greater good - Q a cognitive response? A yes unless I was myself killing the tiger - can't get attached to the individual it does not help anyone”

“I'm quite a scientist in my outlook and it is definitely the latter not a welfare or emotional point of view there is a lot of anthropomorphisation going on putting human attributes on tigers that they just don't feel. I don't think they feel sad when forest knocked down, but might feel sad when cubs die. I value them more for their place in the ecosystem and their place in the ecology.”

“individual animals are often the focus of the efforts – a hunting ban leading to problem animals being moved at great expense absorbs funding and puts the problem elsewhere and the communities seeing this happen get really annoyed as it weakens the case for the community. Q a cruel to be kind approach would be more effective in winning hearts and minds? A crop raiding elephants are now translocated expensively denying the community meat etc.”

“I believe that every living organism plays a specific role and so it is important to keep as much biodiversity as possible - don't even know how we are all connected yet - must be some part”

“Both [INDIVIDUAL AND SPECIES]- I am biased already and would feel emotional. Several factors trigger my feeling. Working on trade stuff so very aware of CITES stuff - biodiversity gets less and less each year. I have personal feelings for tigers as magnificent creatures. I've read stories about how they communicate, relate to humans - I give a lot of respect to tigers. I think I am empathetic as I am more informed than the average person.”

“I think maybe both; before university more about the tigers, empathy, felt bad tigers dying off with no protection despite simpler emotions and no sense of future; I know they won't feel same emotions as me but so beautiful charismatic and exotic; but now I understand the importance of biodiversity due to university and the role the creatures play in ecosystem and the trophic chains; so we should conserve not just because we feel bad but because it sustains the whole environment.”

“I am more thinking of the impact - very angry seeing YouTube with individuals snared. Q You feel the empathy but the answer is more about the systematic issues as a biologist? A I am a biologist first of all not an animal lover; though I am an animal lover I am not focussed on this.”

“it is very much the latter; exactly about biodiversity - individual animals should not be the focus - this is the difference between animal welfare and a species and ecosystem approach. I love biodiversity as much as Born Free people love their tiger Joe. Q can you love an abstract noun? A yes - consider Flipper - it was a series of dolphins - not as solid as people would like to say - often more abstract than it seems so it is a legitimate aspiration to say you love biodiversity.”

“strange also interesting that RSPB has more members than all political parties combined; Q is it that people worried about disengagement but perhaps people think things are okay and there is no difference? A In this country involvement in mainstream politics contrasts with looking after wildlife.”

“You've got me now - because until you actually mentioned them I wasn't thinking of them but now you've brought it up I would have strong feelings for the individual. Q I've found a button to press? A yes - I'd hate to allocate a percentage - Framing is everything until now it would be a much more intellectual thing.”

3.3.12 Infrastructure Restriction qua (a) Conservationist and (b) hypothetical smallholder (Questions 14 and 15)

(a) “Yes I would I think with humans being so prolific we have to recognise that for natural systems to survive some areas have to be off limits. Such large human populations - so all prime land taken and only marginal land is left - we have to inhibit development of some areas.”

“Yes but would depend how it was done. Would have to look at how much damage say the road would do and how much it affects wealth and health of people there a balancing act. A tradeoff because couldn't be seen to be sabotaging the human. Q as a matter of practice don't you just slow down instead of stopping or reversing the habitat destruction vector? A yes but cannot just take people from their homes to make it a safe area for tigers A but we can and do do this for agriculture-

this is done all the time for monoculture creation by capital decision makers? A That does not make it right - if you want local people to engage and it does not bring clear financial benefit it is not a good idea - much better to go for palm oil as then you'll be paid more. The animal issue is more complex as there is no immediate reward and no guarantee as loggers may move in or disease comes in and no tourism benefit or what have you. I'd advocate in general that people should try and live alongside people."

"It depends on the trade-off; yes there are circumstances in which I would restrict infrastructure but not by default - need to understand details, mitigation costs and benefits. We cannot a priori make a decision but should be looking at it case by case."

"Choosing tigers over people? Hard question to answer. If there is an alternative build it somewhere else. [ASKS] How many tigers left in wild? [INTERVIEWER ANSWERS] 3200. [RESPONDENT] What is rate of decline? I would not advocate - but at the back of my mind I know as soon as I turn my head they will go and do it anyway. They are just beautiful but completely doomed."

"no there has to be a balance. It is not ideal - we have national parks - balance Q is this just capitulation? A the solution has to be worked and designed so it is not giving up - it is a strategic move. We can't just say that we have to have these areas - there has to be a balance - we can't have protected areas which are sacrosanct. Q are we selling the farm? A I would concede a little at the edge Q then what happens at t1 after t0 isn't it just the same thing over again? A I don't know - there does have to be a balance - it is not an enviable job. Q don't people need to argue hard for the other side? A people wanting to have roads built have huge economic power others just have value arguments. Q But it looks like the value arguments are not being made? A I think that non-economic value - people will pay money... Q might it not be that they would put £10 in a conservation collection box as against \$1000/month in an emerging market fund looking for development returns in high biodiversity value countries? A We need to rethink pricing in externalities."

(b) "Of course - bring in the 10 pin bowling alley...!"

"Knowing the nature of the people more than fifty per cent would say bring the mall! But government is important as we can't satisfy everyone and need to educate people that school and access to market will be provided - so give them what they need not what they want."

3.3.13 Tiger rugs and context (Question 16)

"Ugh - repulsion and disdain; class resentment; grief"

"Awful; disgusting; rage"

"Disgust"

"hah! Indifference but we need to separate my personal feelings from the relative cognitive thoughts about what this would say about me and how would my friends react? - as it would be a bad political move."

"I'm looking at the list - none of them - dismay comes to mind - I understand why people appreciate the beauty but I wouldn't want one on my floor and I'd be upset that an animal had died but I would want to know the cause and I'd be disgusted if context was that someone had gone out to shoot it to make me a rug Q So it is about context and network effects A I'd be lynched by my conservation friends and I would not want to feed the demand - not comfortable having one in my house."

“The book [Game Changer] has changed a lot of my thinking - it would have been disgust but such a rug would be a thing of beauty, and does making them illicit detract from value for these animals; wonder with ivory if fighting the trade in it has not made progress and would a more realistic approach be responsibly giving a value to such products. Tigers a different game to ivory which is different from rhino horn; so now only western existential value exists which does not matter to locals coming into conflict with them.”

“I don't have any problem as long as abstracted ok. Particular contexts where I could see myself having one eg if story was trophy hunting with rhinos where animals no longer contributing to the population but right now difficult to show a tiger skin abstracted in a way that was not biodiversity negative but could imagine this being possible if we get our shit together.”

“gut reaction is that it is tacky and then disgust . Why? Very last century earlier last century and linked to proving masculinity so tacky - and why? For a trophy that is unnecessary?”

“a cheesy batchelor - Eucch - lights go off 70's thing”

“had this situation with a friend; disgusted and I have never spoken to him again”

3.3.14 Sacrificing Biodiversity for Utilitarian Instrumentalism (Question 17)

“No I don't think humans could be happy in these circumstances people are more happy with harmony with nature and the earth. It is impossible to say everyone would be happy with no contact with nature.”

*“No because to me biodiversity equals happiness - it is not just about lots of species but about them working in an ecosystem and [minimising biodiversity] leads to water supply problems and pollution
Q what about if we can support a population of 30 billion eating algae? A would that make you happy? Q well they are... A I would not be happy but I'm just one person and I'll fight to make sure that does not happen and I hope others agree.”*

“ah. Mm short answer is no but that is my personal feeling. But we are delving into the area of what an appropriate size of population and its quality of life and there is trade off between population and quality of life and who am I to say what the trade off should be? Q if not you who? A not in a position to make that call Q don't we need passionate advocates for both sides for the bargain to work out? A I'd be a passionate advocate of restraint in producing more humans but not necessarily culling existing ones Q is population the elephant in the room - [XXXXXXXXXX] and [XXXXXXXXXX] made it clear that this was not something that is permitted to be introduced into the discourse -respectable conservationists can't be allowed to seem anti human - what do you find? A yes I'd argue that by virtue of their actions and the things they say a lot of biological conservationists hate people who are not their people and would see them culled but are not permitted to talk about population control. Q Does this mean discomfort in unpacking these issues and failure to unpack them means ends will not be achieved – A probably.”

“it is a difficult question in the sense that I attach a high value to biodiversity so the question is 'would I be prepared to sacrifice my own happiness for others' and when push comes to shove I wouldn't as it is trading off fundamental values in life. I'd be happy to trade off some species for other things; could trade off some aspects of lifestyle for biodiversity conservation; rationally I should but emotionally I could not agree to this trade off.”

"I don't know how to answer that question. I don't know [responds to interviewer saying that it can be a yes or no] No. On the one hand wildlife really important - I'm just one person - Q it's negotiable? If massive happiness increase for loads of people to balance against my happiness then maybe, but we should not revert to telling others what to do."

"Well first of all I think biodiversity is minimised to a level which is minimised as much as possible and people are still unhappy so I don't buy it."

"No; Q Why not? A To me I don't think humans have more worth than other species. Plants and animals have just as much right - also we have an intrinsic connection to nature and it is good for health. We need nature to survive - people would not actually be happy if we killed off biodiversity; we need nature to survive. People in cities are unhappier."

"No Q Why? A I don't think people are the single most important thing on the planet."

"That's a mouthful; I'm taking it you wrote these questions - no surprises there; no definitely not; well Q but people will be happier and wealthier - that all that matters I'm told according to my course? A the population is heterogeneous - but if you're saying a majority would be happier... Q we're producing a lot of people who are happy and they've forgotten about biodiversity A biodiversity has an intrinsic value apart from value to humans."

"I don't think I would as I hope humans can think beyond anthropocentric values where humans are the be all and end all of existence; I don't think I would."

"No I don't think so - maybe a small decrease in biodiversity but we're doing that already; not okay with that - want to do both - will come a point where we have to impose a limit on our lives but restraint - need to rein back and take that hit; want to do both we are pushing the planet to a limit."

"It depends on your own personal views - if you're an egalitarian maximising happiness then I would have to say yes Q but is wiping out other species wrong? A yes so back to morality Q what is the source of that morality A it is a personal morality. Q where is it from? A things I've read and done, maybe religion all I think of independently is some sort of social contract Q look at the words [Appendix 2] does this help you; A hard... I'm not really saying anything... it is the decent thing to do Q proportionality decency? A yes harm principle - don't harm others - classical liberal idea."

3.3.15 Intrinsic value, aesthetics and spiritual value: Emotions and Meaning (Question 18)

"intrinsic - these things have a right to live - but this is a human judgement - it is all about us - all about our relationship with ourselves - us trying to figure out the world and our place in it; so quite selfish; human relationship with nature so key to our path forward in the next few decades; think of positivistic population densities etc - horribly positivistic; but also talk about intrinsic values and agrees completely contradictory - melange of awe and deep feelings - training as an ecologist reduces all those feelings to graphs and numbers - emotional states- introspective - awe - remember moments of feeling awe at the natural environment - working as an ecological consultant funny how everything is reduced to facts and figure and the emotions culled out - wonder what it is all about - referring to sheet - rage that these beautiful landscapes and habitats are being threatened so voraciously - grief loss fear for future that our grandchildren won't have the opportunity to enjoy the aesthetic and lose appreciation for nature - feel care and seeking for the answers - must be some fucking solutions somewhere. v complex - Q does the hard work of becoming an ecologist satisfy the intellectual seeking requirement? A Academically yes, but not the practical work. Field work as a professional ecologist gives the getting into contact with nature - academia allows trying to answer deep questions although at a computer the whole time - can learn from indigenous people with their

emotional connection with nature - industrial societies seem to have a complete lack of engagement and connection with the natural environment – Q paradox of urbanisation being part of the answer with growing populations but increases the disengagement with nature...”

“based on my experience I never appreciated the rainforest or the sound of gibbon until I experienced it and then realised it really made me calm and that I enjoyed - can’t compare with the sound of street. People who have not experienced it cannot appreciate it.”

“I don’t know - really hard questions - Q what are your emotions when feeling these things? A Seeking something - something greater more than where we are; yeah iconic species with mystical qualities from culture. Oh my god difficult to answer I’m a bad person to ask. I’m failing. Can I come back to it? Q last q... A how do people feel when they think of these words?? Q [explains Appendix 2] A - seeking... ca... care - potential for grief rage and anger if gone for letting it.. emotions when I think about it... seeking something else from it... care vague word - I can extrapolate - some duty. Q but it seems to me that you have made major life decisions on the basis of some emotions... Q mmm these questions are too difficult - desire to protect what has always been in the past and a desire to conserve that. Would like more biodiversity and more forest area very personal - Q would you like more speciation? A not really - we should have a responsibility to protect what we’ve been given Q who gave us the gift A we have the opportunity to live on a great planet and we should look after it also for our own protection - we need forest or we will all be flooded. Q would perfect carbon capture technology be a replacement. A no it is very difficult to capture the non-economic value. Really hard.”

“I think that it is a very holistic natural thing to include the environment as a part of cultural belief - magic in walking amongst bluebells with butterflies and birds - gives reason to breathe in and out every day it is magic and wonderful and understand why there are religions based on this and respect for the environment.”

“why do people need spirituality? Q your idea of transcendence through saving nature and being fully human sounds a bit like spirituality or aesthetic value. You’re taking the question as being what do you think of others expressing ideas of spirituality but it seems to me your reasons - moral duty - respect for life is an intrinsic value for saving the tiger what do you feel for that word/argument - what emotions drive you? A Love and admiration. Love of the living being and what a wonderful thing I see; and admiration because you love what you admire. I want to be part of this thing on earth and I want to be able to continue to love my species and others because it is what I want to do/be; I love my environment and want to be able to love it and I love humans who are able to share and respect this. But to love people they need to demonstrate their care for other animals and it is this that that makes people lovable. What makes us human is the ability to love; if we lose this then we lose humanity and man will be a just a species like any other. Q it is the essence of humanity that humans can express love and express love for life not just for other humans.”

“I think the abstract values are not so abstract for me because I know examples and they are very real to me Q these words seem empty to me A yes straight from a UN report but hard to think of better ones - hard to represent feeling - but they do mean something though a bit washy washy KF aesthetic we admire the beauty in nature and tigers Q is tiger beauty better than manmade beauty A definitely -tiger beauty is wild and we did not create it we only look at from a distance we admire it outside of our creation - it makes us value nature and it is important that we value nature because we are an animal that likes beautiful things Q if thinking about beauty what emotion that it connects to? A mixed emotions – I value it - the beauty attracts funding to save beautiful animals as well as other animals which are helped? Q so we need it to keep conservationists in a job? A no - depends on conservationists. Q I still don’t understand your emotions? A you mean aesthetic spiritual or intrinsic?

Q I think emotions driven and trying to understand what emotion is pushing people to alter their own behaviour eg to make a career choice; if you're hungry you get a meal; everyone on course thought something wonderful about nature or complexity or animals but seemed to get embarrassed when asked why. Might be an ego thing to go through jungles of Borneo rather than going to the office every day might be seeking something and we need things to seek for human enrichment thing - need complexity to exercise seeking - biological environment of origin to deal with risky predators - A in terms of people who Q no not people in the abstract, you... A hard to express emotionally - longing to be in wild places - glamour - personally scientific findings desire to practice science and achieve goals using science Q want to know about things so I need it to be there to know about it? A yes Q astronomers don't have this... A you can put it down to seeking knowledge, exploring Q [related focus group embarrassment] to laughter A wishy washy emotionally driven stuff Q they kind of panicked AI can see that happening as every one making themselves out as very scientific when really they want to work with cuddly animals and travel in wild places - I'm not as strong as that on this and am genuinely more sciencey - but who would not want to go and trap a tiger! should have got it [focus group] on video. Q I felt mortified - may be didn't ask it well A could definitely ask the question better - last one - could be more straight to the point - in Catcher in the Rye a class had a scene where a teacher cried out Digression every time this happened you'd have been annihilated."

"professionally I try to quantify these things and run with them and galvanise support on these specific dimensions so I have a particular way of seeing them. I see them as tools - a cube with all these faces and depending on perspective you'll see different sides of it although they will always be there and seeing it from different angles; species have all these aspects attached to them and people will see them differently; Q you are talking about other people whereas it is clear this is a core value for you from previous answer so if you are trying to elicit donations for a client charity you must be seeking to elicit an emotion in the receiver of message that resonates with you putting time and effort and ability into this activity as opposed to becoming say a racing driver - what emotions do you attach to what you do? A I prefer to stay away from this - I learned this from anthropologists - I start from nothing - start with ethnographic approach and an open mind to gauge what is their now - Q that is studying others I want to pin you down what do you think not how do you categorise others - how do you feel yourself??? A I think it is difficult to look into my own motivations to see where one starts and another finished eg aesthetic/spiritual Q agree but what is the emotional core? what is the emotion? DV I cannot describe it very well but it is close to "passion" - even if it is not reasonable it is very strong and I feel compelled to act on it time and time again Q does epiphany work? A not a click moment - it was more of a process that ended up with this result but now I have a very strong positive emotion compelling me to act - if I think about it rationally there is a low chance of success low pay etc but I have the passion and act on it Q looking at the words on the paper?? A not sure - I guess SEEKING what does this refer to? Q the drive that initiates activity. A I don't latch onto any of these words Q what about care? A I originally wanted to be a vet but did not want to look after them fix their legs etc and wanted to find out more Q sure it is not care? A could be that. You mentioned seeking is getting up in the morning - I am a greatly motivated because I really like what I do it is no effort to work 20 hour days to do this work. Q one's emotions are not always accessible to you and you do not want to be too flip - very interesting."

"easy - people are seeking to put their values above ranking and are engaged in a cynical power grab Q are you in danger of becoming a patsy for people you disagree with? A emotion is irritation because I think they are going to lose by not acknowledging that there are trade offs to be made. Q do you agree that the idea that the idea of development is not a simple one and reducible to a single wealth metric A I would criticise the idea of reducing everything to a metric of GDP. Q coherent unpacking is important."

“3 of them - remind me? Q [reminds] A Most higher animals have an understanding of aesthetic beauty through sexual selection as this does not stop with our species so aesthetic value very high; spritual value not so much though not religious you do not have to be religious to be spritual - something to do with native american or tibetans who think bear might be grandmother through reincarnation Q transubstantiation of souls? A yes intrinsic - Q what emotions? A deep grounded emotions of compassion and love. A from sheet? - A probably say love Q care? A yes compassion care love.”

“makes me think of people saying dogs empathetic protecting individuals of other species likewise elephants/dolphins underlies why people have an obligation to protect other species. Those kind of events give me hope as to why humans should be able to protect other species for existence as we have the ability to understand; Q mammals protecting other animals? – cross-species affect source of morality kind of thing? A yes Q not sure crocodiles exhibit such social traits - does that mean we should not protect them or other reptiles? A I don’t think so though I understand the argument - we have the obligation to work within society to find a way to help not just little puppies because we have the next step in comprehension of systems. Q what about mosquitos and ebola virus - A yes Id happily lose mosquitos despite their regulatory factor -it is a complex one – as an example I recently read that Kenya now has banned bird shooting so surely I can’t use anti malarials and antibiotics as they can be considered wildlife Q these things deserve to be grappled with not shied away from or we sound like we don’t know what we are talking about? A wild animals have a right to live but it so much more complicated than this.”

3.4 Comments on and engagement with the questionnaire

“I think questions are fantastic!”

“good questions but don’t get drowned; I agree conservationists don't know why - people don't give a shit about biodiversity. How do you define what is beautiful or convince someone killing a human is bad when they are being irritating... morality is hard to explain.”

“definitely an issue of engaging with emotions - that is real consequence in losing channels to raise support for our cause - animal welfare does much better in membership funds and budget. Compare for example the RSPB and RSPCA.”