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Teenage Dreams: can adolescent aspirations be used to inform new conservation initiatives in Kazakhstan?

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DECLARATION OF OWN WORK

I declare that this thesis:

"Teenage Dreams: can adolescent aspirations be used to inform new conservation initiatives in Kazakhstan?"

is entirely my own work and that where material could be construed as the work of others, it is fully cited and referenced, and/or with appropriate acknowledgement given.

Signed……

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CONTENTS

ACRONYMS

ACBK	Association for the Conservation of Biodiversity of Kazakhstan
CBT	Cognitive Behavioural Therapy
CWA	Centre for Wild Animals of Kalmykia
FBI	Family-Based Interventions
KI	Key Informant
MI	Motivational Interviewing
NGO	Non-Governmental Organisation
SCA	Saiga Conservation Alliance
SSI	Semi-Structured Interview
SWC	Steppe Wildlife Clubs
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature

ABSTRACT

Human behaviour is the key driver of all major threats to the natural environment. Recognising its importance is fundamental if conservation practitioners are to tackle biodiversity loss and implement successful solutions; an essential requirement for the saiga antelope, a Critically Endangered ungulate found in Russia and central Asia.

These solutions are often in the form of public outreach, with an emphasis on initiatives such as environmental education or community-based conservation. With adults and children as main targets or these engagements, there is a conspicuous absence of literature on the subject of influencing teenage behaviour for the benefit of conservation.

This thesis aims to investigate this absence, coupling new behaviour-change methodologies sourced from the psychology sector with interviews from teenagers in the saiga range state of rural Kazakhstan and questionnaires by active saiga conservationists; using these three sources of information to conceive new engagement initiatives for the Saiga Conservation Alliance to implement with teenagers to benefit conservation of the saiga antelope.

Finally, the thesis advocates that with no research being undertaken regarding the relationship between teenagers and conservation and designing adolescent-specific engagements, this is a crucial area for future studies; a deficiency in conservation practice that needs urgent attention.

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1. INTRODUCTION

1.1. The importance of behaviour change

Human behaviour is the key driver of all major threats to the natural environment. Habitat loss, climate change, invasive species and overhunting are inevitable consequences of the consumer lifestyle of the ever-expanding population of billions of humans (Verissimo, 2013). Recognising this importance is fundamental if conservation practitioners are to tackle the underlying drivers of biodiversity loss and implement successful solutions. The necessity of behaviour change is vital for the protection and continued existence of the saiga antelope, an animal once numbering millions now existing at 6% of their pre-1990s population (Milner-Gulland et al, 2001; CMS, 2006). Illegal hunting is the main cause of this decline; with their meat used as a cheap alternative to livestock and horns sold to the traditional Chinese medicine market for high prices (Kuhl et al, 2009).

1.2. Behaviours of interest for the conservation of saiga

For the conservation of the saiga antelope, there are a range of different behaviours that conservation NGOs such as the Saiga Conservation Alliance (SCA) have an interest in influencing (Figure 1.2.). Certainly negative behaviours need to be discouraged, but positive behaviours should also be endorsed and advocated so that more people are encouraged to assume them as the norm. The negative behaviours in the saiga range states and outside consumer countries are undertaken by all societal and gender demographics; men poach and sell saiga meat and horns, women buy saiga meat, family units then eat the saiga meat, thus, all genera of people are involved in the illegal trade of saiga products; selling, buying, eating, and using as medicine in doctors' clinics.

Figure 1.2. Behaviours of interest for the conservation of the saiga antelope.

1.3. The absence of teenagers

Despite the growing emphasis on initiatives such as environmental education or community-based conservation in recent decades, there is an absence of literature on the subject of influencing teenage behaviour for the benefit of conservation. While adults and children have been the targeted subjects of many initiatives and studies regarding successful engagements or behaviour modification (Hungerford & Volk, 1990), teenagers are rarely treated as an independent group, with conservation practitioners often including them in initiatives directed at children. There could be many reasons for this; teenagers are notorious for rebelling, experimenting with new interests, and pursuing new trends (Nelson & Lott, 2012). This is problematic for conservation engagement, with constructed normative activities often deemed "uncool", along with feelings such as caring and enthusiasm (Kehily, 2007). It is important that an effort is made to engage teenagers, as they will be the next generation making decisions and undertaking behaviours that will impact upon the environment. Adolescence is described by Boyle (2007) as the stage of development that involves the preparatory work for adult life; it is here that adolescents seek to

clarify who they are and what their beliefs are. For conservation, there is a need to positively engage teens to ensure these beliefs form in a way that is beneficial for conservation.

1.4. The positive effects of changing teenage behaviour

As well as the need to influence teenagers in the saiga range areas with the aim of discouraging them from become saiga poachers or meat buyers in the near future, implementing conservation initiatives specifically for adolescents also has the potential to have an impact upon teenagers' families and their whole community. Constructive and encouraging engagements could positively affect teenagers' attitudes and feelings towards conservation, which may encourage them to be more vocal at home regarding conservation issues, in turn potentially influencing their parents if either poaches or buys and cooks saiga meat (Mckenzie-Mohr, 2011; Shivaldova, 2013). With new positive attitudes, teenagers could become thought leaders in their communities; spreading conservation messages and eventually establishing a new social norm where saigas are safeguarded for the future (Figure 1.4.).

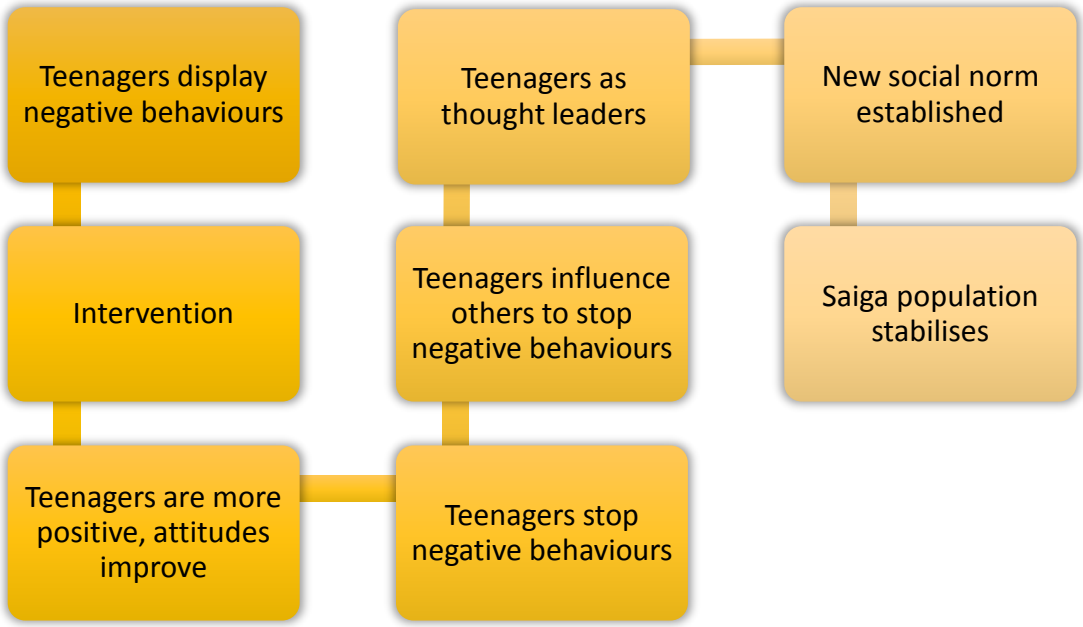

Figure 1.4. Hypothesised causal links for potential teenage interventions.

1.5. Connecting conservation with other disciplines

Some types of behaviour relevant to conservation are analogous to other kinds of behaviour that modern society has recently been devoted to changing (Bowen, 1974), but as yet a parallel has not been drawn between the two. Teenagers have long been viewed as having 'undesirable' behaviours and compulsions which need to be modified if they are to live in a socially accepted way (Prior & Paris, 2005), and multiple studies and research has been conducted in the psychology sector into effective interventions for prompting behavioural change. These insights could be particularly useful for conservation practitioners, as with an absence of research on influencing teenage behaviour in the conservation literature, theories and practices from other disciplines could be assessed for relevance regarding specific behaviours and applied to benefit conservation objectives.

1.6. Project aims and objectives

This project aims to connect these behaviour-changing methods from the psychology sector to create a framework to inform new conservation interventions specifically aimed at teenagers. Using information regarding teenagers' aspirations and situations from the saiga range state of Kazakhstan, engagements can be constructed that are tailored for their preferred free-time activities, as well as supporting their goals for the future, thus positively discouraging any forthcoming damaging behaviour regarding saiga antelopes. The Saiga Conservation Alliance can use the framework for teenage engagements developed here to initiate new interventions and activities for teenagers in Kazakhstan, with the ultimate aim of halting the decline of the saiga antelope. The research objectives for this project are:

- How can the experiences of engaging with teenagers in other disciplines be applied to benefit conservation?
- What are the situations and aspirations of teenagers in the saiga range area?
- How can the SCA utilise and endorse these aspirations in its approach for conserving the saiga antelope?

2. BACKGROUND

2.1. The saiga antelope

The saiga antelope (*Saiga tatarica*) is a migratory ungulate that inhabits the semiarid desert regions of Russia and central Asia (Bekenov et al, 1998). A relic of Ice Age fauna that included mammoths and sabre-tooth cats, the saiga is evolutionarily distinct from other antelopes (SCA, 2014); the only surviving member of its genus. There are two sub-species; *Saiga tatarica tatarica* (Figure 2.1.1.) which is found in Kazakhstan, Russia and Uzbekistan, and *Saiga tatarica mongolica*, found solely in Mongolia. Saigas are highly social, forming herds thousands strong, especially during their seasonal migrations between feeding grounds and breeding sites (Milner-Gulland et al, 2003), reducing the risk of predation during calving (Milner-Gulland et al, 2001).

Figure 2.1.1. Male saiga antelope in the Ural region of Kazakhstan.

After the breakdown of the Soviet Union in 1991 saiga populations decreased rapidly as a result of dramatically elevated levels of illegal hunting within saiga range states. The collapse of rural economies led to widespread unemployment and poverty, resulting in the poaching of saiga as an alternative (albeit illegal) source of food and income (Milner-Gulland et al, 2001). The removal of funding for saiga management and law enforcement allowed this trend to continue unhindered, and the reopening of the border with China in the 1980s fuelled further exploitation of saiga populations as the demand for saiga horns for use in traditional Chinese medicine soared (Li et al, 2007). Between 1993 and 2001 the global population of saiga fell from over a million animals to less than 50,000, a 95% decline in less than 10 years, with the remaining population being just 6% of their pre-1990s level (Milner-Gulland et al, 2001; CMS, 2006). In response saigas were listed as Critically Endangered by the IUCN in 2002 (Mallon, 2008). With their populations and range hugely reduced, saigas now survive as 5 sub-populations (Figure 2.1.2.).

Figure 2.1.2. The current 5 sub-populations of saiga: 1. Pre-Caspian 2. Ural 3. Ustyurt 4. Betpak-dala 5. Mongolian (Milner-Gulland et al, 2001).

Poaching is still the main factor driving the decline of saiga populations; meat and hide have always held traditional values, but the continued demand for saiga horn for use in traditional Chinese medicine is fuelling population debility (SCA, 2014). This demand has resulted in a change to saiga population structure; only male saigas bear horns,

and the subsequent selective hunting has resulted in a skewed sex ratio and reproductive collapse (Milner-Gulland et al, 2003; Kuhl et al, 2009). Small population sizes leave saigas vulnerable to stochastic events such as extreme weather conditions or diseases, which have caused large mortality events historically (Milner-Gulland, 2010), and recently with over 13,000 saiga of the Ural and Betpak-dala populations found dead in 2010, 2011 and 2012 of pasteurellosis disease (SCA, 2013). However, saigas are highly fecund, with females giving birth in their first year and twinning rates as high as 64% (Milner-Gulland et al, 2001), thus with protection, saiga populations have significant potential for recovery.

2.2. The importance of engagement

Engaging the public in conservation is an important and common tool for raising environmental awareness and building empathy for natural issues (Batterbury, 2008). Almost all environmental charities and NGOs have a public engagement plan worked into their conservation strategy, for example the Bat Conservation Trust in the UK promote the engagement of children with activity packs, and the involvement of communities with group bat counts. The abundance of volunteering placements offered within these same NGOs and charities demonstrates another well-established method of engagement; with volunteers learning, physically participating, and personally engaging others in conservation activities (Bussell & Forbes, 2002; Stewart et al, 2013). The importance of engagement originates from the idea that to care about environmental issues, people must have personal experience of nature (Monroe, 2008). There has been a long history of environmental education as an engagement strategy, becoming more defined during the Victorian era's preoccupation with the natural world and its life (Palmer, 2002). More recently, there has been an emphasis placed upon the importance of environmental education for children, with teachers and parents as imparters of knowledge (Wilson, 1993).

2.3. The Saiga Conservation Alliance

The Saiga Conservation Alliance (SCA) is a network of researchers and conservationists who have worked together for over 15 years to study and protect saigas, officially

established 2006. Their focus is to conserve saigas through local partnerships and focus on sustainable long-term solutions, working collaboratively to conserve the steppe ecosystem as a whole, taking into account human needs as well as other flora and fauna (SCA, 2014). The SCA work in the saiga range states and consumer countries like China, with many different projects being conducted across these range states. For example, a livelihood intervention project currently running in Uzbekistan focuses on women living on the Ustyurt Plateau; two embroidery groups have been established where women use traditional techniques to make products to sell for a profit. With high unemployment levels in the area, poaching and buying saiga meat are often a heavily relied upon livelihood option (Kuhl et al, 2009), and the embroidery project aims to earn the women participating a sustainable wage and consistent income, allowing them to buy more expensive meat, thus halting the demand for saiga poaching (Damerell et al, 2013). The women are given information on saiga conservation at the embroidery meetings, with the anticipation that they will then deter male family members from becoming poachers, with bonus payments contingent on the cessation of these negative behaviours (Figure 2.3.).

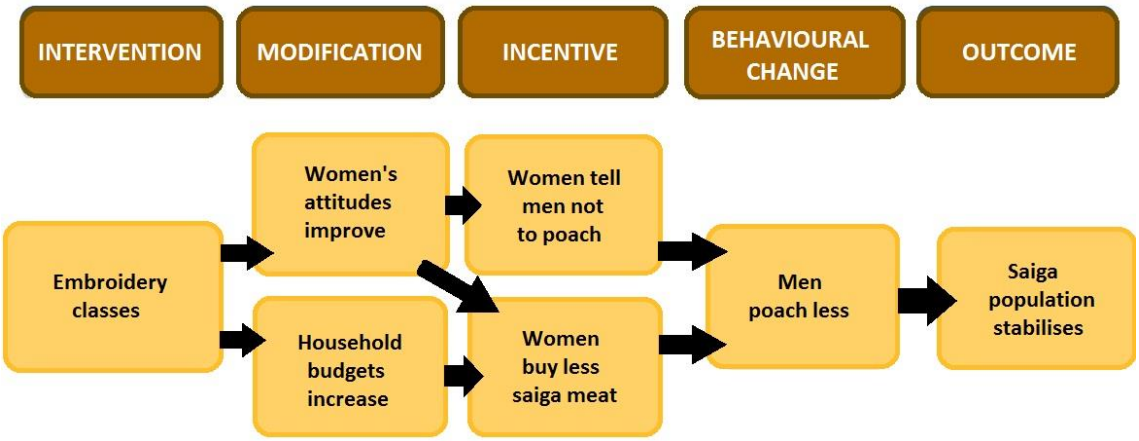

Figure 2.3. Hypothesised causal links for the alternative livelihood engagement strategy (Damerell et al, 2013).

The SCA promotes saiga education and awareness for children across the saiga range states, instigating an annual Saiga Day in spring to celebrate the birth of saiga calves,

with school events and ecological field visits. In 2012-2013, Steppe Wildlife Clubs (SWC) were formed across the saiga range states, becoming bases for saiga learning and out-of-school activities for children and interested teenagers, especially important for teenage boys who may become the next generation of poachers. Often run by teachers, the clubs aim to motivate attitudinal change leading to personal and parental behaviour modification, with examples of children refusing to eat saiga meat thus influencing their mothers' buying choices (Shivaldova, 2013). Currently, some of the SWCs' (in Kazakhstan, for example) activities have been designed with younger children in mind, and this could possibly cause negative associations with conservation for teenagers as participating in children's activities is viewed as 'uncool' and immature (Kehily, 2007).

2.4. The study site in Kazakhstan

At their lowest point in 2003, saiga populations in Kazakhstan had reduced to less than 20,000 animals. In response to this, saiga debility and the need for action was recognised by the government of Kazakhstan in 2005, with the launch of the 'Programme for conservation and restoration of rare and extinct ungulate animal species and saiga'. The SCA has also been working in Kazakhstan since 2010, collaborating with the Association for the Conservation of Biodiversity of Kazakhstan (ACBK) to implement conservation initiatives and protection strategies, and saiga populations have now risen (at last count) to more than 250,000 (SCA, 2014). However, saigas in Kazakhstan still face many challenges, with persistent hunting, mass die-offs from disease (SCA, 2013) and the construction of a new border fence between Kazakhstan and Uzbekistan on the Ustyurt plateau. The fence impacts the Ustyurt saigas' migration routes, as well as creating perfect conditions for poaching (Zuther, 2012), a significant threat to the already over-exploited Ustyurt population, which numbers less than 7000 saigas. As the SCA has been involved in Kazakhstan for less time than in the other saiga range states of Uzbekistan and Kalmykia, there is the potential to implement more initiatives, developing ideas from the other range states' experiences and instigating new engagements with additional rural villages.

Kazakhstan is the 9th largest country in the world, with a population of 17.7 million. In December 2012, the President of Kazakhstan introduced the '2050 Strategy', aimed to elevate Kazakhstan to one of the world's 30 most-developed countries. Though the economy worldwide remains unsettled, Kazakhstan has experienced sound economic growth from 5% in 2012 to 6% in 2013, which has had a positive impact on the amount of people living in poverty; from 47% in 2001, to 5.5% in 2011 and 3.8% in 2012 (The World Bank, 2014). The study site area of West Kazakhstan has the country's highest unemployment rate, a contributing factor for elevated saiga poaching. The hunting of saiga was made illegal in 2005, however with such a huge area to monitor, authorities do not have the funding or manpower to control illegal poaching unaided in West Kazakhstan.

The two villages targeted in West Kazakhstan were Azhibay and Nursay, sites that have hosted engagement activities implemented by the SCA and ACBK for the last few years (Figure 2.4.1.).

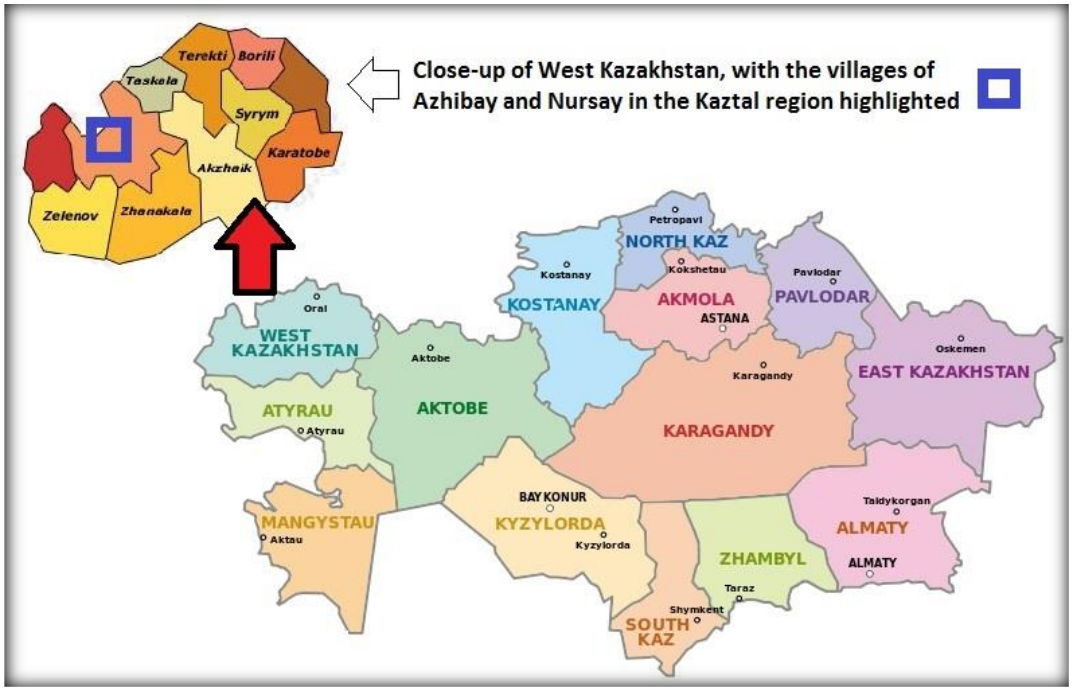

Figure 2.4.1. Kazakhstan, with the study site area in West Kazakhstan highlighted.

Azhibay (Figure 2.4.2.) has a population of approximately 2000 people, while Nursay (Figure 2.4.3.) is smaller with approximately 800.

Figure 2.4.2. Azhibay village.

Figure 2.4.3. Nursay village.

3. METHODS

3.1. Targeted literature review

Conducting research to understand how the experiences of engaging with teenagers in other disciplines can be applied to benefit conservation required an in-depth review of the literature. The search was targeted; as the field of research is narrow (Figure 3.1.).

Internet Search Engines used:

- Google
- Google Scholar
- Imperial College London Online Library

Search Terms:

"engaging teenagers to benefit conservation"

"peer programs to change behaviour in young people in conservation"

"environmental education teens"

"teenage behaviour change"

"models of adolescent behaviour change"

"helping young people make better choices"

"shared decision making in young people"

"adolescent addiction motivational interviewing"

"family interventions adolescent addicts"

Figure 3.1. The search engines and terms used to conduct the targeted literature review.

The literature review was intended to illuminate the different methods and initiatives used by other disciplines to engage teenagers or initiate behavioural changes, and to ascertain the level at which conservation has explored these engagement approaches, if at all.

3.2. Methodology rationale

When reviewing the literature regarding obtaining information concerning adolescents, one method appears to be utilised more commonly for research purposes than any other. This is the self-administered questionnaire (Whitfield et al, 2013), used in almost all disciplines and regarding all manner of information, for example the British Crime Survey's Teenage Booster Sample (1992) and the Teenage Smoking Attitudes Survey (1998). This method is favoured for adolescents as participation is voluntary and privacy ensured, in line with the Helsinki agreement ethical standard (Whitfield et al, 2013).

A questionnaire is a research instrument consisting of a set of questions intended to capture responses from respondents in a standardised manner (Bhattacherjee, 2012). Questions may be unstructured, structured, or a mix of the two, where unstructured questions ask respondents to provide a response in their own words, while structured questions ask respondents to select an answer from a given set of choices; a quantitative survey method allowing for comprehensive data analysis. The self-administered questionnaire is most commonly used, being advantageous in that they are unobtrusive and inexpensive to administer (Bhattacherjee, 2012). There is no interviewer bias or response effects with a self-administered questionnaire, and people may be more willing to report socially undesirable or illegal behaviours as the anonymity gives them a sense of security (Bernard, 2002).

However, self-administered questionnaires often suffer from low response rates due to the frequency of their use in modern society, and often need certain strategies such

as completion incentives or group facilitation in order to guarantee completion (Wisker, 2008). There is no control over the interpretation of questions (Bernard, 2002), requiring questionnaires to be designed and structured very carefully to dissuade respondents from 'pattern ticking' boxes (Wisker, 2008) and simply ignoring certain questions. Mailed questionnaires, online surveys and telephone interviews are all subject to sampling bias, with respondents skewed towards certain demographics depending on the survey method (Bhattacherjee, 2012). With adolescents, self-administered questionnaires are subject to insecurities of opinion and result in reliance on collective peer viewpoints, meaning that where questionnaires may be completed together copying and a group discussion of the 'correct' answers to give is a common occurrence (Brown et al, 1986).

3.3. Semi-structured interviews

Remote villages in Kazakhstan are subject to constraints rarely as prevalent when undertaking surveys in most disciplines. With language as a barrier, using focus groups (Bhattacherjee, 2012) to facilitate teenagers' thoughts and preferences was impractical. A questionnaire was constructed, although many methods for its implementation were deemed unfeasible; the village had no internet access, many of the homes did not have telephones, and there would have been no way of knowing how many teenagers were not being included in the sample. To counteract these survey quandaries, the questionnaire was converted into a semi-structured face-to-face interview (Appendix 1) with open questions (Milner-Gulland & Rowcliffe, 2007). This qualitative survey method allows for the understanding of beliefs and experience, values and ideas (Wisker, 2008), preferences, thoughts and behaviours (Newing, 2011). This was deemed the most logical survey method for my research as face-to-face interviews allow the interviewer to expand or clarify questions, and also to probe if the respondent is not answering fully (Bernard, 2002). Pilot studies are important for solving methodological issues (Milner-Gulland & Rowcliffe, 2007); for this study, the sample size was deemed too small to be able to conduct a pilot study with the teenagers, as ideally pilots should not be carried out with the same people who will be

part of the main study. Instead, the questions were individually checked through with the interviewers to ascertain any misunderstandings or mistranslations. However, the language barrier still proved marginally problematic, with the sexes of the teenagers not being noted and the last two questions of the interview being 'lost in translation' during the change from English to Russian (with some of the interviewers then further translating the Russian into Kazakh). This issue was not raised by the interviewers during the pilot examination of the questions and unfortunately resulted in vague and uncertain one-word answers from the adolescents (for Q.12 and Q.13), making it clear they had not been asked the intended questions. More positively, using the semi-structured approach allows for comparisons of responses to the set list of questions, while the informal nature of the interview gives the respondent and interviewer the freedom to expand on topics where appropriate. The method would also allow the teenagers to answer with their own thoughts and opinions, and not those pre-determined by their peer group (Brown et al, 1986).

Figure 3.3.1. Children of Azhibay school showing their prizes from Saiga Day.

The interviews were set up for the two study sites of Azhibay and Nursay. Establishing a rapport prior to the interview is important, especially when working with young people, who can be more reserved with strangers. The interviews were planned for the evening following the Saiga Day for each village, allowing the adolescents to have

spent more time (and more enjoyable time) with the research students who would be conducting the interviews (Figure 3.3.1). The village schools were deemed as the best place for the interviews to be held as it allowed every available teenager from each village (30 in Azhibay and 26 in Nursay) to be present at once, considerably shortening the time needed to locate and interview all of them and also ensuring the largest sample size possible. Before the interviews were undertaken, the teenagers were shown a film and given a talk by the research assistants regarding the plight of the saiga antelope (Figure 3.3.2.), and the work being done to conserve it. Following this, tables were set up with drinks, fruit and sweets brought from England, to encourage rapport and communication (Theis, 1996).

Figure 3.3.2. Showing the adolescents a documentary about saiga antelopes and conservation.

Adolescents were then taken individually to small tables in the same room to undertake the interview (Figure 3.3.3.). This decision was partly practicality as utilisable space within the schools was limited in the evening, but also allowed the teenagers to still feel as though they were part of the fun picnic-like environment we had created, thus encouraging an affinity with their interviewer (Wisker, 2008). The single tables also provided privacy from their peers, allowing the teenagers to express themselves without the pressure of peer judgment (Brown et al, 1986; Bhattacherjee, 2012). The interviews were conducted in Kazakh and Russian by the research

assistants, as ethnic group can impact behaviour during interviews, creating interviewer bias, as a study by Word et al (1974) found when more favourable results were gained when researchers interviewed respondents of the same ethnicity. The research assistants were local university students, whose youth and relaxed nature allowed them to communicate easily with the teenagers, who in turn responded much more openly with the research assistants than with the adults also present in the interview area (Kasesniemi, 2003). Due to the youth of both the interviewers and the interviewees, any interviewer bias based on sex (of the interviewer or the interviewee) appeared to be non-existent, with all teenagers talking animatedly to their interviewer. A study by Leon (2009) in Kalmykia, Russia found that adhering to the local tradition of allowing men to speak first out of courtesy resulted in her interviews being conducted much more successfully. While these same traditions are present in the villages in Kazakhstan, the semi-structured interviews (SSIs) did not seem to be affected in any way, despite having predominantly female research assistants and a predominantly male interviewee sample.

Figure 3.3.3. Undertaking the semi-structured interviews at Azhibay school.

The SSIs were designed to take an average of 15 minutes to complete, and with five research assistants conducting interviews simultaneously, time limitations and pressure were not a problem, allowing the teenagers to express themselves more fully (Bernard, 2002). This average completion time was deemed appropriate for the adolescent respondents as a balance had to be struck between obtaining comprehensive answers and not allowing the respondents to become bored or provide incomplete answers in order to return to their peer group (Brown et al, 1986; Wisker, 2008). Finally, when all interviews were completed a small 'disco' was held in the adjacent room, as a fun 'thank you' gesture for their participation (Theis, 1996).

3.4. Key Informant questionnaires

Following the completion and translation of the adolescents' interviews, there was a clear need for a greater understanding of how and why young people from the saiga range states move into the conservation sector. To do this, a list of Key Informants (KIs) was conceived comprising of 6 young people with a connection to the SCA working around the world with various NGOs for saigas and wider conservation goals. Aigul Aitbaeva is the manager of saiga conservation projects at the Centre for Wild Animals in Kalmykia, Russia (CWA), Buuveibaatar Bayarbaatar is the lead for conservation science on WCS' Mongolia programme, Olga Esipova is a student who undertakes translation and coordination work for the SCA in Uzbekistan, Pete Damerell is a research assistant for the University of Cambridge, Vera Voronova is ACBK's projects and ecotours coordinator and Zhanna Aksartova is ACBK's network development coordinator in Kazakhstan. A questionnaire was constructed (Appendix 2), beginning with similar questions to the SSIs and then expanding into ideas for conservation initiatives and engagement for adolescents. This Key Informant questionnaire was then emailed to the KIs, for them to complete and return. The self-administered questionnaire method was deemed the most appropriate for the KIs as it allows for the most effective communication with people from varying and often remote locations around the world. The KIs all speak very good English, meaning that

language and unclear translations would not be a barrier as it was for the teenagers (Bernard, 2002).

A Key Informant is a person chosen to represent a chosen culture, ethnicity or occupation for research purposes, rather than using other research techniques such as sampling across the entire population or workplace. KIs are usually used in participant observation ethnography where a person is carefully chosen (or they themselves choose) to 'walk [the ethnographer] through their culture' (Bernard 2002: p.187) Bernard (2002) continues, describing good KIs as 'people to whom you can talk easily, who understand the information you need, and who are glad to give it to you or get it for you' (p.188).

The KIs for this study were chosen through their close association with the SCA, their active involvement within various areas of conservation, and also their age. Being young (mid-20s average) the KIs will remember more easily what it was like being a teenager and their feelings regarding conservation and their futures. Another aspect of youth is that the KIs will still have aspirations for their careers, and so are closely linked with the village teenagers. A greater understanding of what would engage and motivate adolescents is also more easily accomplished when a person was recently a teenager themselves. The responses and in-depth insights from the KIs will supplement the SSI answers to provide a more comprehensive understanding of the aspirations and opinions of young people in Kazakhstan and the range states (Newing, 2011).

4. RESULTS

4.1. Applying lessons from other disciplines to teenage engagement in conservation

4.1.1. Teenagers in the conservation literature

To create engagements for adolescents that will induce attitude change, positivity, and behaviour modification, the conservation literature was searched for examples and studies relating specifically to teenagers and behaviour change. The results were very limited, with only three papers specifically mentioning any kind of adolescent engagement. In the first paper, Grace & Ratcliffe (2002), conducted a study where teenagers were asked to make decisions relating to conservation management, with the aim of identifying whether pre-determined biological concepts and their own personal values were used in the decision-making process. Their results indicated that the teens were logical, and used scientific concepts rather than their personal beliefs to make management decisions. This contrasts completely with the second paper, where a study by Hermann & Menzel (2013) explored teenagers' intention to support the return of wolves in Germany, with results showing a strong link between wildlife appreciation, ethical emotions, and the intention to support wolves. Neither of the papers compare teenage knowledge or intention to adults or children, and thus have no normative baseline to compare their results to. There is also no comparison of different ways to engage teenagers, with both papers concluding that education is the most important tool for linking adolescents and the environment, albeit in very different ways, and neither of the papers address any kind of behaviour change.

In the third paper of the literature review, Monroe (2003) provides strategies for encouraging conservation behaviours, defined as activities which support a sustainable

society. The paper is aimed at society as a whole, although certain methods for behaviour change are specifically teenager-focused. Social marketing tools are advocated for changing a selected behaviour in a targeted audience, where an idea or behaviour is promoted based on the practitioner's prior knowledge of that audience, with the removal of barriers and endorsement of the benefits, and is the basis for the most convincing and well-documented work in environmental behaviour change (Mckenzie-Mohr, 2011). Like the first two papers, Monroe (2003) then supports educational programmes that lead to knowledge, attitudes and an ultimate behaviour change, a strategy supported by Hungerford & Volk's (1990) study that identified students as displaying more environmentally appropriate behaviours three years after an environmental education experience. What is interesting in Monroe's (2003) paper is that the two strategies advocated for changing behaviours directly contradict each other, as Mckenzie-Mohr (2011) notes when promoting the use of social marketing 'numerous studies document that education alone [for adults] has little or no effect upon sustainable behaviour' (p.3).

The relevance of Monroe's (2003) paper for engaging teenagers specifically is in the advocation of using Key Informants (KIs) to conduct research that explores 'significant life experiences' through the interviewing of active environmentalists in an attempt to determine the formative influences that led to their commitment to the environment. Research conducted by Chawla (1999) into significant life experiences found five common influential elements in people's lives (Figure 4.1.1.).

Figure 4.1.1. Common significant elements that influence a commitment to the environment (Chawla, 1999).

This is particularly relevant as the influential experiences specified by KIs can then be replicated by NGOs for teenagers, as a way of engaging them with the environment using interventions that have been shown to be successful by people who are now active in conservation.

As well as being a focus in the limited examples of conservation literature, education programmes and 'getting teenagers out into nature' are offered by many local councils, charities, NGOs, and their importance mentioned in several government action plans (US President's Council on Sustainable Development, 1994). An example is New York's Cornell University, which offers an outreach programme through its Teen Education courses at Cornell Plantations called Plantations Environmental Education Program for Sustainability, described as an 'outdoor, hands-on apprenticeship for youths aged 14-18 focused on environmental appreciation and education where students will learn how to become environmental ambassadors'. The course offers incentives such as new learning opportunities, job prospects, enhanced skillsets, and a monetary award for completing the programme each year. From the internet search, courses like this are largely offered for teenagers in developed countries, although there are outreach programmes in developing countries initiated and funded by NGOs from developed countries (WWF, 2013). Countries who cannot offer extensive teen education programmes due to lack of funding are often places where education can have the most positive effect upon teenage behaviour (Ellis, 1999), such is the often case for the countries in the saiga range areas.

4.1.2. Closing the gaps with psychology literature

The conservation literature regarding the engagement of teenagers and behavioural change is inadequate for informing new interventions; lacking in reviews of different engagements and their impacts, with a primary focus on education. For a more comprehensive evaluation of teenage engagements, the psychology literature is far

more extensive in this respect, with studies by multiple practitioners into effective interventions for prompting behavioural change. To find literature that is relevant for changing illegal behaviours such as poaching and circumstantial behaviours such as eating saiga meat, it is important to link these negative conservation behaviours with negative psychological ones; so for example, substance misuse of drugs links with illegal poaching and alcohol with circumstantial meat consumption. The psychological literature review was conducted to understand the methods used by practitioners to generate a behaviour change for teenagers with these substance misuse problems, and reviewed to ascertain whether they can be transferred to conservation.

4.1.3. Adolescents and adults, are separate interventions necessary?

While the psychological literature on changing adolescent behaviour is extensive, there is little discussion regarding the need to design interventions specifically for teenagers. Prior to the last decade and a half, most treatments administered for teenage alcohol abuse were those used to treat adults, with little or no modification made on the basis of developmental considerations for adolescents (Deas, 2008). One example of a paper in which the authors to explicitly consider the differences between adult and adolescent interventions is Monti et al (2001). They first question whether adolescent substance abusers are merely a younger version of adult substance abusers, and finally construe that with the complexities of adolescence, intensive treatment is not always necessary, and brief motivational interventions should always be considered when treating teenagers for substance abuse and dependency. This differentiation is directly relevant to conservation interventions, where teenagers are continuously categorised as either adults or children (depending on their age), instead of having interventions designed specifically to engage them.

4.1.4. Family-based interventions

Family-based interventions are grounded in family systems theory, which suggests that an individual's behaviour is integrally related to their primary relational context – the family – and that substance misuse or dependency can be conceptualised as a

symptom of the larger family unit (Bowen, 1974). In FBIs, negative behaviours are assessed and treated in the context of an adolescent's functioning within the family, patterns of communication, and relationships to extended family and social systems (Deas, 2008). A successful example of FBI is a study by Lewis et al (1990), who found that positive teenage lifestyle changes were directly attributable to the fact that the FBIs employed focused on the systemic treatment of entire family groups rather than giving treatment to the adolescents as individuals. For conservation interventions, FBIs could be relevant regarding the eating of saiga meat, a behaviour that teenagers would undertake with the rest of their family.

4.1.5. Family and peer influences

Family and peers can have a significant influence upon adolescent behaviour, with the reverse also being true; where young people often affect their parents' choices (Samuel, 2011; Shivaldova, 2013). An example of the degree to which parents can influence their teenagers is the subject of a study by Pugliesea & Okunb (2014), where decreasing parents' use of negative social control strategies and increasing adolescents' understanding and positivity towards' alternative parenting strategies led to the teenagers constructively changing their lifestyles. There is a robust link here to conservation programmes in the saiga range area, where the SCA want to use positive engagement to overcome negative saiga-related behaviours of poaching and meat consumption. McAdamsa et al (2014) went further with their study and found that older males have significant influence over younger peers, especially in adolescence. This knowledge is acutely transferable to the saiga range states, where traditionally men incur the most respect (Leon, 2009). A lack of parental knowledge also meant that teenagers were significantly more likely to display negative behaviours (McAdamsa et al, 2014), demonstrating a need to integrate family influence with FBIs, where the whole family could benefit from conservation knowledge.

4.1.6. Motivational interviewing and stages of change

Motivational interviewing (MI) is a brief psychotherapeutic intervention to increase the likelihood of a person's considering, initiating and maintaining specific change strategies to reduce harmful behaviour (Aubrey, 1998; Shinitzky, & Kub, 2001). The primary principles of MI include using an empathic non-judgmental stance, performing reflective listening, developing discrepancy (achieved through asking the individual about their short and long-term goals and how the behaviour in question might be hindering or preventing goal achievement), rolling with resistance and avoiding argumentation, and supporting self-efficacy for change through statements of affirmation, hope, and reinforcement of the individual's self-belief (Monti et al, 2001; Tevyaw & Monti, 2004; Deas, 2008).

MI is founded on principles of motivational psychology, client-centred therapy and stages of change in natural recovery from addiction (Aubrey, 1998; Tevyaw & Monti, 2004). The stages of change model (Figure 4.1.6.), also called the Transtheoretical model of change, is based on research undertaken by psychologists into the ways in which people successfully change health risk behaviours on their own, and how these strategies can then be enhanced and applied to achieve success with other people (Monti et al, 2001; Prochaska & DiClemente, 1983). The stages include *precontemplation*, at which an individual does not identify a behaviour as problematic and/or has no intention of changing it; *contemplation*, at which an individual begins to consider behaviour change but has no immediate plans to make a change; *preparation*, at which an individual is ready to make a change and begins to take steps toward healthier behaviour; *action*, at which an individual has changed their behaviour but is still in the very early stages of maintaining that change; and *maintenance*, at which an individual has successfully changed their behaviour and maintained the change for a prolonged period of time (Prochaska & DiClemente, 1983; Monti et al, 2001).

Figure 4.1.6. Stages of Change (Prochaska & Velicer, 1997).

Two examples of papers where the authors have explicitly demonstrated the positive effects of MI are Aubrey (1998) and Tevyaw & Monti (2004). Both studies found that adolescents receiving the MI feedback showed significantly better treatment engagement and outcome as well as significant decreases in substance use, with particularly strong results for those with heavier substance use patterns and/or less motivation to change. MI again relates to positivity and encouragement, which would be the focus of teenage interventions for the SCA in the saiga range states.

4.1.7. Behavioural therapy

Behavioural therapy involves identification of the behaviours that promote substance use and the teaching of skills to avoid relapse using functional analysis, where triggers for substance use and stimuli that promote continuation of use are explored (Deas, 2008). Other areas of focus include stress management, substance refusal skills, assertiveness training, social skills, and self-regulation (As-Sanie et al, 2004). Cognitive behavioural therapy (CBT) extends behavioural therapy by integrating the impact of cognitive elements in addressing substance use and is based on the premise that maladaptive thoughts contribute to the maintenance of emotional distress and

behavioural problems (Hofmann et al, 2012). The foundations of CBT are the recognition of high-risk situations and the acquisition of skills aimed at addressing those high-risk situations. These foundations are directly transferable for conservation initiatives, where recognising that unemployment and financial difficulty are high risk situations which may result in teenagers turning to poaching (for example), and interventions should then be implemented to address high-risk situations for teenagers before they become a reality.

4.1.8. Decision-making

The intrinsic value of participating in decision-making for young people lies in the feeling of dignity and self-worth, emotions often disregarded by adults who want to make sure the 'best' decisions are made for their children (Bessell, 2011). Young people are often marginalised and excluded from conversations regarding their future, especially if adults do not trust them to make appropriate decisions (Coyne & Gallagher, 2011). Allowing adolescents to make their own decisions is an important aspect of any conservation initiative, and so it is necessary to understand how adolescents make decisions, so that teenage-specific interventions can be suitably designed. In the psychology literature, the science of adolescent decision-making is explained by Reyna & Farley (2006). When making decisions, risks are mentally weighed against perceived benefits; when risks are engaged in 'only once or twice' the odds may appear favourable to adolescents. In contrast, adults instinctively do not trade off serious risks against immediate rewards and their choices are better as a result (Wargo, 2007). A paper that illustrates this difference is a study by Baird & Fugelsang (2004), where people were asked to respond quickly to easy, risk-related questions, for example; 'Is it a good idea to set your hair on fire?' and 'Is it a good idea to swim with sharks?' Adolescents took a sixth of a second longer than adults to answer 'no'. This reflects a major difference between adolescents and adults; the areas of the brain that quickly grasp the gist of situations and regulate judgments are still developing during the teenage years, not reaching full maturity until the mid-20s. (Reyna & Farley, 2006). Using the science of adolescent decision-making, interventions

should be designed to refrain from 'bombarding' teenagers with facts (as this will not facilitate them in making better decisions, and may actually encourage riskier, more immature choices to be made, for example, teenagers going poaching with older male relatives) and should instead promote less deliberative and more categorical risk perception, highlighting benefits with positive imagery and using negatives for risky behaviours (Wargo, 2007); a straightforward exercise for conservation initiatives as there are many negatives to poaching (for example); motorbike injuries or death, being caught by the police and arrested, being thought of negatively by society, and causing the eventual extinction of an iconic species.

From the psychology literature review it is clear that there are many different methods for engaging with teenagers (Table 4.1.8.), none of which were found in the conservation literature. Knowing what interventions to instigate and their level of success relies upon the situations and the teenagers themselves. By understanding the living circumstances and aspirations of the teenagers in the saiga range areas, the SCA can design their engagement interventions to best help the teenagers achieve their personal goals, replacing negative attitudes and behaviours with positive action and feelings towards conservation.

Psychological intervention	Key messages
Family-based interventions	Systematic treatment of entire family groups instead of a focus on the individual
Family and peer influences	Family and friends have the potential to influence an individual's behaviours
Motivational interviewing	Enhancing an individual's positivity and self-belief, supporting self-efficacy for change
Behavioural therapy	Recognising high-risk situations and acquiring skills to address them
Decision making	Allowing the individual to make their own decisions, not bombarding them with facts

Table 4.1.8. Summary of the psychological literature findings on teenage behaviour change and their key messages.

4.2. What are the situations and aspirations of teenagers in the Kazakh villages?

The teenagers interviewed in the Kazakh villages of Azhibay and Nursay were between the ages of 14-18, with the average age in both villages being 15. 30 teenagers were interviewed in Azhibay and 26 in Nursay, with 40% girls and 60% boys across the sample.

4.2.1. Teenage aspirations and expected realities

The teenagers were asked what job they would like to have in the future; responses were very mixed with a wide variety of career choices represented (Figure 4.2.1.1.). The responses were broken down by village, with the most popular job choices being teacher, doctor, architect/designer, conservation and singer.

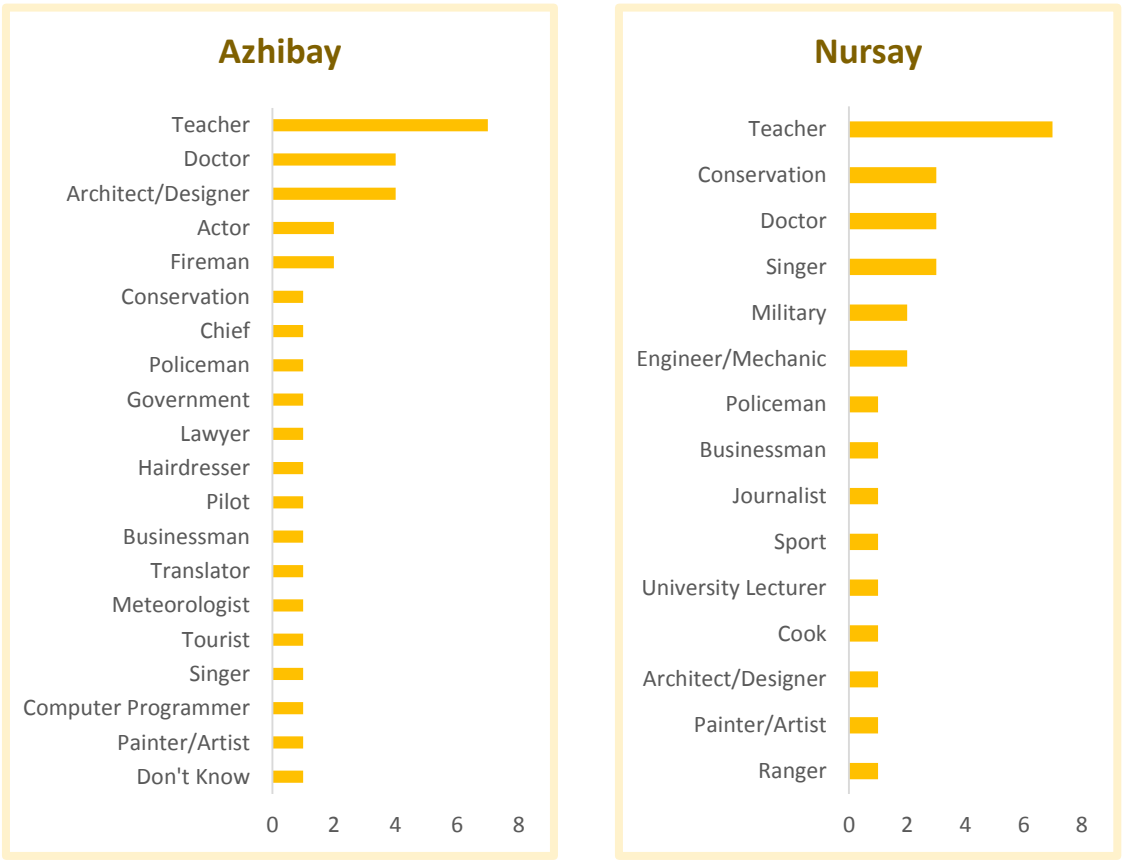

Figure 4.2.1.1. Teenage future career aspirations.

Teaching proved to be the most popular job choice for both villages, and the results display significantly more numerous future career aspirations from Azhibay than from Nursay. Interestingly, 3 teenagers from Nursay expressed an interest in the military, yet this career choice had no responses from Azhibay. Conservation was also a more popular career in Nursay, with 3 teens advocating it compared to 1 in Azhibay.

When the teenagers were asked what jobs they thought they would have in the future, the responses were a lot less varied and with more teenagers answering “don’t know” (Figure 4.2.1.2.), suggesting that the predicted careers are more realistic than the aspirational ones, as within the villages there are far fewer career choices.

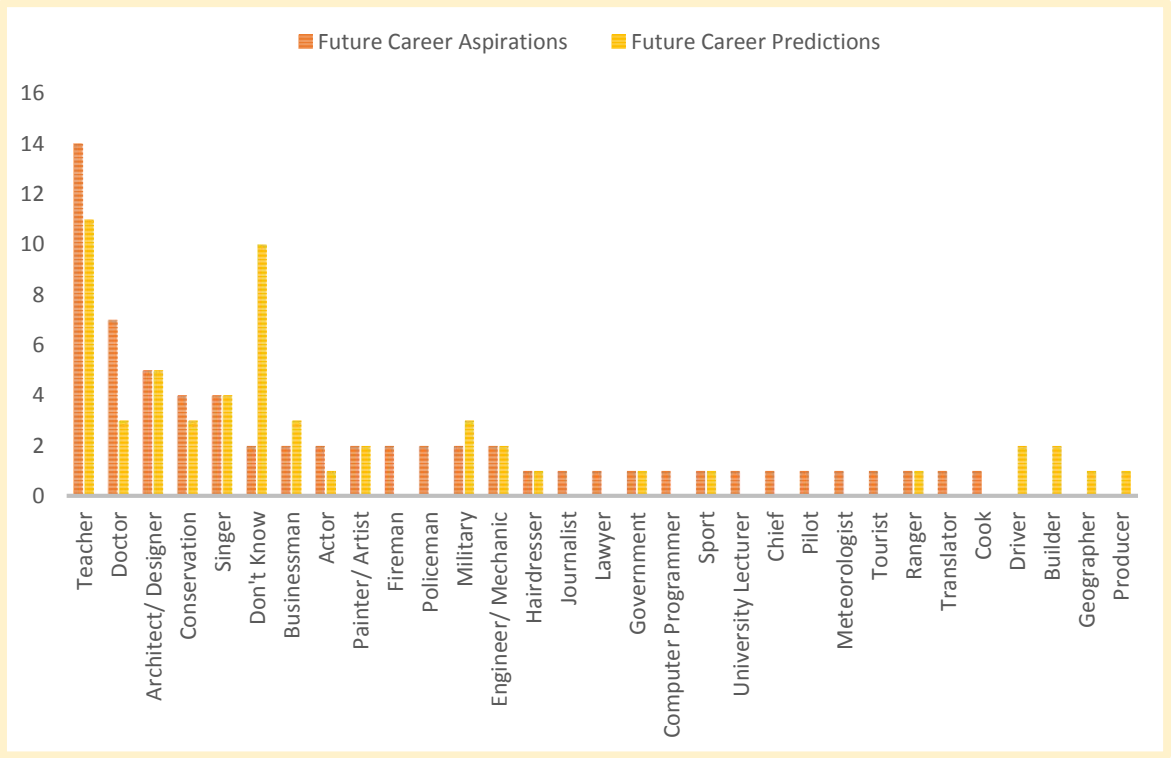

Figure 4.2.1.2. Comparing teenage future career aspirations to the jobs they predict themselves to be doing.

The careers with the most congruence are singer, architect/designer, painter/artist, hairdresser, government, sport and ranger. Less teenagers think they will be teachers than wanted to be, but this response was still very popular. Some new jobs were also mentioned, those of driver, builder, geographer, and producer.

Breaking the results down by age group, it seems that a greater number of younger teenagers differ in their answers regarding career aspiration and prediction, yet more of the older teenagers have the same response (Table 4.2.1.1.). This could be due to the older teenagers having a more solid idea of their career path, perhaps having already made some progress towards achieving it, whereas the younger teens may not have any firm ideas yet and could be more prone to whimsical change. This is supported by the literature on adolescent decision making, as older teenagers are more likely to make the most appropriate choices (Reyna & Farley 2006).

Age	Career aspiration and prediction the same	Career aspiration and prediction different
14	3	3
15	4	19
16	7	8
17	3	5
18	3	1

Table 4.2.1.1. Comparing teen future career aspirations and predictions by age and response differentiation.

There was also a notable difference between the two villages, with more teenagers from Azhibay responding differently regarding career aspiration and prediction, with 9

answering the same and 21 differently. In contrast, the teenagers from Nursay had more of an equal split, with 11 answering the same and 15 differently.

The teenagers were asked what they thought might prevent them from being able to pursue the jobs they would like to have; the responses display the teenagers' perceptions of the barriers they are currently facing or could face in the future (Table 4.2.1.2.). 14 of the 22 teenagers who answered 'nothing' had given the same responses for their future career aspirations and predictions. Interestingly, the other 8 teenagers who responded 'nothing' had differing answers, suggesting that their aspirations are perhaps more impulsive and liable to change. 13 of the 14 teenagers who stated 'education/exam results' as a barrier were aspiring for jobs needing higher education, such as doctor, computer programmer, or architect. Similarly, aspirational careers linked to money or financial barriers were for the same kinds of jobs, suggesting that higher education is viewed as problematic by teenagers for a number of reasons.

Nothing	**22**
Education/Exam Results	**14**
Money/Finances	**12**
Don't Know	**7**
Family/Parents Disapproval	**2**
Health	**2**
Laziness	**2**

Table 4.2.1.2. Teen perceptions of barriers that may prevent them from pursuing their career aspirations.

4.2.2. Teenage responses to their parents' careers

The teenagers were asked what their parents did, and although the responses were just as varied as the teenagers' aspirations, they were much more functional (Figure 4.2.2.1.).

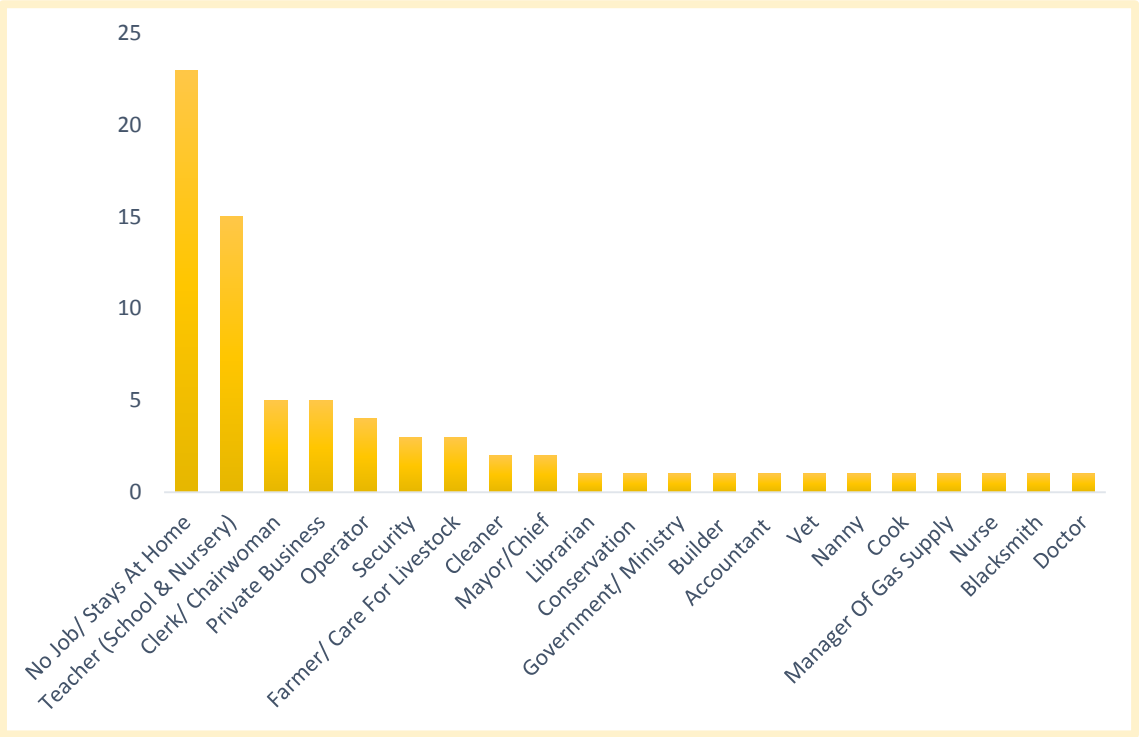

Figure 4.2.2.1. Parent's occupations.

The most common parental occupation in Azhibay and Nursay was unemployment or "staying at home", with 23 responses. 15 teenagers in Nursay gave this response, with 5 stating specifically that their mothers did not work, 6 that their fathers did not work, and 4 responses where both did not work. In comparison, only 8 teenagers from Azhibay said that their parents did not work, with 3 stating their mother, 1 father and 4 responses for both. What is interesting from these responses is that none of the teenagers want to have no job in the future, even when one or both of their parents do not work. In the former Soviet Union, it is very common for women to become homemakers and full-time mothers after they are married (Leon, 2009), and where the teenagers have stated that their mothers "stay at home" they could be referring to this trend. However, none of the teenagers expressed the desire to become homemakers, housewives or full-time parents, only responding with career choices, which again is interesting as village culture sees girls marrying in their late teens and early 20s (Damerell et al, 2013) It is also apparent from the results that the teenagers do not

wish to do the same jobs as their parents; in Azhibay only 3 teenagers wanted the same careers as their parents, and in Nursay it was 2, even when parents had what the teenagers had identified as the 'best' jobs, with the exception of teacher, doctor, chief, businessman and conservation. The results of the teenage aspirations, parental occupations and jobs the teens identified as the 'best' have been compared by job commonality in Figure 4.2.2.2.

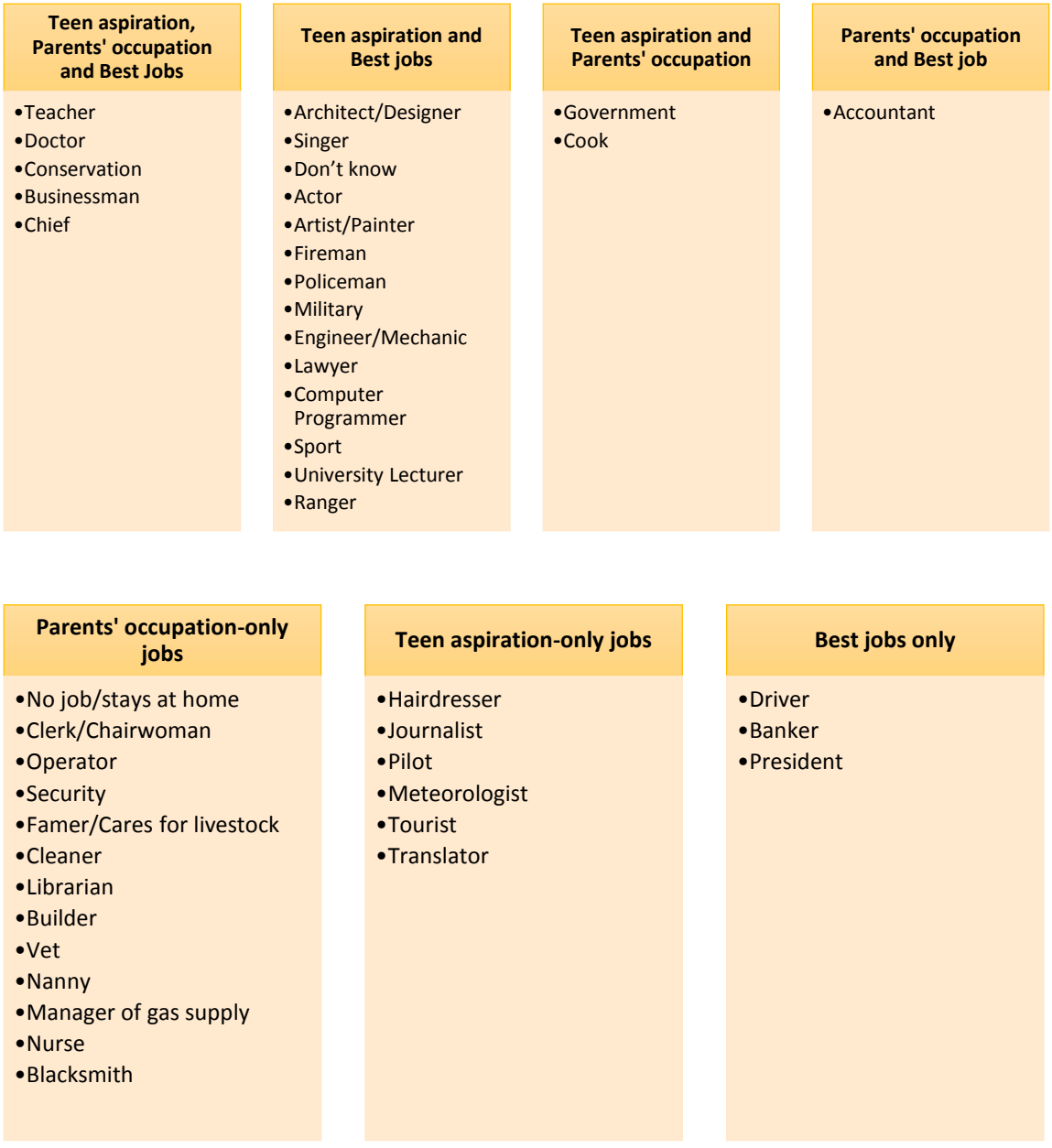

Figure 4.2.2.2. Comparing teen aspirations, parents' occupations and the 'best' jobs by commonality.

The teenagers also do not think that they will be doing the same jobs as their parents in the future (with the exception of teaching and conservation), with only 3 Azhibay teenagers predicting the same careers and 1 Nursay teen. This is interesting as one of the more common parent occupations was having a private business ('businessman'), and none of the teenagers whose parents actually had this job wanted or predicted it as a career for themselves. Likewise, in Nursay, 3 teenagers stated that their parents were involved in agriculture or breeding cattle, and none of them stated that this was a career aspiration or prediction for them.

4.2.3. Teenage knowledge of current conservation initiatives

The teenagers were asked what they knew about conservation in their area, providing an overview of the teenagers' knowledge of current conservation initiatives, and also their understanding of 'conservation'. As an open question, the responses were varied, so for the purposes of comparison, the responses have been grouped into 8 very general categories, for example 'Conservation NGO' encompasses mentions of ACBK, Ohotzooprom and "we have many companies which help our nature" (Figure 4.2.3.1.).

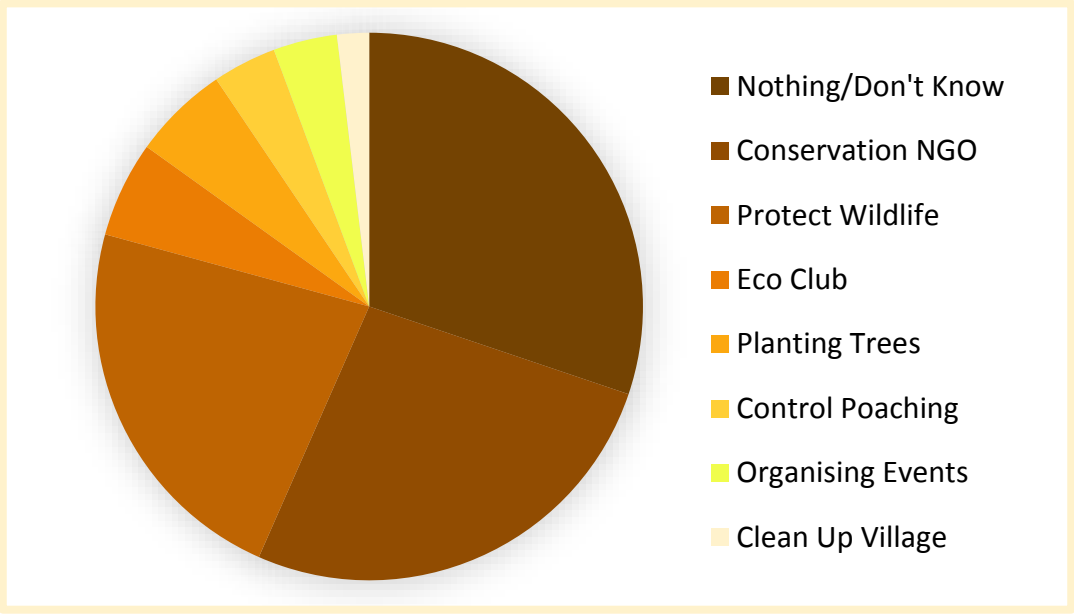

Figure 4.2.3.1. Teenage general knowledge of local conservation.

The responses demonstrate that the teenagers of Azhibay and Nursay seem considerably more unsure and confused about the subject of 'conservation' than would be anticipated considering the interviews took place directly after each village's Saiga Day celebrations. None of the teenagers mention Saiga Day specifically, and only 3 Azhibay teens mention an 'Eco club'. In Nursay, only 5 teenagers mention ACBK specifically, and only 2 Azhibay teens do, which is again surprising as everyone involved with the organisation of Saiga Day and the teen interviews was wearing an ACBK t-shirt, and many of the Saiga Day gifts were ACBK-produced posters, jigsaws, and bird-spotting guides. This could be due to the teens' interpretation of the question rather than not connecting ACBK with local conservation initiatives, as many of the answers were more focused on the conservation activity rather than who was implementing it.

In another question linked to conservation initiatives, the teenagers were asked if they thought there were any local animals that needed protecting (Figure 4.2.3.2.). Saigas featured in 42 responses across the sample of 56 teenagers, with the next most popular animal being the wolf with 15 mentions. The considerable difference between the response ratios demonstrates the impact of current conservation initiatives in the area, where saigas are the main focus for education and village events.

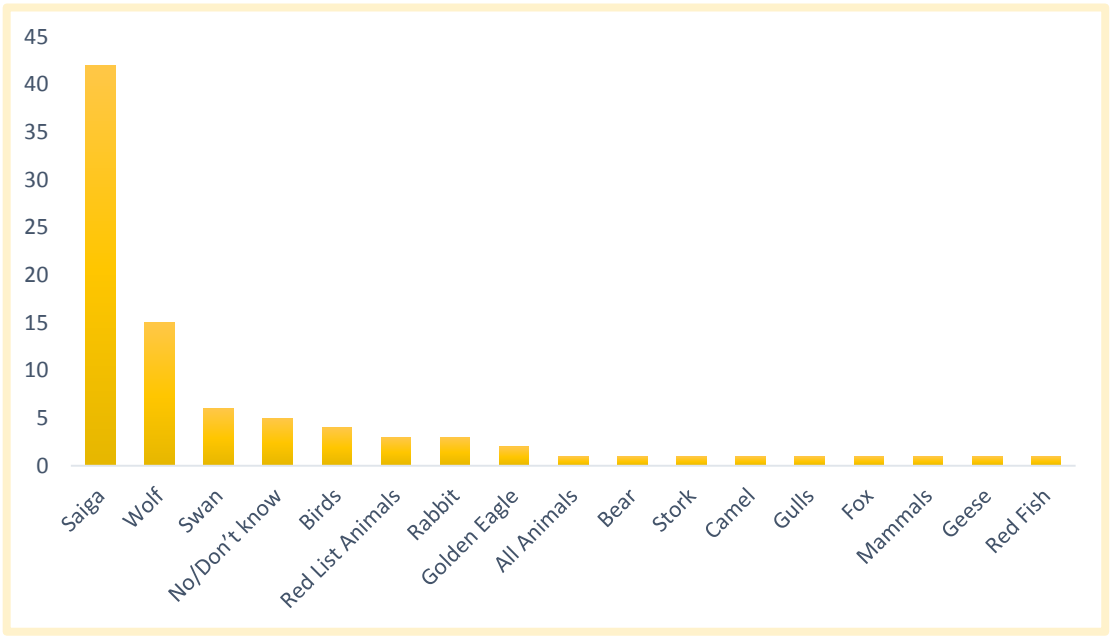

Figure 4.2.3.2. Teenage perceptions of local animals in need of protection.

However, considering that the teenagers were shown a video detailing the problems saigas are facing and the conservation work being undertaken to protect them immediately before they were interviewed, it does appear strange that saigas did not feature in all of the teens' responses. This is an important point as it relates to the psychology literature that advocates that interventions should not 'bombard' teenagers with facts, as this does not facilitate positive decision-making and life choices (Wargo, 2007), and could also be a result of the video not being pitched correctly for teenagers (Monti et al, 2001).

4.2.4. Potential for future engagement

The teenagers were asked questions designed to provide information that could be used to inform new conservation initiatives and teenage engagement in the Kazakh villages and for the rest of the saiga range areas. The teenagers were asked if they liked going to school, with 55 answering "Yes" only 1 teen from Nursay answering "I don't really like". Some of the teenagers elaborated, giving reasons for their answer (Figure 4.2.4.1.).

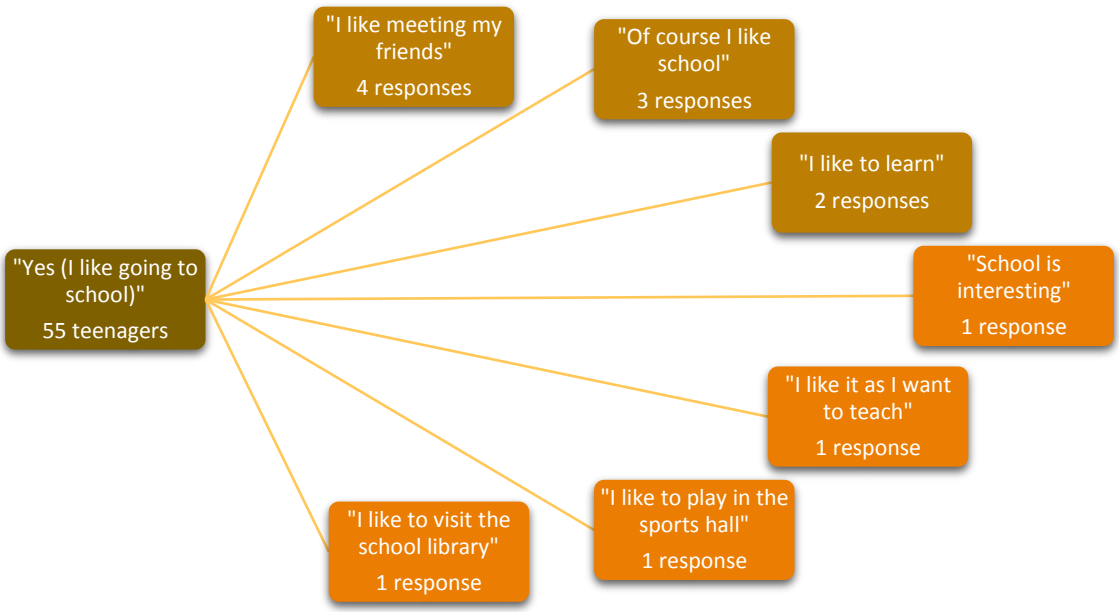

Figure 4.2.4.1. Teenage rationale for enjoying school.

This positive attitude towards school is supported by the current conservation literature on teenage engagement; where the limited studies promote education as the way to encourage teens to make informed and compassionate choices regarding nature (Grace & Ratcliffe, 2002; Hermann & Menzel, 2013).

The teenagers also provided information regarding what they did in their free time (Figure 4.2.4.2.). The responses given can be used to design activities and interventions that the teenagers will enjoy participating in, for example, 26 teenagers across the sample (both boys and girls) said that they enjoyed playing sport (of all different kinds), so initiatives could take this into account, with sport being used to connect people of all ages, as well as people from different villages in the range states, in the same way that the football World Cup unites the supporters within a country, but also connects the global network of football enthusiasts (Jacobson, 2003).

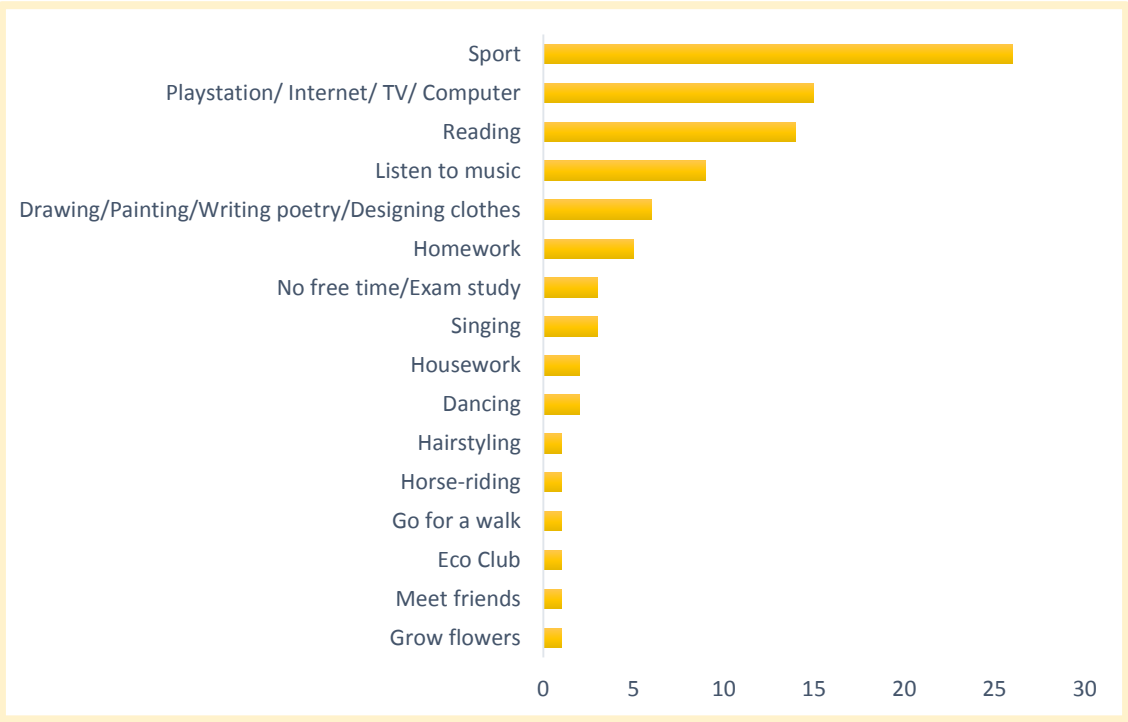

Figure 4.2.4.2. Free time activities of the teenagers.

The teenagers were also asked how they felt about the roles of teachers and the police, to ascertain their feelings towards people in different positions of authority (Figure 4.2.4.3.). The results for this question were very positive, especially towards policemen, which was not anticipated as previous work conducted in the saiga range areas found negative attitudes towards the police as their purpose is to arrest people for poaching, even when the activity has been turned to as a last resort (Milner-Gulland, 2014).

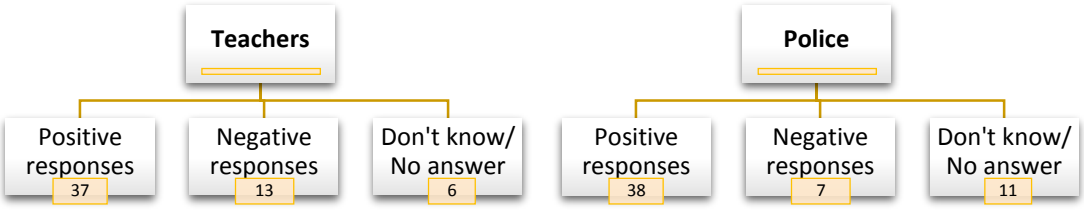

Figure 4.2.4.3. Teenage perceptions of teachers and the police.

This is important as the literature makes it clear that older male role models have a significant influence on the behaviour of (male) adolescents (McAdamsa et al, 2014), and with the teens' positive attitude towards the police, interventions could be designed to take this into account and create greater associations and collaborations between the two.

4.3. The views of young saiga conservationists

The 6 young people selected for the Key Informant (KI) questionnaires to provide a greater understanding of how and why young people from the saiga range states move into the conservation sector live and work across the world in a range of occupations within conservation.

4.3.1. The beginnings of childhood interest in conservation

When relating motivations to specific life experiences, it was apparent that all of the KIs were strongly affected by childhood experiences of natural areas. The responses have been grouped into Chawla's (1999) five common influential elements in people's lives that influence a commitment to the environment (Table 4.3.1.). Other important factors were having family members who valued the environment and the influence of pro-environment organisations, however, school-based education did not feature in any of the responses.

Childhood experiences of natural areas	**6**
Family members who valued the environment	**3**
Pro-environmental organisations	**3**
Experiences of loss/destruction of environment	**2**
School-based education	**0**

Table 4.3.1. KI rationale for their current involvement in conservation, grouped into Chawla's (1999) five common influential experiences.

The absence of school-based education could be due to the perceived failings of the school systems used to educate the KIs. It is apparent that these weaknesses are found throughout the KIs' countries of residence; in Mongolia most schools "*don't have good environmental education programmes in their curriculum*". No field trips are organised to enhance pupils' environmental education, a concept identified in the literature and the KIs' own significant life experiences that has demonstrated a positive impact upon

the behaviour and attitudes of young people. In Kazakhstan, parents' and teachers' lack of awareness is a problem, as well as an absence of interacting with wildlife, creating a detachment from the importance of its preservation. Education experiences in Britain were more positively viewed due to "*an enthusiastic headmaster who believed in experimental learning and experiencing nature hands on*". However, the current regulations of teaching have restricted this approach, culminating in the opinion that "*the environmental education system in the UK is unfit for purpose*". In Uzbekistan, environmental education lacks critical attention, with school pupils unaware of what conservation is and why it is so important, as well as an absence of teachers trained to teach the subject. More positively, in the last two years the Uzbekistan government has admitted the necessity of environmental education, resulting in most schools devoting time to study environmental problems. This is an encouraging base for interventions, with conservation NGOs able to build upon the foundations laid down in school. There is also positivity from Kazakhstan, with lessons regarding the environment and conservation being implemented in primary schools.

4.3.2. The influence of parents on conservation career choices

With striking similarity to the teenage respondents in Azhibay and Nursay, none of the KIs wanted to do the same jobs as their parents when they were younger, and only Olga Esipov is currently undertaking the same work as her parents, and that is within the conservation sector (Table 4.3.2.). Despite none of the KIs (discounting Olga) being in the same professions as their parents, all of them stated that their parents are very supportive of their current career choices. Three of the KIs feel they owe their current careers to their parents, either through their influence or support. These responses support the literature that describes the influence that parents can have on their offspring (Pugliesea & Okunb, 2014), and for SCA initiatives where adults have been the focus of engagement activities, the potential for positive influence should be integrated into the design of new interventions for teenagers. In the early stages of his career, Buuveibaatar Bayarbaatar's parents were not as supportive, but once they

realised "*the importance of conservation*" they were much more encouraging, a notion supported by prior studies in the saiga range areas (Samuel, 2011; Shivaldova, 2013).

KI Aspiration	KI Occupation	Father's Occupation	Mother's Occupation
English teacher	Manager of saiga conservation projects at CWA	Engineer	Housewife
Explorer/ Famous researcher/ University professor	Lead for conservation science at WCS Mongolia	Emergency Agency's Fire Department (now retired)	Accountant at Police Department in Khentii Province of Mongolia
Travel agent	Conservation volunteer	Conservation	Conservation
David Attenborough	Research assistant at Cambridge University	Teacher/ Education advisor	Artist
Astronaut	Project and ecotours coordinator at ACBK	Teacher (now retired)	Engineer (now retired)
Artist/ Doctor	Network development coordinator at ACBK	Teacher	Akim (Chief) of home village

Table 4.3.2. Comparing the KIs' youthful aspirations with their current careers and parents' occupations.

4.3.3. Experiences of engaging teenagers

With such limited conservation literature on teenage engagement, the KIs' own experiences of engaging with teenagers in their respective countries is an important source of information. In Kalmykia, the CWA works with teenagers in cities and villages, presenting lectures, organising excursions and Saiga Days. In Kazakhstan, ACBK have similar experiences, although much more infrequently and only with teenagers living in villages. In Uzbekistan, the SCA has worked on a saiga cartoon with adolescents and given presentations on the need for protection. More recently, the SCA invited British wildlife artist Rory McCann to paint a saiga mural at a school in Nukus, where adolescents were encouraged to watch, help and ask questions about local wildlife and conservation.

4.3.4. Ideas for engaging village teenagers

When designing new conservation initiatives it is important to gather perspectives from people with relevant experience and innovative ideas, thus the KIs were invited to give their suggestions for more successful engagements with teenagers. The responses have been separated into village teenagers and city teenagers, as the two would potentially have different aspirations and certainly different situations, as city teenagers may never have seen a saiga or even left the city, and so may need separate approaches for interventions designed to endorse their life goals with the ultimate aim of aiding conservation objectives in the saiga range states. Getting village teenagers interested and enthused about conservation requires the subject to be "cool", and interventions "*bold, brave and a little edgy*", with a solid foundation so that parents approve and can see the value of them for their children. Events and nature trips would excite village teenagers; for them the most interesting thing is leaving the village boundaries. Promoting school conservation clubs and endorsing education in schools with lectures on conservation and more festivals like Saiga Day is particularly important in villages as teenagers have limited sources of information (usually no internet or specific conservation literature). Bridging the gap between nature and people is important in rural areas where wildlife is usually associated with hunting or predators that damage livestock. Inviting foreign experts to share their experience and bring new knowledge is an engagement certain to interest and enthuse village teenagers, as "*young people tend to pay more attention to their message and are more likely to be inspired*".

Inspiring village teenagers to be actively involved in conservation as advocates or persuading others to change their behaviour would require a somewhat different set of interventions. After receiving positive conservation education, teenagers could work with NGO volunteers, allowing them to be actively involved in conservation activities and potentially have a considerable influence upon the behaviour of their friends and families (Shivaldova, 2013). Conservation activities should be connected to local

traditions, thus attracting more participants and allowing them to be better understood and supported by the community, like for example the current SCA embroidery project in Uzbekistan (Damerell et al, 2013). Creating “Young Inspectors”; school students who live in the field with NGO staff and learn fieldwork techniques would provide active involvement in conservation activities and with the students endorsing their adventures, more teens will be enthusiastic and excited to participate. Encouraging teenagers to personally make changes in their lives would again require a different mode of interventions. Creating a campaign to make negative environmental behaviours seem “uncool” with possible celebrity endorsement would certainly be appealing to teenagers. NGOs should acquaint teenagers with inevitable negative consequences of not making any positive changes in their lives and then demonstrate possible solutions. Debates could be run so that teenagers could come up with the solution themselves, allowing for a better understanding of the problems and the difference individuals can make.

4.3.5. Ideas for engaging city teenagers

Interesting and enthusing city teenagers about conservation is more problematic as city teenagers live far away from wildlife and often have very limited knowledge of environmental problems, thus a social marketing campaign using social media and networks could greatly enhance their knowledge and create enthusiasm. With a far superior access to the internet, information can be acquired far more easily and from different sources for city teenagers, and celebrities could also be used to influence and encourage conservation interest. A successful example of celebrity endorsement in saiga conservation is the release of a pop song about saiga and the need to protect it, written and performed by Koblan Ezenbaev, a famous Karakalpak musician (SCA, 2014). Local school pupils in Tashkent starred in the SCA-produced music video, and city teenagers were excited that a ‘TV celebrity’ was involved in the project. An educational course purely in conservation (and perhaps focusing on saigas) could be a useful tool for gaining interest, and more opportunities to see wildlife is essential, as

advocated by Chawla (1999) in the conservation literature, with events organised “on trend” with adolescents to encourage more interest and participation.

Inspiring city teenagers to be actively involved in conservation as advocates or persuading others to change their behaviour would be more difficult as they are so detached from the environmental problems outside of the city, whereas encouraging teenagers to personally make changes in their lives is potentially a more straightforward intervention in the city, as personal changes in an urban environment are more related to the rational use of resources such as water and plastic, rather than disconnected behaviours such as hunting or eating saiga meat. Changing their behaviour should be presented to teenagers as a new trend, a new “*modern style of living for a new generation*”, particularly relevant in places like China where trading saiga horn is viewed as an aspirational vocation due to the wealth it brings (Li et al, 2007; Kuhl et al, 2009), thus interventions aimed at amending this attitude and making trading or poaching saigas “uncool” would be a way forward in prompting teenagers to personally change their behaviour.

5. DISCUSSION

5.1. Are teenagers important for conservation engagements?

As the next generation of decision-makers, community leaders, household managers and contributors to the population, it is very important that conservation NGOs make the effort to engage with teenagers. With all of these future responsibilities ahead of them, teenagers have the potential to have a significant impact upon conservation goals, through their own behaviour, influencing others, or creating a new social norm within their village. As a difficult age group to work with (Nelson & Lott, 2012), it is clear why teenagers have been largely neglected in the design of conservation engagements, however, there are positive examples of attitude and behaviour change occurring late in adolescence. For example, 2 of the Key Informants in this project did not have their 'significant life experiences' (Monroe, 2003) with nature or wildlife that influenced their current commitment to the environment until age 16 and the second year of university, demonstrating that it is entirely possible for Conservation NGOs to help establish a love of wildlife and positively change the attitudes and behaviours of teenagers.

As well as it clearly being important to engage teenagers, conservation interventions should be designed that treat them as an independent group, rather than being included in initiatives aimed at children or adults. Teenagers are at an entirely different stage in their development (Boyle, 2007), and these considerations should be integrated when designing strategies specifically to engage teenagers (Monti et al, 2001). Initiatives for children are viewed as boring, immature, or embarrassing to participate in (Kehily, 2007), and while many teenagers are desperate to prove their maturity (Bessell, 2011), adult activities may be focused on subjects deemed uninteresting or irrelevant to adolescents. Instead, interventions for teenagers should be designed around activities they enjoy, with an emphasis on promoting positive behaviours and discouraging negative ones (Wargo, 2007), and a focus on giving teenagers a voice within the community, as adolescents frequently feel as though they

are not listened to, that their thoughts, opinions, and aspirations are invalid and unworthy of adult attention (Coyne & Gallagher, 2011).

5.2. Recommendations for engaging teenagers

Teenage intervention	Behavioural change
Education/ 'Getting teens out into nature': *Encouraging interest with information/hands-on experiences*	• Teens care about nature • Teens engage others to care about nature
Family-based interventions: *systematic treatment of entire family groups instead of a focus on the individual*	• Teens care about nature • Teens commence positive actions (for nature) • Teens cease damaging actions (for nature) • Teens engage others to care about nature • Teens engage others to commence positive actions (for nature) • Teens engage others to cease damaging actions (for nature)
Family and peer influences: *family and friends have the potential to influence an individual's behaviours*	• Teens care about nature • Teens commence positive actions (for nature) • Teens cease damaging actions (for nature) • Teens engage others to care about nature • Teens engage others to commence positive actions (for nature) • Teens engage others to cease damaging actions (for nature)
Motivational interviewing: *enhancing an individual's positivity and self-belief, supporting self-efficacy for change*	• Teens care about nature • Teens commence positive actions (for nature) • Teens cease damaging actions (for nature)
Behavioural therapy: *recognising high-risk situations and acquiring skills to address them*	• Teens commence positive actions (for nature) • Teens cease damaging actions (for nature)
Decision-making: *allowing the individual to make their own decisions, not bombarding them with facts*	• Teens commence positive actions (for nature) • Teens cease damaging actions (for nature) • Teens engage others to commence positive actions (for nature) • Teens engage others to cease damaging actions (for nature)

Table 5.2. The ways of teenage engagement best suited for different behavioural change.

From the literature review and research results it is clear that there are many different ways to engage teenagers for the purpose of changing their behaviour to support conservation objectives. Drawing on the main methods advocated in the both the conservation and psychology literature, these ways of engagement can be categorised by which types of behaviour change they are best suited to influence (Table 5.2.). Here, positive actions could be for example; promoting the conservation messages of the SCA, monitoring saiga, influencing family members' behaviour, or helping with environmental education activities in school. Damaging actions could be for example; hunting saiga, buying saiga meat, eating saiga meat, trading saiga products and encouraging others to engage in any of these behaviours (Figure 5.2.).

Figure 5.2. Saiga horns to be traded for use in traditional Chinese medicine.

5.3. Using the recommendations to design new initiatives

From the recommendations regarding the general intervention method to employ to best impact and change different kinds of behaviours, more specific engagement initiatives can designed for the saiga range states and consumer countries. Based on the results of the teenage interviews in Azhibay and Nursay and the Key Informant (KI) questionnaires, the new engagement suggestions have a sound link with the methods advocated in the conservation and psychology literature, with a focus on teenagers both changing their behaviour and acting as advocates for others to do the same (Figure 5.3.1. and Figure 5.3.2.).

Suggestions for engagement activities based on teenage career aspirations, perceived barriers to their realisation, and spare time activities

Homework clubs or private tutoring sessions (with saiga-related names) could inspire more confidence in the teenagers to pursue their aspirations

Education/'Getting teens out into nature'

Fun activities based on the career predicitons of teenagers could make them seem more appealing for the future, for example:

> building birds' nests or saiga shelters could result in the job of 'Builder' seeming more aspirational

> learning to drive a ranger or police car could do the same for 'Driver', and also connect teenagers with male role models who could have a positive influence on their behaviour (McAdamsa et al, 2014)

Decision-making, Motivational interviewing, Education/'Getting teens out into nature'

Saiga-related activities run all-year round instead of just in relation to Saiga Day would ensure that teenagers (and their parents) do not forget their plight, for example:

> saiga story competitions, with winners being published in a short story book. Reading groups too, with new books and literature provided by NGOs

> steppe art competitions, with prizes for ingenuity and conservation message

> villagers could apply to a teenage mural group to paint the walls of their houses with steppe flora and fauna

> many teenagers have aspirations to be singers or sing in their spare time, so a saiga singing club could be created, where teens could make their own music videos to be posted online by themselves or NGOs. They could also participate in talent shows, with judges made up of their peers and take turns to perform

Family-based interventions, Family and peer influences, Motivational interviewing, Decision-making

Teams for all different kinds of sport could be created with saiga logos and play for their village, and in tournaments with other villages, creating unity between different ages and communities (Jacobson, 2003) The teams could also be mentored by different community leaders, police, and parents, so that the teenagers' enthusiasm could influence their mentor and vice versa (Samuel, 2011; Pugliesea & Okunb, 2014)

Family and peer influences

More emphasis should be placed on the Steppe Wildlife Clubs (SWC), with camping trips, events, competitions, games and learning. The clubs could incorporate members of the community each month as 'sponsors', who organise trips or activities for the teenagers, encouraging parents and teenagers to learn and become enthusiastic about nature together (Lewis et al, 1990)

Education/'Getting teens out into nature', Behavioural therapy, Family and peer influences, Family-based interventions, Decision-making, Motivational interviewing

Figure 5.3.1. Suggestions for engagement activities based on teenage career aspirations, perceived barriers to their realisation, and spare time activities.

Figure 5.3.2. Suggestions for engagement activities based on KI life experiences, viewpoints, and ideas.

5.4. How can the SCA utilise these recommendations to benefit saiga conservation?

The SCA's current conservation engagement initiatives in the saiga range areas and consumer countries are generally focused upon children; through Saiga Day, school activities and other initiatives such as the recent creation of the cartoon 'The Steppe Tale', with all drawing by children from Tashkent, Uzbekistan. Initiatives with adults include monitoring, the embroidery programme for women in Uzbekistan, and building awareness in China to reduce the illegal trade and consumption of saiga products (SCA, 2014). While the recommendations are largely novel ideas for the saiga range states, some of the suggestions for new engagements specifically aimed at teenagers are based on existing SCA ideas, such as activities during Saiga Day and the SWCs; foundations that need revising and revitalising if they are to be more successful in engaging teenagers to benefit conservation.

5.4.1. Steppe Wildlife Clubs

In recent years, the SCA literature and initiative reports have suggested that more of an emphasis has been placed on engagements for teenagers; the SWCs created in 2012-2013 across the saiga range states were advocated as providing children with a new appreciation for their local environment, with an emphasis on teenagers, as they have the potential to become the next generation of poachers (SCA, 2013; Shivaldova, 2013). While the SWCs have the same motives for positively changing attitudes and future behaviour, the encounters experienced during the course of collecting this research in Kazakhstan indicated that some clubs are significantly more active and engaging with teenagers than others; for example, the trips undertaken to see a potential new saiga breeding centre in Kazakhstan during the research collection process was the first time the SWCs in Azhibay and Nursay had ever been taken on an outing outside of the village. As per the recommendations above, the SCA needs to ensure that all SWCs provide valuable support for conservation learning, with more regular field trips to experience the nature teenagers are being encourage to care about, and more contact from partner NGOs to give hands-on training of conservation

practices to enthuse teenagers and encourage them to advocate conservation messages to their friends and families (Pugliesea & Okunb, 2014). The Kazakh research experience also indicated that the SWCs in Azhibay and Nursay aimed their activities at much younger children than targeted teen range, and although the groups still had some female teenage members, the SCA needs to ensure that more schemes to interest and engage teenagers (especially boys, who are currently absent) are employed swiftly by the SWCs; the recommendations above utilised so that teenagers are more enthusiastic regarding involvement and can encourage more of their friends to participate.

5.4.2. Saiga Day

Saiga Day has been advocated in the SCA literature as an initiative aimed at a mixed age of children and in the last 2 years, new activities for teenagers have been purportedly incorporated into the day's events. While a valuable example of this is the 'Saiga Cup' award in Uzbekistan, for the winners of football and volleyball tournaments, an event created involve a much broader cross-section of the community in Saiga Day, particularly including the target demographic of older teenage boys; being potential poachers but no longer interested in events targeted at younger children (SCA, 2014), the experiences of Saiga Day in Kazakhstan observed that no activities were designated for teenagers during the actual Saiga Day (Figure 5.4.2.), in fact, teenagers were absent from the celebrations until this research was gathered in the evening. This observation opposes the SCA literature advocating the synthesis of all adolescents and age-appropriate activities during Saiga Day, and demonstrates the need for a general guideline of events that can be used across all Saiga Days, ensuring that all adolescents in the saiga range states receive similar positive experiences. Events like the 'Saiga Cup' in Uzbekistan should be endorsed still further, with sports tournaments and other enjoyable activities continued year-round to ensure that the importance of saiga conservation is constantly reinforced. Other towns and villages should also be included, as well as community members such as the

police so as to create a wider sense of unity (Jacobson, 2003), as the schools in Kalmykia have done with their 2012-2013 Saiga Day celebrations.

Figure 5.4.2. Children enjoying Saiga Day in Nursay; the absence of teenagers noticeable.

In past Saiga Days across the range states, the 'Ecological Express' activity aimed at adolescents aged 14-15 has been especially popular, with each country incorporating different aspects into the competition. In Uzbekistan, traditional crafts were taught by village elders, strengthening ties between generations and supporting the above engagement recommendations that local traditions be integrated into conservation activities. This mix of conservation message and tradition should be promoted for Saiga Days across the range states, with teenagers' enthusiasm encouraging older community members to view conservation in a positive way (Samuel, 2011; Shivaldova, 2013). Other aspects of the 'Ecological Express' included painting, quizzes, and writing poems about saiga, all engaging activities that should be undertaken throughout the year to keep saiga conservation 'fashionable' for teens (Nelson & Lott, 2012). At Saiga Day in 2013 in Kazakhstan, teenagers took part in a competition to become 'Eco-leader of the 21st Century', demonstrating conservation ideas and a passion for nature. To move forward as per the recommendations, the SCA should ensure that these kinds of activities are more consistent throughout Saiga Day and

could also include people working in conservation to listen to the teenagers' ideas, allowing them to feel as though their opinions are being taken seriously by adult professionals, a method from the literature that inspires confidence and promotes positive decision-making (Bessell, 2011; Coyne & Gallagher, 2011).

5.4.3. Future focuses for the SCA

For the SCA to move forward and utilise the engagement recommendations in its approach for conserving the saiga antelope, original interventions and already established activities (like the SWCs and Saiga Day) must first be built upon, and then expanded to include new initiatives outlines in the recommendations . Earlier this year, the new approach of saiga mural painting in Nukus was trialled, and has already been considered a success, demonstrating the effect that novel initiatives can have for saiga conservation. As a first step, the SCA should aim to implement the social media engagement idea; sparking an interest in city teenagers who have access to the internet. As proved by recent charity campaigns such as Cancer Research UK's 'no make-up selfie' and the ALS Association's 'ice bucket challenge', this kind of social media campaign can raise millions in funding for charity action and research, as well being an effective 'brand awareness' technique for teenagers who may not have money to donate, and is an avenue the SCA needs to exploit. Celebrity support for the 'ice bucket challenge' raised its profile significantly, and is another engagement initiative the SCA should consider, as for both city and village teenagers, celebrities are very influential. By using these two engagement ideas as their initial way forward, the SCA would be laying the foundations for conservation behaviours to become the new 'trend' for young people in the saiga range states, a notion advocated by KI Vera Voronova as *"a modern style of living for a new generation*", giving young people their own purpose and individuality.

5.5. Limitations and the implications for future research

Whilst the results and recommendations are sources of relevant and valuable information for the SCA and other NGOs wishing to implement conservation initiatives to engage teenagers in the saiga range areas, the limitations of the study must not be

overlooked. The small sample size of just 56 teenagers from two Kazakh villages resulted in several methodological issues when refining the teenage interviews, highlighting the necessity of conducting pilot studies to refine and improve survey techniques (Milner-Gulland & Rowcliffe, 2007). For future research into ways of engaging teenagers for the benefit of conservation, larger sample sizes, perhaps conducted across larger villages or several smaller villages is recommended, allowing for a greater understanding of the situations and aspirations from the teenagers themselves. Research assistants could perhaps be English students, allowing for more of a direct connection between the researcher and the teenagers, and for more complex activities like focus groups to be undertaken, where interesting information can be ascertained and built upon in individual interviews (Bhattacherjee, 2012). More research into the ways teenagers personally feel about the actions of NGOs and the ways in which they could be engaged/motivated/helped to achieve their aspirations would be a desirable future project, as these were the questions 'lost in translation' on the Azhibay and Nursay interviews.

In conclusion, despite any limitations, the research objectives set out at the beginning of the study have been successfully realised through the 3 different research methods of literature review, teenage interviews, and Key Informant questionnaires. Through the insights provided and subsequent recommendations, the SCA has new information and ideas for future initiatives that can be implemented to engage teenagers more successfully in its approach for conserving the saiga antelope. During the course of executing the research for this study it has become abundantly clear that no research is currently being undertaken regarding the relationship between teenagers and conservation and designing adolescent-specific engagements. This presents a significant gap in the conservation literature and practice and indicates a crucial area for future studies; the absence of this highly overlooked but clearly important subject is a deficiency in conservation that needs urgent attention.

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7. APPENDICES

Appendix 1

Questions for the teenage interviews in Kazakhstan

1. How old are you?
2. Do/did you like going to school?
3. What do you do in your free time?
4. What job would you like to have in the future?
5. What job do you think you will have in the future?
6. What might stop you from doing the job you would like?
7. What do you think are the best jobs to have?
8. What do your parents do?
9. Do you think teachers have good jobs? What about the police?
10. What do you know about conservation in your area?
11. Are there any local animals that you think need protecting?
12. Have the people doing conservation done enough to engage with you?
13. What do you think they could do to help you enjoy your free time more or get the jobs that you want?

Appendix 2

Key Informant questionnaire

1. Did you enjoy going to school when you were younger?
2. What did you used to do in your free time (when you weren't at school)?
3. When you were younger, what job did you want to have when you grew up?
4. Were there any factors that may have prevented you (or did prevent you) from getting your desired job?
5. What jobs were viewed (by people in general) as the best jobs to have?
6. When did you first become interested and involved in conservation and why?
7. How was a career in conservation viewed (by people in general) when you were younger? Do you think that people view it any differently now?
8. What do you think are the strengths and weaknesses of conservation and environmental education in schools in your country?
9. What do your parents do?
10. Were your parents supportive of your current career choices?
11. What jobs do your friends do? What do they think of your choice to pursue conservation as a career?
12. What do you think conservation NGOs need to do in order to be more successful in…
    a) getting city teenagers interested and enthused about conservation
    b) getting village teenagers interested and enthused about conservation
    c) getting city teenagers to be actively involved in conservation as advocates or persuading others to change their behaviour
    d) getting village teenagers to be actively involved in conservation as advocates or persuading others to change their behaviour
    e) getting city teenagers to personally make changes in their lives (e.g. recycling, water use, etc)
    f) getting village teenagers to personally make changes in their lives (e.g. not poaching, not eating saiga meat, etc)
13. What are your experiences of working with teenagers (city and village)?
14. What areas of conservation are you most interested in and what do you see yourself doing in the future?
15. What are the best and worst aspects of working in conservation?