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*Human-Oriented Perspectives from Cambodia and Laos*

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# **Understanding Use of Bear Products in Southeast Asia: Human-Oriented Perspectives from Cambodia and Laos**

Elizabeth Oneita Davis

A dissertation submitted to the University of Bristol in accordance with the requirements for award of the degree of Archaeology and Anthropology in the Faculty of Arts

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## ABSTRACT

Sun bears (*Helarctos malayanus*) and Asiatic black bears (*Ursus thibetanus*) are currently threatened by the changing landscapes and societies of the countries within their home range of Asia, and in particular within the region of Southeast Asia. To date, most studies of bears in this region have been concerned with identifying population threats. Consequently, it is known that poaching to fuel the illegal trade in bear parts is one of the biggest drivers of bear decline, and is the most pressing issue affecting bears in Southeast Asia. Currently, consumer demand for bear products is unsustainable for preserving wild bear populations. Although substantial research has been conducted to understand the motivating factors and cultural context of bear part consumption in Vietnam, neighbouring Cambodia and Laos have been neglected. It is vital that these countries become more understood, as it is known that bears are being poached and that bear products are being sold in both areas. Using a mixed methods approach of anthropologically-focused interview techniques and various specialised questioning techniques in both countries, and quantitative questionnaires, in Cambodia. Together, this methodology facilitates a bottom-up, human-centred approach. In both countries, semi-structured interviews were used to gather baseline understanding of the overall perceptions of bears, as well as bears' cultural importance. These results then informed and complemented the patterns identified through the large-scale quantitative studies conducted in this thesis, in Cambodia, and in 2014, in Laos, around the motivations for use within these target societies, including who is using bear parts, how they are using them, and why they are using them. In both sites, the qualitative results have elucidated the complex social dynamics that influence bear part use. In addition, the specialised questioning techniques have overcome the effects of social desirability and illegality bias to provide an estimate of bear part use prevalence, along with spatial variation of use. By prioritising a non-judgmental, human-oriented approach, this thesis has shown the validity and necessity of neutrality when attempting to understand sensitive conservation issues. Altogether, this thesis provides a comprehensive picture of the social, spatial, and demographic heterogeneity of bear part use in Cambodia and northern Laos, and serves to refute some accepted generalisations about the illegal trade in bear products in Southeast Asia.

Word Count: 370

## **AUTHOR'S DECLARATION**

I declare that the work in this dissertation was carried out in accordance with the requirements of the University's Regulations and Code of Practice for Research Degree Programmes and that it has not been submitted for any other academic award. Except where indicated by specific reference in the text, the work is the candidate's own work. Work done in collaboration with, or with the assistance of, others, is indicated as such. Any views expressed in the dissertation are those of the author.

SIGNED -                      DATE **October 8<sup>th</sup>, 2019**

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## **CHAPTER 1: Introduction**

### **1.1 Wildlife trade in Asia**

Constant and mostly unregulated legal and illegal hunting in Southeast Asia has driven population declines in many of the region's wildlife, particularly to supply the demand for wildlife meat and traditional medicine (Gray et al. 2018, Vié et al. 2009, and Wilcove et al. 2013). This is a pressing conservation concern, as Southeast Asia is a global biodiversity hotspot (Paradis, 2018). Within the Greater Mekong Region, Vietnam has been a major focal country of illegal wildlife trade (IWT) research as it is one of the main “demand-side” countries (Drury, 2009), with illegal trading documented for myriad species (e.g. Milliken & Shaw 2012, Cao & Wyatt 2013, and Nguyen & Willemsen 2016). A variety of universally threatened taxa such as rhinoceros (*Rhinocerotidae sp.*), pangolins (*Manis sp.*), tigers (*P. tigris sp.*), and bears (*Ursidae sp.*) are consumed within Vietnam, primarily for medicinal purposes and for wild meat consumption (Newton et al. 2008, Van Song 2008, Drury 2009, Milliken & Shaw 2012, Dang & Willemsen 2018, Crudge et al., 2018b and Davis et al., 2019). Vietnam remains a prominent consumer country of illegal wildlife parts (Cao & Wyatt 2013, Olmeda et al. 2018, Crudge et al., 2018b and Davis et al., 2019). This is of significance for the two focal countries of this thesis, Cambodia and Laos, as the decline in species’ populations due to hunting means that the extirpation of many species in Vietnam is likely, with neighbouring countries such as Cambodia and Laos affected by the spill-over of Vietnamese demand as poaching pressure increases (Newton et al. 2008, Milliken & Shaw 2012, Garshelis & Steinmetz 2016, and Scotson et al. 2017). For instance, Cambodia, one of the focal countries of this thesis, was identified as a significant source country for live bears and it was inferred that seized live bears were intended to stock extraction facilities in neighbouring countries (Burgess et al. 2014). Although peer-reviewed estimates of the scale of illegal wildlife consumption within country are scant for Cambodia, a plethora of grey literature has been produced that shows that consumption and trade of wildlife is persistent and rampant within Cambodia, and it is unlikely that all IWT going on in the country is due to demand from external markets (Flora and Fauna International, 2018 and Wildlife Alliance, 2017). The same picture is seen in Laos, with wild meat consumption an integral part of “everyday village life” (Singh, 2008), and constant and consistent trade in wildlife both within Laos and across its borders an accepted reality for decades (Krishnasamy et al., 2018, Livingstone et al., 2018, and Noreen and Claridge, 2001).

Chinese demand for IWT is also felt across Southeast Asia, with Chinese bear bile farms reported as being relatively common in northern Laos (Krishnasamy et al., 2018 and Livingstone et al., 2018). In Cambodia there is no current evidence of Chinese demand for wildlife driving poaching in the country; however, the noted ascension of Chinese influence within Cambodia is worrying from a variety of standpoints. Notes Pheakdey (2012): “Chinese investment has been repeatedly



criticized for its lack of transparency, its human rights abuses, and the environmental deterioration it has wrought.” This has been seen within Laos in the “special/specific economic zones”, which are Chinese enclaves of gambling, human trafficking, wildlife trafficking, and other such exploitative processes (EIA, 2015). In Cambodia, Sihanoukville, a once sleepy Cambodian beach town now filled with Chinese casinos (Davis, pers. obs.) appears to be on track to become another such Chinese “sin city”, with the accompanying possibility of surrounding wildlife exploitation. Already Sihanoukville has been noted to be afflicted with human trafficking (Willis et al., 2016).

Beyond the Greater Mekong Region of Cambodia, Laos, and Vietnam, most of the countries in Southeast and East Asia are players in IWT on some level (Nijman, 2010), whether as sources of demand, or of supply. Bears are hunted in Myanmar, arguably mostly to supply the Chinese market (Nijman et al., 2017), specifically a perceived consumer preference for wild bear bile (Dutton et al., 2011). In addition, rhino horn, tiger skin, elephant ivory and pangolins have all been noted to be traded across the China-Myanmar border (Nijman et al., 2016 and Shepherd et al., 2018). Pangolins are hunted from countries throughout the region including Java, Borneo, and Sumatra, again mostly to supply meat and medicine, and again mostly due to demand from Vietnam and China (Challender et al., 2014a, Harrison et al., 2016, Nijman et al., 2016 and Nash et al., 2018). IWT affects wild species beyond these prominent taxa, with otters (Gomez and Bouhuys, 2018), loris (Nekaris et al., 2010), orchids (Phelps and Webb, 2015) and etc affected. The plurality of species involved in IWT provides an indication of the plurality of motivations behind use of wildlife products (Phelps et al., 2016), discussed at greater length below in **Section 1.1.1**.

Measures for combatting IWT have historically focused on wildlife law enforcement (e.g. Phelps et al., 2016). However, wildlife law enforcement throughout the Southeast Asian region has been relatively futile in mitigating the decline in wildlife (Cao and Wyatt 2013, O’Kelly et al. 2012, and Preece et al. 2012). This is particularly true for large terrestrial species such as bears, which are caught in low-cost, homemade snares placed in forests (Gray et al. 2018). Snares have devastating effects on mammal populations (Gray et al., 2018). In addition, snares’ anonymity and ubiquity make it nearly impossible to successfully prosecute individuals (Gray et al., 2018). On the demand side, it is rare for individuals in Southeast Asia to be prosecuted for the illegal consumption of animals (e.g. Cao and Wyatt, 2013 Drury, 2011, Davis et al., 2019, Nijman et al., 2012 and Shepherd, 2010). Indeed, in Vietnam Drury (2011) found that a group who should be enforcing wildlife consumption laws, e.g. government workers, was one of the groups most likely to be illegally consuming wildlife.

One IWT mitigation technique that has been suggested is wildlife farming. Theoretically, in wildlife farming, a desired product is ‘sustainably’ farmed for the consumer market. Farming of wild animals for their products has been argued as successful for conservation in the case of crocodile farming, e.g. Revol (1995), yet other studies have noted that even the farming of crocodiles may not be as broadly positive as it has been made out to be (Bulte and Damania, 2005). Indeed, finding examples of wildlife farming as a truly conservation positive action for a species is undoubtedly challenging. As summarised by Livingstone and Shepherd (2016):

The success of farming depends on a number of factors, such as the biology of the animal, the quality of husbandry, and the intended use of a given product (material, food, medicine). Perhaps most importantly, success may be determined by consumers’ socio-economic status, cultural beliefs and willingness to use the commercial product in lieu of the wild product (Fischer, 2004; Dutton et al., 2011)... In the case of wildlife consumed as food and medicine, however, consumers may be willing to pay more to purchase an illegal wild product that they perceive to be of superior quality (Anderson, 1997; Tong, 2007; Gratwicke et al., 2008; Li et al., 2008; Drury, 2009; Brooks et al., 2010).

As an example of the complexity of wildlife farming, Nuno et al’s (2018) recent study of a long-established wild meat farming industry (turtle meat in the Cayman Islands) found that although farmed meat was accepted and broadly consumed, the practice was sustaining consumption at levels that would be unsustainable on the wild population, were the farmed product to disappear (e.g. through sudden depletion of the farmed stock due to disease). Moreover, a preference was still found for wild products among some individuals in the sample. Although this preference was comparatively low compared to those who accepted farmed turtle meat, Nuno et al. (2018) caution that such a consumer market could still have an impact on the wild populations.

However, in most cases, and particularly in the Southeast Asian context, consumers will overwhelmingly state a preference for wild products over farmed (Brooks et al., 2010, Davis et al., 2016, Drury, 2009, Dutton et al., 2011, and Shairp et al., 2016). Even if they are willing to consume farmed products, a stated preference for the wild product may continue to encourage demand on the wild populations. The case of bear bile farming in China, for example, illustrates this complexity. Some studies have found a continued preference for wild bear bile (Dutton et al., 2011), while others have found a slightly greater preference for farmed bear bile among Chinese

nationals (Davis et al., 2016). Yet, ultimately the ‘true’ preference doesn’t matter, as there is a clear, continuing Chinese consumer market willing to pay for wild/wild-sourced bear bile, with knock-on effects on surrounding countries’ bear populations (e.g. B. Crudge, pers. comm., Krishnasamy et al., 2018 and Livingstone and Shepherd, Livingstone et al., 2018). The same is true in Vietnam, where Vietnamese consumers are willing to consume farmed bear bile (Davis et al., 2019), yet the continued and overriding preference for wild bear bile has led to a decline in demand for farmed bear bile, such that the industry is no longer lucrative (Crudge et al., 2018); yet with no corresponding positive conservation effect on Vietnamese bear populations (Crudge et al., 2016a). Some Vietnamese consumers are looking elsewhere for wild-sourced bear bile, e.g. in Laos: (Livingstone and Shepherd, 2016), while poachers are surely continuing to hunt wild bears in Vietnam to supply the existing market. This is also apparent when considering the continued scale of use in Vietnam, estimated at approximately 40% of the population in Hanoi; although farmed bear bile surely supplies much of this use, users of farmed bear bile will in all probability be willing to pay more for authentic wild bile, if given the option (Davis et al., 2019). This aspect of the ‘wild’ as preferential in wildlife consumption will be explored more fully below in **Section 1.1.1**.

Considering this region-wide challenge of policing and reducing the supply of wildlife products, efforts are increasingly focused on reducing the consumption of products, i.e. demand reduction. As a result, human-centred mitigation techniques that pull methodology from anthropology and the social sciences, such as behaviour change campaigns/demand reduction initiatives, are being increasingly applied (Veríssimo et al. 2017, discussed further in **Section 1.5.2**).

#### 1.1.1. The ‘wild’ as preferential?

The perpetuation of wildlife consumption in countries throughout Asia is pluralistic in the actual reasons for use of products (e.g. medicinal, spiritual, prestige, and/or any combination of identified reasons (D. Veríssimo et al., in prep.)). Yet, in key wildlife trading countries such as Vietnam, the practice is arguably perpetuated by an underlying belief in the potency and efficacy of wild products, across the varied reasons for consumption (e.g. Drury, 2009). What is less clear, however, is how important the ‘wild’ aspect of wildlife consumption is in other key wildlife consumer countries in the Asian region, and in such hotly contested issues as the farming of wild animals (Drury, 2009)). For instance, Davis et al. (2016) noted that the Chinese tourists surveyed in their study in Luang Prabang, northern Laos actually expressed a higher preference for farmed bear bile over wild bear bile, possibly indicating that the widespread practice of bear farming in China has contributed to acceptance and value of the practice. Unlike the Chinese, Davis et al. (2016) found

that non-Chinese individuals residing in Laos (of several different identified, resident ethnicities (discussed at more length in **Chapter 2**)) were very likely to express a preference for wild bear bile over farmed bear bile, indicating value placed on the ‘wild’ component of the product. Yet, Davis et al.’s (2016) study was solely quantitative in nature, and they were unable to isolate from their data specific, cited reasons for this ‘wild’ preference among individuals in Laos. This is in contrast to the mixed methods, quantitative and qualitative work of conservationists in Vietnam such as Drury (2009) who isolated wild meat in particular as being preferred for ‘rarity’ and ‘expense’, and Shairp et al. (2016) who isolated qualities including perceived “nutritional value” and “health benefits”. Shairp et al. (2016) also supported Drury’s (2009) work in showing that the consumption of wild products in Vietnam are also preferred as a means of conferring status and prestige.

Indeed, the significance of ‘wild’, whether related to status, genuine belief in efficacy, or other beliefs, can arguably be inferred from the extent of IWT itself (e.g. Nijman, 2010). Yet, although this is undoubtedly a relatively ‘safe’ assumption, the results of Davis et al. (2016) show that for a product such as bear bile it is possible for the significance of ‘wild’ to be removed from the conceptual process of consuming the product. Indeed, significance of the ‘wild’ undoubtedly fluctuates throughout all aspects of IWT. For example, Crudge et al. (2018) document a brief period in the early 2000s where farmed bear bile may actually have been preferential to wild bear bile among Vietnamese consumers, to the extent that farmed bear bile “could not meet the demand”. Yet, this landscape rapidly changed in Vietnam and at present demand for farmed bear bile had declined again, with support for wild bear bile again predominant (Crudge et al., 2018 and Davis et al., 2019). However, it is worth noting that Davis et al. (2019) found that the prevalence of receiving bear bile as a gift means that individuals often will not know whether the bile they are consuming is farmed or wild, yet they will still be grateful to receive the product; thus, bear bile consumption Vietnam is often untethered from active preference for ‘wild’.

In Laos, one of the focal countries of this thesis, Singh (2007) has argued that the consumption of wild products is a way for individuals in Laos to ‘domesticate’ the forest. Additionally, Singh (2008) found widespread belief in the consumption of wildlife as being ‘normal’ within Laos, and indeed it is a necessity for the sustainment of rural Laos communities; however, wildlife is increasingly becoming solely a commodity rather than an actual consumptive product among Laos rural communities, and thus its main importance is arguably as an object of trade to outside traders (Robichaud et al., 2009 and Singh, 2008).

There is generally a dearth of research into the specific values governing preference for wild products within the neglected tri-partite of Cambodia, Laos, and Vietnam, apart from the previously discussed work in Vietnam (Drury, 2009 and Shairp et al., 2016). Although this research is important for providing insights into what values may be governing consumption of wildlife among the neighbouring Khmer and Laos cultural group (the focal groups of this thesis), it is worth remembering that Vietnam is culturally distinct from both countries. As another point, as discussed previously, it is generally assumed in IWT literature that wild products are preferred throughout Asia and in particular Southeast Asia because wild products are traded so extensively in the region (e.g. Gray et al., 2018). Yet, although there is little reason to disprove this assumption, it is worth noting that inverting the argument could work just as well; i.e. wild products are traded so extensively that by default consumers will choose wild products when consuming wildlife, yet may not have specific, attributable values associated with a 'wild' product that encourage them to seek a 'wild' product out. This will be further discussed in the context of the results of this thesis, and in particular when considering the farmed versus wild bear bile debate (**Chapters 4, 5, and 7**).

### 1.1.2 The rural-urban nexus in Cambodia and Laos

The Southeast Asian countries of Vietnam, Cambodia, and Laos are all undergoing rapid economic growth (Leung, 2012) and in at least some respects a subsequent transformation in their historic (though invariably fluid) economic and societal structures. Vietnam's extensive rural reforms of the 90s arguably gave Vietnam an 'edge' that Cambodia and Laos lacked; subsequently, in both Cambodia and Laos there is now increasing attention to rural areas with the recognition that rural improvements will improve the countries overall (Leung, 2012). As rural individuals are those who rely most on natural resources (Tovey, 1998), the further implication is that the natural resources of the countries are also of increasing interest within Cambodia and Laos. This, of course, includes the wild populations of animals, historically used by rural communities and now indubitably being consumed at an unsustainable rate by these actors and the external urban markets within and without the country.

Some have argued that depicting 'developing' countries as possessing a stark rural-urban dichotomy is overly simplistic and does not capture the intrinsic connections between rural and urban communities (Turner and Wiber, 2009). Certainly, in Cambodia and Laos this is in some respects apparent, with farmers driving into the city from the rural landscape of rice fields to sell their wares, and retreating at the end of the day to the lesser amenities of their rural houses (Davis, pers. obs.). In other respects, it is impossible not to see a firm rural and urban divide, e.g. when

considering the dusty bikes and motorbikes that define rural Khmer communities and act as a stark contrast to the Porsches and BMWs of urban Phnom Penh (Davis, pers. obs.). In the context of wildlife consumption within Cambodia, it is unclear what divides may exist between rural and urban actors, or whether drivers, types, and levels of wildlife consumption are consistent across the Khmer landscape, regardless of amenities or location. In Laos, wildlife consumption is noted as a prevailing part of everyday life, regardless of the rural-urban dichotomy. Although consumption of wild products in Vientiane necessitates more effort to consume the products, compared to rural communities next to the forest, the reasons for use are given the same justification(s) and consumption of wildlife is seen as symbolic of the prevailing connections between urban Laos nationals and their rural fellows (Singh, 2008). Indeed, the illegal wildlife trade (IWT) in Laos appears to epitomise these broader realities of life. Generally, the Chinese are believed to be ‘exploiting’ Laos natural resources, and this is clearly true in some cases (EIA, 2015, Krishnasamy et al., 2018 and Livingstone et al., 2018). However, when one steps back and views Chinese investment more broadly, the picture of rural-urban ‘transformation’ and change is significantly more nuanced. Chinese large-scale agriculture projects are increasing across the Laos landscape, which would suggest that local people are increasingly being pushed out of rural areas and to urban centres; however, the ‘fragmented’ nature of governmental organisation in Laos has enabled local actors to maintain a level of ownership in rural areas that may be hidden under narratives of Chinese dominance in the rural Laos landscape (Lu and Schönweger, 2017). Moreover, Chinese investors in Laos have been desirous of using rural communities as worker pools, yet have been frustrated by the fragmented, low human density of the rural areas (Lu and Schönwenger, 2017), a feature which has in fact characterised Laos for centuries (Stuart-Fox, 1993). Thus, Chinese investment could, if anything, encourage Laos individuals to stay in the countryside, given incentives. Returning to the dilemma of IWT in Laos, although the Chinese undoubtedly have a role in facilitating the poaching of endemic animals for cross-border trade, the intrinsic importance of wild animal product consumption for “everyday life” in Laos intimates that Chinese influence in rural areas is as yet unexpressed, and that IWT in Laos will be dominated by intrinsic and localised practices that are themselves an interconnected network with indistinct delineations between urban and rural.

This picture is arguably very different in Cambodia, where the population density is much higher and Chinese investment has been significantly more dramatic (Pheakdey, 2013). This has led to some remarkable transformations, and some striking dichotomies. For example, rural communities- often dependent on small-scale aquaculture along bodies of water (Bylander, 2015)-

have failed to benefit at all from Chinese-built dams, in that they have been unable to receive electricity from those dams (Siciliano et al., 2015). This electricity has instead gone to the urban centres, thus encouraging the continued economic advancement of these communities, at the expense of the rural. Moreover, in the process of attempting to ‘advance’ rural communities, existing social structures such as the village can, and have been, erased (Bourdier, 2008). Such erasures encourage migration from the area and the subsequent, actual erasure of the rural plane. Unlike in Laos, the role of wildlife consumption in elucidating the rural-urban nexus within Cambodia, and possible transformations (or lack thereof), is mostly unknown. As in Vietnam, emerging research has shown that the Cambodian countryside acts as a repository of wildlife for the consumption of urban individuals, thus encouraging the depletion of valuable forest resources for the rural poor (Flora and Fauna International, 2018). More generally in the context of resources, mostly uninhibited logging in Cambodia has certainly had devastating effects on rural communities, for whom forest resources may constitute 50% of their income (Jiao et al., 2015). At present, most Khmer live in rural areas, yet the increasing reduction in resources, the lack of available amenities, and the prospect of opportunities in factories around Phnom Penh and the rapidly booming town of Sihanoukville will likely act to encourage increasing migration from the countryside. Thus, the consumption of wildlife in Cambodia may increasingly follow the pattern of neighbouring Vietnam, where the rural population continues to migrate into urban areas (Nguyen et al., 2015), consequently localising consumption of wildlife at these distinct ‘sink’ spots (e.g. Drury, 2009). Although this may in theory mean that less wildlife is consumed as individuals move away from the accessibility of wildlife, in practice this phenomenon merely encourages the creation of dedicated sink-to-source chains and a maintenance in levels of consumption (e.g. as seen in bushmeat consumption in Africa (Wilkie et al., 2016)). This becomes yet more pertinent if other values become attached to the product; indeed, the move from rural to urban may encourage greater belief in the ‘rarity’ of wildlife products and a subsequent belief in such products’ ‘preciousness’ (Drury, 2009). Ultimately, understanding the rural to urban context of Cambodia and Laos is important for understanding how wildlife is used within these countries, and what symbols and values attached to such products may be transformed in the process of rural-urban change.

## **1.2 Traditional medicine in Cambodia and Laos**

Traditional medicine within the Southeast Asian region is an often celebrated and emphasised resource in rural areas (e.g. Naono, 2014), and is considered by ethnologists to be an ‘accessible’ resource for individuals seeking treatment, as traditional medicine practitioners are often part of

the ailing individual's immediate society (Leslie, 1980). Indeed, traditional medicine in Vietnam was encouraged by the Vietnamese government in the early 90s as a means of increasing 'self-reliance' within rural communities (Naono, 2014). Throughout the region traditional medicine is unique to the country/ethnic group (e.g. the Hmong in Laos: Fadiman, 1997; the Khmer: Grundy et al., 2016; Vietnamese (Kinh): Dang and Willemsen, 2018). In Cambodia, traditional Khmer medicine (TKM) is cited as directly incorporating traditional Indian medicine, with a union of "oral traditions, with magical incantation and herbal remedies the most commonly practised methods, reinforced by local customs and animistic beliefs" (Grundy et al., 2016). During the Khmer Rouge period, when Western medicine hospitals were often closed and medical staff executed or sent to the countryside, use of TKM underwent a resurgence as being the only possible option available to individuals (Grundy et al., 2016). As older individuals in Cambodia will have lived through this period, and the health network continues to expand following its dissolution at the end of the 1970s, it is logical that traditional medicine (both Khmer and indigenous) persists, particularly in rural areas (Brown et al., 2006 and Ros et al., 2018). Some estimate that use of TKM may be as high as 50% of the Khmer population in Cambodia (e.g. Ros et al. (2018). Meessen et al., (2011), however, present results in stark opposition to this, with only 1.2% of the sample in three rural districts likely to consult TKM practitioners; however, that number may not encapsulate the use of TKM "in the home", e.g. known remedies in the family, by the individual, or TM treatments that are so common that they are not even considered TM (such as the use of peppermint for treating a stomach ache). However, Ros et al. (2018) do note that over the decades use of TKM has experienced a substantial shift in Cambodia; specifically, they argue that TKM has shifted from being the first resort, to the last. Partially this is attributed to a shift in TKM from the spiritual (i.e. belief in the healing powers of spirits, or *krue/qrū*) and hence 'altruistic' healing directed by these spirits, to more regulated TKM practices modelled on Western medical practices, with the removal of the *krue* (Ros et al., 2018). This is encapsulated by the official government recognition of TKM, such that TKM practitioners are recognised governmental entities (Free the Bears Research Programme Officer T. Lim, pers. comm.). As stated above, this trend of official recognition was given to traditional Vietnamese practitioners as well, leading to the creation of the Traditional Vietnamese Medicine Association (e.g. Dang and Willemsen, 2018 and Davis et al. 2019). Thus, traditional medicine within the Greater Mekong countries of Cambodia and Vietnam is a recognised and integral component of society.

In Laos, Richard Pottier (1971) speculated that traditional Lao (specifically Lao Loum, the 'predominant' ethnic group in Laos (**Chapter 2**)) medicine is unlike TKM in that belief in spirits



is absent from conceptions of traditional Lao medicine's (TLM) efficacy. Rather, he states that "experimentation must have been the major incentive in this field [towards choosing which products to use]". Later, he argues that a belief in 'magic' exists within TLM, which would appear to share cognitive similarities to spiritual conceptions; however, he states that this belief is 'impersonal', versus the 'personal' belief of a spirit working within the traditional medicine practitioner/a medium with healing powers (as is historically the case among the Khmer in Cambodia (Bertrand, 2001 and Ros et al., 2018)) (Pottier, 1971). Pottier (1971) also notes that within TLM, as within, he argues, most medical traditions including Western, there is an endemic belief in two states of the body, 'hot' and 'cold', with corresponding ailments and treatments (e.g. the popularised concept of 'yin' and 'yang'). Following on from this, Pottier (1971) argues that this dichotomy of "hot and cold" shouldn't be considered to mark TLM as 'exceptional'. Instead, Pottier (1971) argues that TLM is an "apprehension of reality based on experience [to] sensitive qualities of objects. Lao traditional medicine is located, basically, at a level comparable to that which has produced the art of cooking...": essentially, trial and error.

However, in opposition to Pottier (1971), Bamber (1998) writes that in TLM there *is* an underlying belief in illness being the result of spirits infecting the body, a belief found within other medical groups in the Greater Mekong region including TKM (Ros et al., 2018) and Hmong traditional medicine (Fadiman, 1997). This, he argues, is the rationale for treatments that use animals and plants to 'drive' the spirit from the body through 'poisoning' (Bamber, 1998). Indeed, Westermeyer (1988) found that this belief in spirits (*phi*, in Lao) was one of "nine central folk theories" in TLM, which has also been confirmed by Bamber (1987). Other conceptual underpinnings of TLM, Westermeyer (1988) argued, were: belief in 32 spirits residing within the body, who needed to be in harmony for the full health of an individual; the power of magic and sorcery in affecting health; "Illness can result from the blood, from breath or air or wind, or from the bile"; diseases can spread between individuals; environmental changes can cause illness; unhealthy behaviours (such as smoking) can cause illness; stress, i.e. "thinking too much" can cause illness; and finally, violent death is punishment for past or present sin (Westermeyer, 1988). Westermeyer (1988) noted that the concept of illness resulting from "bad blood" holds conceptual similarities to "Ayurvedic [Indian] or Chinese medicine". Accordingly, he supports Bamber's (1998) indirect argument that TLM shares some conceptual similarities with neighbouring TKM and TVM, and further refutes the claims of Pottier (1971).

Generally, TLM appears to have historically maintained as a semi-spiritual practice. Because of this element of spirituality and the spirit working within individuals, the TLM practitioner (*maw*) often accepted only a small amount of money. More commonly, the *maw* was given gifts in exchange for treatment (Westermeyer, 1988), which was the historic case in Cambodia as well with the *krue khmey* (TKM practitioners- although it should be noted that this generally accepted term (T. Lim, pers. comm.) is representative of a wide swathe of traditional healer denotations, e.g. *krue thnam*, analogous to pharmacist (Ovesen and Trankell, 2010 and Ros et al., 2018)). Westermeyer (1988) explains this lack of significant monetary exchange as a result of TLM being a ‘part-time’ vocation, performed almost casually and rarely. This spiritual aspect is seen in TKM as well, where individuals have the option of consulting not just the *krue khmey* but also the *boramey*, i.e. spirits, for any health concerns they may have (Bertrand, 2001). *Boramey* work through *snang*, themselves superficially analogous to the lower tier of *maw* in Laos (*snang* tend to consult *krue* masters, but this can be variable depending on the reputation of the *snang*/the power of its *boramey* (Bertrand, 2001)).

Laos is an extraordinarily culturally pluralistic country (discussed at great length in **Chapter 2**), and thus TLM is only one of many varieties of traditional medicine. Although research is relatively scarce on traditional medicine among other ethnic groups in Laos, the Hmong medical system has been well-studied, partially due to the influx of Hmong refugees into Western medical systems (e.g. in the USA (Fadiman, 1997)) and the associated challenges Western medical personnel have encountered with understanding the individuals’ ailments and giving them effective treatment. As with TLM, the Hmong believe in a multitude of spirits within the body, and that the loss or gain of spirits can cause physical manifestations of illness. Unlike TLM, the Hmong believe that some illnesses are simply ‘natural’, including animal attack, broken bones, and even illnesses such as tuberculosis (Westermeyer, 1988). Westermeyer (1988) notes that the Hmong are more ‘vigorous’ in their treatment, with the patient often receiving what could be considered another ailment, e.g. hematomas from a “heavy pounding massage”. As with TLM, a wide variety of animal and plant products have historically been used (including bear bile). Animal sacrifice is another integral component of Hmong medicine, arguably more so than in TLM (e.g. Fadiman, 1997). As in TLM, where there are many different levels of *maw* (e.g. *maw phi*, a shaman), the Hmong have spirit mediums known as *neeb*s who perform the ‘unseen’ medicinal duties, and a *tschen tschua* who treats external ailments (Fadiman, 1997 and Westermeyer, 1988). Ultimately, Westermeyer (1988) sums up the differing conceptual underpinning of TLM and Hmong medicine as: “the Hmong are apt to perceive being healthy as more a matter of chance, due to the whim of various spirits or forces in nature, rather than the result of one’s own choices”, unlike the Lao. He theorises that this could

be due to the Lao Loum's greater contact with Western/outside medical systems, unlike the reclusive and relatively isolated Hmong. Generally, Westermeyer's (1988) work illustrates the plurality of beliefs and practice between groups, even if the specifics of his pre-Communist era observations of medical practices among the Lao Loum and Hmong are almost certainly now outdated in terms of modern Lao Loum and Hmong medical systems.

Throughout the world wildlife is used in traditional medicine (e.g. Starr et al., 2010). This is true of traditional medicine within Southeast Asia as well (e.g. Dang and Willemsen, 2018, Starr et al., 2010, T. Lim, pers. comm., Westermeyer, 1988 and Willcox et al., 2016). In TKM, wildlife products including rhino horn and bear gallbladder are official components (Hieng et al., 2011). Currently, survey estimates indicate that TKM practitioners continue to prescribe a wide variety of animals including tiger, bear, loris, turtle, and etc (Starr et al., 2010 and T. Lim, pers. comm.). Free the Bear's Research Programme Officer T. Lim, whose duties with Free the Bears include researching aspects of bear part use in Cambodia, has shared some as yet unpublished insights from her research with me. In surveys conducted throughout 2018, she found that half of the TKM practitioners she surveyed were continuing to use wildlife products (pers. comm.). In addition, the results indicated that within modern practiced TKM there are two 'streams', wherein a TKM practitioner who has used wildlife products in the past will continue to do so, versus TKM practitioners who have never used wildlife products and plan to continue not doing so (T. Lim, pers. comm.). However, what has proven to be difficult to unpick is how much of TKM is influenced by traditional Chinese medicine. Certainly, wildlife products such as loris have been used in TKM for several decades (Starr et al., 2010), and T. Lim (pers. comm.) found in conversations with TKM practitioners that they believed a wide variety of bear products could be considered TKM, including claw, teeth, bone, skin, blood, and paw; possibly, such a variety of use indicates centuries of the "trial and error" that Pottier (1971) argued gave rise to TLM.

Westermeyer (1988) noted that animal products were widely used in TLM when he conducted his fieldwork in northern Laos in the pre-Communist years. Indeed, he specifically notes bear bile as one of the products used by individuals of both the Hmong and Lao Loum ethnic groups, despite relatively different medical systems. As with TKM, this use of bear bile could have been a component of TCM brought into Laos, or could have risen through "trial and error". Certainly, bear bile is used in the medical systems considered thus far here, and can be considered an endemic treatment. However, of concern for conservationists is the decline in bear populations throughout Asia, and the prevalence of bear bile farms, which may act to increase accessibility of the product

and, as has happened in Vietnam, increase use of such bear products (Crudge et al., 2018), well beyond the level they may have traditionally been used, and beyond the ailments they may have been used for.

Vietnam is often turned to for understanding how bear products may have been/may be currently used in traditional medicine in the neighbouring countries of Cambodia and Laos. This is not unreasonable considering cultural flow across Asia, and the broad commonalities present within the medicinal systems across the region. However, reliance on a Vietnamese interpretation of bear product use across Southeast Asia negates the influence of cultural and societal effects within each country, including at a minimum the differing religious heritage of Cambodia and Laos, the immense diversity of cultures across Laos and by extension values and practices, the historic Khmer Indic heritage, as opposed to Vietnamese Chinese heritage (Drury, 2009), and the differing policies of each country in promoting Western medicine. It is therefore not sufficient to base understanding of bear products in medicine (and other uses) in Cambodia and Laos solely on bear product use in Vietnam. Yet, it is also true that each country may be influenced by sources such as China, and in turn influence one another. Vietnam is therefore part of the broader picture of bear product use across Southeast Asia, and understanding bear product use there is necessary for comparing and contrasting the use of bear products in Cambodia and Laos.

In Vietnam, Davis et al. (2019) investigated the use of bear products within traditional medicine by surveying consumers of wildlife products, as well as traditional Vietnamese medicine practitioners (TMPs) working in Vietnam. They found that currently in Vietnam bear bile products are prescribed by TMPs most commonly for “reducing pain of different body parts and intestinal organ diseases, specifically: bruises; blood congestion; digestive disorders; shoulder and neck pain; joint pain; backache; liver disease; swollen areas; general pain; sprain; feeling hot inside (fever); and arthritis.” Less commonly cited ailments included “arthralgia; diabetes; cancer; gout; and hepatitis” as well as heart disease and mental illness. From this it can be reasoned that the use of bear bile in modern-day Vietnam is pluralistic; however, the uses still appear to align with the ‘official’ use of bear bile in TCM (and by extension TVM), as a ‘cold’ medicine to “clear heat” (Feng et al., 2009). Bear bile has been found to be effective when used for certain ailments related to such purposes; however, plenty of synthetic and herbal alternatives exist (Willcox et al., 2016).

Importantly, recent work in Cambodia has made great strides towards understanding use of wildlife products in TKM, through surveys of 33 TKM practitioners throughout 2018 (Free the

Bears Research Programme Officer T. Lim, in prep). The TKM practitioners confidently stated a litany of bear products to be TKM, including bear bile/gallbladder (T. Lim, in prep.). As in TVM, these products were stated as assisting with a variety of ailments (in order of commonality): general body pain and bruising, acting as a general tonic, fever, diabetes, and etc (T. Lim, in prep.). Superficially, there are therefore commonalities between the use of bear bile in Vietnam and Cambodia, despite the disparate medical systems, possibly due to accurate understanding of bear bile's beneficial properties, in certain contexts (Feng et al., 2009). Nonetheless, it is less certain in both Vietnam and Cambodia how effective bear bile is compared to synthetic or even herbal alternatives, nor is it certain how effective bear bile is as a general 'tonic'; it has been found to potentially mitigate neurodegenerative processes (Fernández-Sánchez et al., 2015), however as it is often taken with liberal amounts of whiskey in Vietnam (Drury, 2009), the health-conferring properties of the product may be negated.

Understanding of use of bear parts in TLM is limited to the brief mentions of their use in both Hmong and Lao traditional medicine (Westermeyer, 1988), and an understanding that their use persists among individuals in Laos (Davis et al., 2016). As will be discussed at greater length at the end of this chapter, one of the main objectives of this thesis is to enhance understanding of use of bear parts in Laos, including the medicinal use of these products. These results are therefore presented in **Chapter 5**. Additionally, although bear bile is known to be used medically in Cambodia, understanding of how it is consumed, and what the patients (rather than practitioners) are using it for is as yet unknown. This thesis strives to fill this research void, presented in **Chapter 4**.

### 1.2.1 “Maintenance of health” in traditional Asian medicine

It is well-recognised that in Chinese society and by extension Vietnamese society value is placed on “the maintenance of health”, usually through traditional medicine (e.g. Chung et al., 2009 and Craig, 1996). As discussed in the main body of this section, the concept of ‘maintenance’ in TCM and TVM is believed to be tied to the overarching belief that illness and treatment are a matter of balancing the body as it sways between hot and cold and *yin* and *yang*; specifically, “strengthening the body [through tonics] is the best way to counter pathology” (e.g. Craig, 1996). In TVM, ‘tonics’ are recognised as one of eight methods of treatment (Woerdenbag et al., 2012); thus, they are an essential component of the TVM conceptual framework. Indeed, this is exemplified in the plurality of animals used as tonics in Vietnam (Drury, 2011). Relevantly to the purposes of this thesis, bear bile tonics are one of the most popular and enduring tonics in Vietnam (e.g. Dang, 2006 and Drury,

2009), with Davis et al. (2019) estimating that 18% of the 912 individuals in their Ho Chi Minh City sample had consumed bear bile in their life, usually in tonic form. Bear bile tonics are allegedly common in China (e.g. Foley et al., 2011); although bear bile farms certainly exist in China (e.g. Dutton et al., 2011), whether bear bile medicine is taken “when required” or for maintenance is in greater doubt due to a lack of interrogative research on the topic. It is much less clear how prevalent bear bile tonics are throughout the rest of Asia. This thesis will attempt to fill this research void, as will be discussed at greater length at the end of this chapter.

The use of tonics in TKM and TLM are, as with most medically-related things in either country, less clear compared to Vietnam. Tonics are noted by Ovesen and Trankell (2010) to be a popular product of one TKM practitioner, but they do not document a persistent prevalence of tonics within the TKM system, nor generally throughout Cambodia (although T. Lim (in prep) has found that TKM practitioners cite certain bear products as being used in tonic form; this will be discussed in the context of the results presented in **Chapter 4**). Indeed, Feuer (2013) cites the ‘over-processing’ of medicine into a tonic as being suspicious to rural TKM consumers, as they would not then be able to tell whether the key herbal product was mixed with anything else (such as Western medicine). According to Feuer (2013), there is an identified problem with TKM ‘practitioners’ mixing “strong pharmaceuticals”, with, it can be assumed, detrimental health effects to the patient. Nonetheless, although this worry may be present, Feuer (2013) does support Ovesen and Trankell (2010) in stating that some TKM practitioners will craft tonics, yet to assuage concerns over the content of the tonics the practitioners will have the raw products available, and will make sure that they attain some form of official certification (such as government accreditation) to show that they are generally reputable. However, the general lack of prevalence of tonics in Cambodia points again to the disparities between TKM and medical systems such as TCM and TVM. Although tonics may have a role in TKM, there is a clear lack of evidence for their widespread popularity, compared to neighbouring Vietnam. Moreover, it is unclear whether tonics are used to treat a specific ailment, or are used, as in Vietnam, as general “health maintenance”.

In Laos, plant-based tonics have been identified as a relatively common form of traditional medicine, and identified as being used for “health maintenance” (Elkington et al., 2012 and Libman et al., 2006). However, there has been little research beyond this superficial denotation; for example, there is no indication as to whether animals ever comprise these tonics in TLM. Nonetheless, the fact that tonics exist and are cited as a medical treatment indicates that a

conceptual framework is in place that could (and perhaps does) facilitate the use of bear bile as a tonic in TLM.

### 1.2.2 Medical pluralism

Medical systems can be defined as “social systems that give meaning and form to the experience of illness” within a society (Leslie, 1980). Medical systems’ perceived legitimacy can arguably be tied to the perceived level of organisation the system has (Leslie, 1980). One of Western medicine’s actions was the full-scale structuring of the medical system, i.e. the union of medicine and bureaucracy (Leslie, 1980). However, the consequence of such structuring can be that any other form of medicine is perceived to be outside of this legitimised system, e.g. “quackery”, as Leslie, (1980) terms it. For a variety of reasons, possibly including to avoid such perceptions of “quackery”, countries including China, Vietnam, Laos and Cambodia have ‘legitimised’ traditional medicine through official government recognition (although Ovesen and Trankell (2010) make sure to state that actual health policy is “firmly in the grasp” of the central Cambodian government, rather than the traditional medicine association) (e.g. Alvesson, 2013 and Ladinsky and Levine, 1985). Indeed, legitimisation can serve as an attempt to facilitate effective health care by “opening the door” to legitimate “practical studies” on the effectiveness of the practices (Leslie, 1980), as well as ensuring that individuals within rural communities are empowered to use traditional medicine, which may often have many effective remedies for small-scale ailments (e.g. Alvesson, 2013 and Ladinsky and Levine, 1985). Another aspect of such legitimisation is that it can also serve as a powerful form of patriotism. For example, one of the main objectives of the “belt and road project”- a large Chinese industrial initiative aimed at 40+ countries, sometimes called the “new Silk Road”- is to bring traditional Chinese medicine to these countries as a means of facilitating the “great rejuvenation of the Chinese nation” (Mao et al., 2018). Thus, the extent to which a medicine is embraced by a society or a peoples is due only partially to the medicine’s ‘actual’ or perceived effectiveness; equally important is society, government, and external cultural forces (Kleinman, 1997).

What constitutes ‘efficacy’ in traditional medicine, however, may be complex to define (Waldram, 2000). Moreover, as discussed above, medical systems are usually so firmly entrenched within an individual’s perception of the world that it is difficult to think beyond that system; e.g. Western individuals who attempt to explain traditional medical systems solely through contrast to “universal [and] empirical biomedicine” (Waldram, 2000). This is illustrated by, for example, Leslie’s (1980) implication that traditional medicine’s efficacy is in doubt when it is not ‘legitimised’

with the biomedical bureaucratic system. However, Leslie (1980) acknowledges the highly important ‘psychosocial’ act of ‘healing’ (Waldram, 2000), e.g. when a medical practitioner uses symbols believed to be efficacious by the sufferer. These symbols can include performed rituals, as is in “shamanistic healing” (a component of the traditional medicine systems of Cambodia and Laos, discussed above), and efficacy is tied intrinsically to ‘proper’ performance (Kleinman, 1980). This in turn can act to “link ideological [ailments]... to emotional physical ones”, e.g. anxiety (ideological) with heart disease (physical) (Young, 1982). Thus, traditional medicine’s efficacy can be achieved by a plurality of treatments beyond ‘medicine’.

Yet, although efficacy can result from many avenues in traditional medicine, ‘efficacy’ of traditional medicinal treatments as being successful removal of an ailment (i.e. the biomedical system definition), has been well-studied. Many of the plants and herbs that comprise traditional medicine treatments across the world have been empirically validated within the Western biomedical system as ‘effective’ in treating illness (e.g. Farnsworth and Soejarto, 1991, Ningthoujam et al. (2012), Rai et al. (2012), and indeed, entire journals devoted to the topic). The use and associated efficacy of animal products in traditional medicine has been less well-investigated, but there are examples of animal products being both scientifically efficacious, and symbolically constructed with efficacy due to the physical properties of the animal (Alves and Alves, 2011). Certainly, the broad and varied use of animal products within Latin America (Alves and Alves, 2011), for example, points to belief in the efficacy of each animal product that may be ‘true’, and may also be reinforced social and cultural perceptions of the product’s efficacy within the symbolic and social system of traditional medicine. Ultimately, however traditional medicine may be constructed, it is widespread and ‘effective’ across cultures and regions, for a plurality of reasons that may be beyond the ‘scientific’.

Because medicine is so closely tied to society, culture, and empirically proven scientific benefit, “medical pluralism”, i.e. the adoption and use of multiple medical systems, is a common reality of societies throughout the world; indeed, “not a phenomenon of social enclaves in our own society but a structural characteristic of the whole system” (e.g. Leslie, 1980). This pluralism can be mutualistic and positive, as with the practice of consulting spirit mediums as well as traditional healers (seen in Cambodia (Bertrand, 2001) as well as China (Leslie, 1980)), yet can also be antagonistic. Antagonism can occur when, for example, traditional midwives are disparaged by Western medical workers, despite being an integral part of communities, thus leading to uneasy and sporadic adoption of Western medicine techniques, at times with detrimental effects (Leslie,



1980). In Laos, an example of antagonism acting to perpetuate pluralism was found by Alvesson (2013), where some communities felt that they were not valued by the Western healthcare institutions they attempted to gain access to, thus leading to a greater reliance on traditional medicinal practices. When it comes to the integration of foreign medical systems such as Western, the “best of both worlds” in terms of mutualistic medical pluralism is recognition of the values of the cultural group under consideration (e.g. Kleinman, 1997). For example, Leslie (1980) notes that many Indian doctors, trained in ‘cosmopolitan’ Western medicine, have achieved success of treatment within rural communities by “paying credence to the moral and social aspects of disease and... the symbolic aspect of medicine.” For instance, Leslie (1980) cites a trained Indian doctor placing his stethoscope on a patient’s leg, out of recognition that the patient, unused to this form of medicine, nonetheless perceives that a stethoscope symbolises understanding of an ailment and thus the stethoscope being used (whether in the ‘correct’ context or not) indicates that the doctor is treating the condition and respecting the individual as a patient.

In late 60s to early 70s Laos Westermeyer (1988) noted that Lao Loum individuals were beginning to embrace the use of both traditional and Western medicine, often not only utilising both in tandem, but also combining the practices of both. For example, Westermeyer (1988) cites a growing type of “folk healer” who had a syringe and a few needles, which he would use to inject whatever medicine was desired by the individual approaching him. Often, he would also provide advice, thus distinguishing himself as being in the class of *maw*, themselves all indistinguishably considered ‘healers’ whether practicing Western, TLM, or a combination of the two. Additionally, Westermeyer (1988) also noted this medical pluralism among the Hmong, who in the late 60s to 70s were comfortable taking French, American, and Chinese medicine brought to them by traders, although they often would not know the names of the products.

What medical systems are chosen, and why, can also be tied to specific health ailments/aspects themselves. As an example, Tai ethnic group (specifically Lao and Lue) women in Laos have told me that ‘all’ Lao women drink a TLM mixture after giving birth, regardless of how often they may use TLM in their day to day lives. In other contexts, TM is relied upon as the first recourse due to monetary reasons; gathered herbs and plants can sometimes be cheaper than pharmaceuticals or seeing a Western doctor (e.g. Higgins, 1975). TM can also be the “final resort”, i.e. used for ailments or health concerns that Western medicine/biomedicine failed to cure (Zhan, 2001). Indeed, Zhan (2001) argues that TCM in the US (and possibly applicable to other areas where Western medicine is predominant, such as Europe) has been actively presented by its practitioners

as such. Thus, TCM's narrative in Western regions is of being suitable for uncured ailments, rather than for the curable (Zhan, 2001).

In pre-Khmer Rouge Cambodia, medical pluralism was fraught with conflict (Ovesen and Trankell, 2010). The French colonial administration largely disparaged traditional practitioners until the end of the regime, and by then “it was too late” for legitimisation of TKM to occur. During the Khmer Rouge regime, TKM was forced into a bureaucratic structure and forced into “Western style” looks and practices, such as traditional treatments being made into pills (Ovesen and Trankell, 2010). Following the dissolution of Khmer Rouge Kampuchea, the influx of NGOs into Cambodia in the 90s ‘fast-tracked’ the healthcare system, leading to variation in the healthcare available and, it’s argued, plurality in which services are utilised, valued, and respected (Meessen et al., 2011). However, Meessen et al. (2011) found in their study of rural communities that of all the variable types of healthcare available, traditional medicine was utilised by only 1.2% of the sample, indicating that although TKM is still present as a medical system in Cambodia, it may not have the dominance that the TKM Association, for example, may wish. Nonetheless, Ovesen and Trankell (2010) argue that in Cambodia the underlying medical worldview, whether Western or traditional medicine (or both) are being employed, is that illness is due to “social and moral transgressions” and that healing is an ‘active’ process between “healer and sufferer”. Indeed, Ovesen and Trankell (2010) go so far as to say that *every* Khmer, even those who are higher status and may ‘scoff’ at TM, use Western medicine according to a traditional conceptualisation, e.g. where having a variety of treatments of varying mixtures is considered most effective to curing one’s health. Whether such a broad statement is indeed correct is possibly a matter of debate, but certainly, based purely on the results of Ovesen and Trankell’s (2010) extensive work, medical pluralism appears to be at play in nearly all aspects of health in Cambodia. Moreover, Western medicine has a long history of equalling ‘progress’ and, as well, colonialism in Southeast Asia (Anderson and Pols, 2012). As discussed in this section, this has been a conceptual struggle for decades. The rapid economic growth of Southeast Asia and the continued embrace of Western culture, coupled with increasing national pride and a desire to keep traditions (Tu, 2014), will maintain medical pluralism in Southeast Asia for the foreseeable future. Indeed, “traditions [are] an active agent in defining the modernizing process” (Tu, 2014), with such modernising processes including the Western medical systems that continue to be embraced and implemented within the Southeast/East Asian region.

### **1.3 Overview of bear part use in Asia**

Two species of bear are endemic to East and Southeast Asia, the Asiatic black bear (*Ursus thibetanus*) and the sun bear (*Helarctos malayanus*). The Asiatic black bear primarily occurs at more northerly latitudes, while the sun bear occurs at more southerly latitudes; however, there is overlap in their ranges throughout Southeast Asia (Garshelis and Steinmetz, 2016 and Scotson et al., 2017). Historically, the parts of both species have been used and traded as medical and non-medical commodities in Asia, but knowledge of historic bear part trade and consumption throughout East and Southeast Asia is dominated by information about the Chinese. Little is known about historic trade and consumption in Southeast Asia. Records in China are more extensive, and as such it is well-known that bear parts have been used in China for thousands of years (Mills and Servheen, 1994 and Roberts and Perry, 2000). It is estimated that the first written use of bear gallbladder was around 600 CE (Common Era), where it was prescribed for ailments such as liver disease, haemorrhoids, and heart disease, among others (Dutton et al., 2011 and Mills and Servheen, 1994). Other parts of the bear were prescribed medically in China as well, with the bone, blood, and fat all stated to be effective in curing various diseases, although current use of bear parts for medicine in China appears to be confined primarily to bear bile and bear gallbladder (Dutton et al., 2011). Use is still common throughout China, particularly because bears are ‘farmed’ for their bile (Dutton et al., 2011). The process of bear farming was developed in North Korea in the 1980s as a means of obtaining “medicine for all”. The technique then spread to China and throughout Asia and Southeast Asia. In bear farming, a catheter is inserted into a bear’s gallbladder and bile is extracted. Usually, bile farms are comprised of Asiatic black bears, however some farms have been observed with sun bears (e.g. Livingstone et al., 2018).

Bile farms have been “rebranded” as a conservation-positive measure, but numerous studies have found that for endangered animal farming this is usually not true (Damania and Bulte, 2007, Drury, 2009, Kirkpatrick and Emerton, 2010 and Livingstone and Shepherd, 2014). This is particularly relevant in countries such as Vietnam, where bile farming maintains the accessibility of bile (Crudge et al., 2018 and Davis et al., 2019). As discussed above, there is a medical basis for use of bear bile, as Asiatic black bears, in particular, possess large quantities of ursodeoxycholic acid (UDCA), which does have an anti-inflammatory effect (Feng et al., 2009). However, plenty of alternatives exist, including synthetic UDCA, as well as cheap ‘Western’ anti-inflammatory medicines such as ibuprofen.

Other parts of the bear have been used within Asia for centuries. Bear paw soup, although not medically used, has been consumed in China since at least the time of Confucius, roughly 500 BCE

(Thaddeus, 1974). Bear paw soup was a delicacy, eaten only by the upper classes of Chinese society (Sterckx, 2005). It consistently appeared on imperial banquet tables, up until 1911 and the fall of the Qing dynasty (Sethy and Chauhan, 2011 and Swanson, 1996). It is uncertain now how prevalent consumption of bear paw is in China. More generally, research has shown that various bear parts are now used by Chinese individuals of all age groups, educational status and gender (Davis et al., 2016 and Dutton et al., 2011). There is evidence that Chinese values and attitudes are shifting away from approving animal part use, and towards pro-conservation and animal welfare values (Davis et al., 2016 and Tobias and Morrison, 2014); although it is still possible to hold pro-conservation values while maintaining behaviours such as the hunting of wildlife (Waylen et al., 2009).

It is less certain how long bear parts have been used in other parts of Asia. There is very little information regarding historic use in Cambodia and Laos, and information on current use of bear parts in both Cambodia and Laos is also lacking. What is understood is that bear populations in Asia were noted to be declining nearly three decades ago (Mills and Servheen, 1991), and use of bear parts is accepted as one of the primary drivers of this decline (Crudge et al., 2019). However, little research has been performed into understanding the social drivers of this use, including motivations, beliefs, knowledge, values, cultural context, and demographic factors of the individuals using parts. Research into the market dynamics of bear parts has been relatively consistent over the decades (e.g. Crudge et al., 2018, Krishnasamy et al., 2018, Nijman and Shepherd, 2008, Nijman et al., 2017 and Servheen, 1999); yet this research still suffers from geographic omissions (for example, the market for bear parts from and in to Cambodia is mentioned only in Mills and Servheen (1994)).

Recent research in Laos has been enlightening as regards the market for bear parts within that country. Livingstone and Shepherd (2014) found that farms in Laos appear to exist mostly for the use of tourists from China and Vietnam, rather than endemic users. A later review by Livingstone et al. (2018) found that although farms have mostly closed in central and southern Laos, Chinese-run bile farms in northern Laos have expanded. Thus, the number of bears recorded to be kept in captive facilities, between the data collection for the first review (2012) and the data collection for the second (2017), actually increased by one. Nonetheless, this landscape appears to be fluctuating in Laos. As of 2018, the Laos government has committed to shutting down bile farms operating within the country, as well as more generally enforcing the national laws against the hunting and consumption of bear parts (Wildlife Order PMO 5/18, **Appendix I**). However, Krishnasamy et al. (2018) described a Chinese-run bile farm operating in Boten, one of many specific/special

economic zones (SEZs) along Laos's northern border, and stated that its operation was in direct violation of Laos government laws. These special/specific economic zones are intended to be centres for Chinese investment and increased flow of capital into Laos, yet it is uncertain how economically beneficial these areas truly are; moreover, in these areas there is rampant wildlife trafficking, human trafficking, drug trafficking, gambling, and etc (Environmental Investigation Agency Vietnam (EIA), 2015). Although the farm in the Boten SEZ was closed down by the authorities a few months after the publication of Krishnasamy et al.'s (2018) paper, it was reportedly moved into a different province in northern Laos, where it continues to operate (M. Hunt, pers. comm.). This saga illustrates the difficulties economically disadvantaged countries can encounter when attempting enforcement, while confronted by the power of human demand.

The documented prices for bear parts throughout Southeast Asia fluctuate widely based on availability. In Laos, several vials of farmed bear bile powder can be bought for USD \$9.64 (Krishnasamy et al., 2018), although wild bile can be four times as expensive (Scotson, 2010). In Vietnam, farmed bile costs so little (approximately \$4 - \$10/cm<sup>3</sup>, Willcox et al., 2016) that it is no longer considered lucrative to farm bears (Crudge et al., 2018). In other countries surrounding Southeast Asia 'mid-range' farmed bear bile has also been stated as being approximately \$4 (China: Dutton et al., 2011), while a whole bear gallbladder can range from approximately \$100 (India: Sethy and Chauhan, 2011), to approximately \$350 in Myanmar (Nijman et al., 2017), which is an almost ten-fold increase from the \$40 cited in a similar study performed in Myanmar, published in 2008 (Shepherd and Nijman, 2008). Prices for wild bear parts generally appear to be increasing, although the lack of data in many Southeast Asian countries obstructs true understanding. Overall price increases for wild bear products is supported by information from Laos that wild bear bile/gallbladder is actively chosen over farmed when individuals are given the choice between the two (Davis et al., 2016).

In **Section 1.7.1** the flow of bear products throughout Asia will be discussed, with an examination of network theory, research on consumptive networks from both conservation and anthropology, and how bear products are situated within identified consumptive networks.

## **1.4 Conservation approaches to the bear part trade to date**

### 1.4.1 A definition of conservation

Conservation is now defined as the act of “[maintaining] the diversity of life on earth... [through] preventing extinctions, maintaining viable populations, and enabling the recovery of declining and

depleted populations” (Akçakaya et al., 2018). Early definitions of conservation were quite different from this interpretation. An American lawyer in 1915 wrote:

there [are] certain of these resources so intimately associated with the future welfare of the nation that it [is] for the best interests of the public at large that these resources, viz: timber, coal, petroleum, water power, phosphates, potash, etc. should be retained in public ownership since their use could thus be best conserved and controlled; and that there [is] also imminent danger that they might be monopolized to the detriment of the public. *The idea of a public revenue to be derived from the leasing and sale of these resources has also come into prominence.* (italics mine) This is the modern idea of conservation of natural resources. (Colby, 1915)

Therefore, conservation initially began as public sentiment that was both a recognition that individuals’ environments were being detrimentally affected by resource exploitation, and that the vast amounts of money businesspeople were gaining from the exploitation of resources was societally unacceptable. Thus, conservation did not begin with the clear environmental ethos of ‘protection’, but rather was founded on more socio-capitalist principles of “spreading the wealth”.

#### 1.4.2 Bear part conservation research to date

Conservation approaches to the bear part trade have to date been focused primarily on law enforcement, rather than attitude change (e.g. Shepherd and Nijman, 2008 and Nijman et al., 2017). However, law enforcement for reducing illegal wildlife trade (IWT) is often weak in Cambodia and Laos (e.g. Krishnasamy et al., 2018 and Nekarlis et al., 2010). Yet, although law enforcement has been consistently highlighted as weak, conservationists are continuing to recommend increasing law enforcement when tackling IWT (Nijman et al., 2017). Increasing law enforcement can in some cases be detrimental to conservation by alienating members of the community if, for example, enforcement is “heavy-handed” and/or removes historic rights to wildlife use that a group of people have had (Cooney et al., 2017). Additionally, enforcement is often cost-prohibitive (Cooney et al., 2017), particularly if confronted with the “sophisticated” criminal syndicates that are reported to be involved in the illegal wildlife trade (Bennett, 2011). Moreover, even robust enforcement fails when confronted with the vast quantity of snares used in Southeast Asia for poaching bears and other animals (Gray et al., 2017a and 2018).

The trade in illegal wildlife products is a multi-billion-dollar criminal industry, and a major threat to biodiversity around the globe (Cao and Wyatt, 2013, Vié et al., 2009 and Wittemyer et al., 2014). Since enforcement has been noted as often being inadequate for halting the illegal wildlife trade, conservation organisations working in Southeast Asia (and throughout the world) are now exploring demand reduction via educational and social marketing approaches (DeWan et al., 2013). Demand reduction/behaviour change in conservation is the targeted changing of behaviours and actions to align with conservation goals, for example, the reduction in demand for wildlife products (Veríssimo, 2013). Some in conservation argue that demand reduction is too slow, and will not be sufficient for preserving threatened populations (Bennett, 2011). However, emerging research in demand reduction has brought forth alternative and arguably more effective methods, such as those that employ social marketing psychology (Veríssimo and McKinley, 2017). Known primarily as conservation marketing, this strategy offers individuals something that they need or want in exchange for a conservation-positive behaviour that is needed or wanted (Smith et al., 2010), using the tools of ‘traditional’ marketing to influence human behaviour. The term “social marketing” is also often used (Veríssimo, 2013); however, this can be confusing as “social marketing” is a more general term for similar techniques used in a variety of spheres (such as health). In this thesis the term conservation marketing will primarily be employed, to minimise confusion. An important facet of conservation marketing is that it includes robust evaluation measures, a feature often missing from other behavioural change programs used in conservation such as educational/”awareness-raising” campaigns (Veríssimo, 2013). Therefore, for the purposes of this thesis, “demand reduction/behaviour change” will hereafter be implied to be comprised primarily of conservation marketing techniques. Behaviour change campaigns will be discussed at more extensive length below in **Section 1.5.2**.

It has long been recognised in traditional marketing that a thorough understanding of the target audience will encourage campaign success, and the same truth applies for conservation marketing (Wright et al., 2015). Thus, comprehensive research into the culturally and demographically motivated drivers behind a conservation-negative behaviour can greatly assist in identifying leverage points that may be used in effective demand reduction. However, research of this kind is still under-utilised in conservation, as will be discussed later in this chapter. Nonetheless, conservation research performed on Southeast Asian endemic people’s values, attitudes, beliefs, knowledge and behaviours towards bear parts and the bear part trade has recently begun to emerge, though it is largely focused on the Vietnamese and Chinese markets. Drury (2009, 2011) has performed extensive work into understanding Vietnamese motivations behind consumption of

animal products, and has highlighted bear bile/gallbladder as a commonly used medicine. Moreover, she found that use of bear bile transcended status in Vietnam by virtue of its accessibility (Drury, 2011); however, the decline in the bile farm industry may encourage greater exclusivity in bile use in Vietnam, in that individuals are motivated to purchase wild bile/gallbladder (Crudge et al., 2018). Dutton et al. (2011) researched the motivations and preferences of Chinese consumers of bear bile, and found that they too preferred wild bile, and presumably would be willing to pay greater prices for it, if able. Furthermore, they found that when bile (farmed or wild) was sufficiently cheap, over half of the sample would be willing to buy it for 'serious' illnesses, indicating a deeply ingrained belief in bile's efficacy in China. However, Dutton et al. (2011) did not explore the cultural and/or demographic drivers behind this belief.

The term used within this thesis for the people who inhabit Laos will be "Laos individuals", to encompass the plurality of values and beliefs that are spatially distinct within the region (Pholsena, 2002). In Luang Prabang, Laos, Davis et al. (2016) performed extensive quantitative surveys in an attempt to understand motivations behind use of bear parts, as well as the demographics of users of bear parts in Laos. No consistent trend was found for use in Laos, indicating that use is widespread and that motivations and influences on use need to be explored in greater depth. However, Davis et al. (2016) did uncover spatially distinct use, with differences in the values, attitudes, beliefs, knowledge, and behaviours held by Laos individuals compared to Chinese tourists in Laos. Laos individuals were generally less likely to know that bear populations were declining. Moreover, they had a greater preference for wild bile, compared to the Chinese individuals sampled, who were more likely to cite a preference for alternatives such as synthetic or farmed bile.

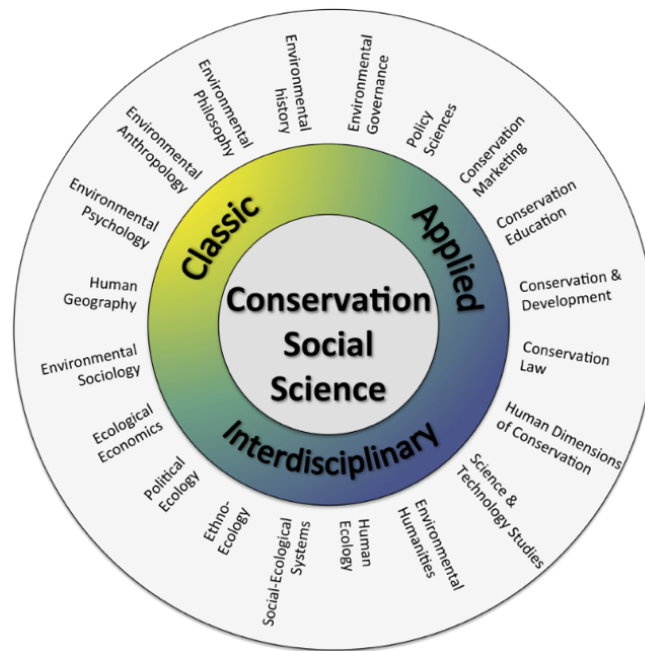
However, no preliminary research such as that discussed above has been performed on the Khmer ethnic group, nor has any qualitative, contextual work been performed on Laos individuals in Luang Prabang. Therefore, the goal of this thesis is to use techniques grounded in anthropological theory to collect culturally-specific information that will lead to a deeper understanding of the regional dynamics of bear part use among the Khmer and the Laos cultural group. This information will, it is hoped, contribute significantly to current bear conservation understanding, and subsequently feed into the creation of truly effective behaviour change campaigns.

## **1.5 Conservation goals and the human landscape**

### **1.5.1. Human-centred conservation techniques**



Humans are inextricably tied up in the field of conservation, generally through their perpetuation of conservation challenges. Although this has long been recognised (Soulé, 1985 in Bennett et al., 2017), the study of humans continues to be an area of ‘uncertainty’ for ‘traditional’ conservationists, possibly due to the “diversity of traditions” that inform human-centred conservation (**Figure 1**, from Bennett et al., 2017).



**Figure 1:** Schematic of the variety of overlapping yet distinct disciplines within conservation, that incorporate human-centred techniques and theory (from Bennett et al., 2017).

As illustrated in **Figure 1**, by making humans the focus of conservation, one can draw from diverse disciplines including psychology, education, marketing, economics, and anthropology. This thesis straddles classic, applied, and inter-disciplinary conservation social science, specifically environmental anthropology and human dimensions of conservation. Environmental anthropology relies on ethnographic, qualitative methods (Bennet et al., 2017), such as those used in this thesis (**Chapter 3**). Environmental anthropology encompasses a plurality of sub-fields and theories, yet, what those fields share is an attempt to understand humans’ relations with the natural universe, from the perspectives and lived experiences of the humans themselves (Orr et al., 2015). This comprises the foundational component of this thesis, by focusing on the meanings that the study groups may attach to bears, according to whether bears are symbols within the respective

study cultures (Wright, 1986). This in turn will provide insight into what practices, and most importantly, which behaviours, may be associated with bears, e.g. bear bile consumption as a meaningful medicine.

This thesis also follows the theories and practices of human dimensions of conservation (HDC), which in turn is based on conservation psychology, specifically the cognitive foundations for humans' conservation ethos, and by extension interactions with animals (Manfredo et al., 1995). HDC emphasises the use of quantitative techniques to collect large amounts of social science information, to gain a broad understanding of the patterns of values, attitudes, beliefs, social norms, knowledge and subsequent behaviours within a population (Manfredo et al., 1995). However, HDC research fully recognises the value of ethnographic methods as a valuable means of gaining depth of understanding of why individuals make hold the values, attitudes, beliefs, and etc that they do, in the context of such conservation issues as human-wildlife 'conflict' (e.g. Glikman et al., 2019, 2012 and Majić et al., 2012). This thesis, then, shares most of its DNA with HDC, which in turn borrows from the techniques and theories of environmental anthropology. As seen in **Figure 1**, although many of the fields of conservation social science can claim certain distinctions, there will always be overlap and shared heritage between the disciplines.

Studies that merge the methods and theories of both environmental anthropology (EA) and HDC are increasingly being embraced in IWT research (e.g. Chausson et al., 2019, Davis et al., 2019, Hinsley et al., 2015 and Shairp et al., 2016). In Southeast Asia, this was exemplified by the initial ground-breaking work of Rebecca Drury (2009) in establishing the validity of cross-discipline research of a powerful IWT issue- consumer demand- through her union of EA and HDC. Specifically within the field of demand for illegal bear products, Davis et al. (2016) utilised HDC theory to perform nearly 1000 interviews of Laos nationals and nearly 500 interviews of Chinese nationals, to make broad inferences about the level of conservation ethos, knowledge of bear conservation, and the attitudes held towards bears of the two samples. Yet, they did not utilise the qualitative methods of EA to gain a deep understanding of why or how such patterns had arisen. Moreover, they were unable to obtain a truly accurate prevalence of bear product consumption in the area, possibly due to reliance on self-administered questionnaires, rather than personal interviews and/or other, experimental techniques (**Chapter 3**).

The long-lasting relevance of Drury's (2009) work is her methodology and its applicability to dynamic understanding of consumer demand within a specific cultural context. As she herself later noted, utilising open, qualitative techniques such as semi-structured interviews (SSIs)

...can facilitate in-depth analysis of the origins and interconnectedness of the complex factors that impact an individual's attitudes and behaviour.

(Drury, 2011)

This is deeply relevant for understanding the consumption of wildlife products. As others have noted, a lack of such "in-depth analysis" of social factors and influences can, and have, led to misguided conservation initiatives that are not adequately founded on true understanding of the target population (Kanagavel et al., 2014 and Vu and Nielsen, 2018). Yet, quantitative methods should not be dismissed, and this is again the lasting validity of Drury's (2009) work. Qualitative insights inform quantitative questionnaire design and ensure that the questions asked are relevant to the culture (Drury, 2011), while quantitative results can provide "generalizable insights" that the small sample sizes of qualitative studies may not provide (Rust et al., 2017). Considering the scale of consumer demand in IWT and the complexity of the motivations driving it, employing a union of qualitative and quantitative approaches is vital for well-informed understanding of the target group, of their motivations, and of the barriers that may exist to effective implementation of conservation policy and initiatives (Drury, 2009). Thus, this thesis follows this tradition in employing cross-discipline, mixed-methodology, that is qualitatively grounded with quantitative insights.

### 1.5.2 Changing behaviour to advance conservation goals

Conservation initiatives centred on people and on behaviour change have long relied on education and/or 'awareness'. 'Awareness' is used as a catch-all to encompass a group's general knowledge about the conservation issue at hand, under the assumption that greater awareness naturally translates to more conservation positive behaviours (Veríssimo, 2013). Certainly, knowledge is important in influencing behaviour (Green et al., 2019); however, a suite of other traits including values, attitudes (Ajzen, 1991 and Schultz and Zelezny, 1999), one's social group (Drury, 2009), and perception of social norms (Schultz et al., 2007) influence behaviour, of which knowledge is only one component (Green et al., 2019). Yet, the measure of knowledge/awareness is still used widely in conservation, with an increase in a particular conservation-positive behaviour often attributed to increased awareness (e.g. Mutalib et al., 2013), rather than any other potential factors. However, it has become well-established that knowledge/awareness alone is not enough to change

human behaviour towards positive conservation actions (Green et al., 2019). Additionally, even if there is a measurable increase in awareness, actual, biologically-positive outcomes can still be unachievable (Veríssimo et al., 2017). Consequently, conservationists are increasingly urging a departure from a reliance on awareness-raising, towards ‘realistic’ and ‘locally-appropriate’ behaviour change/demand reduction campaigns (Milner-Gulland et al., 2018).

A meta-analysis by Green et al. (2019) tested various hypotheses of behaviour change. Their first model tested the hypothesis that “[only] increased knowledge of conservation behaviours will lead to pro-environmental behaviour change”, and was found to be the worst fit for their collected data on behaviour change campaigns. Instead, the model of best fit was that which included all of the possible predictors they identified, specifically “systems knowledge”, “solutions knowledge”, “barrier removal attitudes”, “benefits attitudes”, “normative attitudes”, “interpersonal communication”, and “behaviour intention”. Thus, behaviour change is most effective when changes occur at multiple levels of the behavioural cognition process. Although knowledge is important in changing behaviour, alone it is not enough to be a significant influence (Green et al., 2019); indeed, the ‘relationship’ between knowledge and a conservation-positive behaviour has been argued to be “weak or non-existent” (Mckenzie-Mohr, 2011). That knowledge is not enough has been consistently confirmed by researchers and practitioners attempting to change a broad range of human behaviours (Mont et al., 2014).

This understanding that awareness alone does not lead to conservation positive behaviours is well-illustrated by the problem of bear bile consumption, and the “conservation solution” of increasing awareness of the welfare concerns surrounding bear bile farming, as well as the poaching of bears. In Southeast Asia, Davis et al. (2016) illustrated this ineffectiveness of using bear welfare concerns as an agent of behaviour change among Laos nationals in Luang Prabang. In their study, no Laos nationals mentioned cruelty as an influencing factor in their non-use of bear bile, despite several hundred of the study’s surveys being conducted within Tat Kuang Si National Park. Tat Kuang Si National Park has a bear rescue centre within it that has extensive signage intended to raise awareness of the cruelties of the bile extraction process, as well as the cruelties of catching bears in a snare (Davis, pers. obs.); however, these efforts appear to have had little effect in encouraging Laos individuals away from bear bile use. In Vietnam, Drury (2009) noted that an awareness raising campaign about the bear bile extraction process appeared to only frighten people away from farmed bear bile, thus perceivably encouraging a greater preference for wild bear bile over farmed, rather than an actual halt in the consumption behaviour. Additionally, despite decades of

behaviour change campaigns by conservation organisations in Vietnam that have focused on raising awareness of bear welfare concerns (M. Hunt, pers. comm.), a recent survey conducted by Davis et al. (2019) found that the levels of bear bile consumption in Vietnam may still be as high as 40% in urban centres such as Hanoi.

Awareness-raising is therefore a ‘goal’, rather than a standardised process towards actual behaviour change, such as social marketing (Veríssimo, 2013) or behavioural economics (Mackay et al., 2019). In behavioural economics, attempts are made to change a society’s behaviour(s), without a change in policy (Oliver, 2013). This field has been adopted by governments such as the United Kingdom and Sweden, and is being applied to a diversity of societal fields such as health and tax fraud (Mont et al., 2014 and Oliver, 2013). It is also increasingly being applied in fisheries management, where achieving compliance is “inherently difficult” due to the cost associated in monitoring (Mackay et al., 2019). The process of behavioural economics is often termed ‘nudging’, i.e. the process of “mak[ing] certain options more salient through indirect suggestion or positive reinforcement, without forbidding any options or changing economic incentives” (Mackay et al., 2019). For example, a fisherman could be told: “There is a catch limit of TWO (2) fish, but according to last year’s data the average fisher chose to catch only ONE (1) fish.” This ‘nudge’ utilises a “descriptive social norm” to encourage compliance; indeed, one common form of nudges are attempts to use social norms as leverage (although, as discussed at length by Mackay et al. (2019), the creation of a social norm can at times backfire as individuals purposefully ‘rebel’ against the norm). Other forms of nudges include the “simplification and framing of information”, e.g. giving an item a descriptive and/or evocative title (Wansink et al., 2001), “changes to the physical environment”, e.g. reducing plate size to reduce food waste (Kallbekken and Sælen, 2013), and “changes to default policy”, e.g. organ donation as the default option, versus organ donation as an active choice (Johnson and Goldstein, 2003) (Mackay et al., 2019 and Mont et al., 2014).

As behavioural economics and social marketing share the common goal of changing human behaviour, they share some theoretical concepts. Like behavioural economics, social marketing is intended to address a problem in society without the need for the creation of further policy and/or greater regulation. The use of social marketing, i.e. “conservation marketing” in a conservation context, is “the application of marketing concepts and techniques to create, communicate and deliver values to influence behaviour and benefit the target audience and society” (Veríssimo, 2013). Social marketing is broadly used in the health sector (e.g. Wymer, 2015) for applications as diverse as addressing the consequence(s) of negative health behaviours such as obesity (Llauradó

et al., 2015), and encouraging individuals to donate blood (Beerli-Palacio and Martín-Santana, 2015). In conservation, marketing has been applied extensively by the conservation organisation Rare in their 'Pride' campaigns, which "seek to instil a sense of ownership and pride in local endemic species" (Wright et al., 2015). These conservation marketing campaigns go through a series of formalised stages both to structure a "theory of change", which acts as the important conceptual underpinning of the desired conservation result (Veríssimo et al., 2017), and to achieve their desired behaviour change goal. Specifically, the effective behaviour change process follows the framework, (as tested and validated by Green et al. (2019)) of: knowledge + attitude + interpersonal communication + barrier removal = behaviour change (Veríssimo et al., 2017, Figure 1). A necessary component of conservation marketing, therefore, is to understand the baseline knowledge and attitude levels of the target population/audience; indeed, theories of change will be most effective when there is a rich understanding of the target audience (Butler et al., 2013, Principle 3 and Kanagavel et al., 2014). As such, emphasis is increasingly placed on the mixed methods conservation social science research discussed previously in **Section 1.5.1**, and which is the theoretical and methodological foundation of this thesis, i.e. research that incorporates techniques of both 'breadth' (quantitative, e.g. large-sample questionnaires) and 'depth' (qualitative, e.g. anthropological tools such as semi-structured interviews) (Butler et al., 2013 and Greenfield and Veríssimo, 2019).

Behaviour change with social marketing principles has been used to address problems of over-fishing (Veríssimo et al., 2017), deforestation (DeWan et al., 2013), and demand for illegal wildlife products. This aspect of behaviour change in conservation is classified as "demand reduction", i.e. the reduction of consumer demand for a product. It is of exponentially growing focus in illegal wildlife trade research (e.g. Bennett, 2015, Greenfield and Veríssimo, 2019, Milner-Gulland et al., 2018, and Wallen and Daut, 2018), although some argue that demand reduction will not be effective for meeting short-term conservation goals (Bennett, 2011). As discussed previously in this thesis, it currently appears to be the most viable solution for addressing this conservation dilemma in the face of widespread enforcement failures, particularly in Southeast Asia (Challender et al., 2014b). However, it is not without its challenges in 'real-world' implementation (Greenfield and Veríssimo, 2019). Attempts to reduce demand for ivory and rhino horn in particular have found that obtaining "target audience insights" is the biggest 'need' for performing effective demand reduction using social marketing (Greenfield and Veríssimo, 2019). A large-scale demand reduction campaign conducted in Vietnam, for example, was criticised for building the campaign around outdated consumer research, as well as outsider perceptions of rhino horn use, i.e. Western

perceptions which were not grounded in Vietnamese culture (Vu and Nielsen, 2018). The campaign, therefore, could not be said to utilise conservation marketing; as discussed in the previous paragraph, conservation marketing is grounded in understanding of the audience (Butler et al., 2013 and Kanagavel et al., 2014). From this grounded understanding follows the creation of a theory of change, which is underpinned by ‘clear’ objectives (Olmedo et al., 2018). All of these components together enable effective evaluation.

Evaluating the impact of behaviour change is still under-utilised in conservation (Veríssimo, 2013 and Veríssimo and Wan, 2018); partially because there continues to be a lack of “clear aims” in the creation of demand reduction campaigns (Olmedo et al., 2018), in turn due to a lack of utilisation of social marketing practices (Greenfield and Veríssimo, 2019) such as robust theories of change (Green et al., 2019). This is particularly evident in illegal wildlife trade demand reduction, where a recent review found that “outcomes and impacts was largely anecdotal or based on research designs that are at a high risk of bias, such as pre-post comparisons” (Veríssimo and Wan, 2018). Indeed, ‘impact’, i.e. ‘real’, effective reduction in demand behaviour, was found to be the least reported aspect of illegal wildlife trade demand reduction campaigns (Veríssimo and Wan, 2018, Figure 5). This oversight in conducting illegal wildlife trade demand reduction/behaviour change evaluation is attributed partially to the lack of clear aims mentioned above (Olmedo et al., 2018), as well as a lack of information-sharing between conservation organisations, the cost associated with doing impact evaluation, and a lack of understanding among conservation practitioners about how to best assess campaigns (Veríssimo and Wan, 2018). Perhaps most importantly, evaluation cannot occur at all if the baseline behaviours of the audience are unknown, and as previously noted, any demand reduction campaign created without understanding the audience will be ineffective as well (Kanagavel et al., 2014 and Olmedo et al., 2018). Thus, effective demand reduction, from beginning to end, must incorporate conservation social science and by extension a human-centred research framework (**Section 1.5.1**). A human-centred research framework in turn can and often does draw on anthropological methods, due to anthropology’s inherent focus on humans. Although anthropology was ‘historically’ focused on small-scale societies, emerging fields within anthropology, including environmental anthropology, have increasingly broadened the scope (Bennett et al., 2017).

## **1.6 Relevant theories**

### **1.6.1 Social norms, beliefs, and approval**

Social beliefs, also termed “group beliefs”, are beliefs held because an individual believes, on some level, that the rest of a social group they belong to share the same belief (Liviatan et al., 2008). Social groups are by nature relatively hard to define, and defining “social beliefs” can be difficult when it is unclear at what point a social group becomes an entity with a common goal (Tuomela, 1992). However, as will be discussed in **Chapter 2**, both the Khmer and the Lao-speaking diaspora can be reasonably defined as social groups with common goals and, by extension, beliefs. Additionally, individuals hold individual beliefs that may or may not be in opposition to social beliefs (Liviatan et al., 2008). Both social and individual beliefs can be influenced by external factors such as logical arguments and the power of an influencing individual, as well as internal factors such as emotion (Mercer 2010 and Tuomela, 1992). Nationalism, for example, often successfully uses emotion to significantly influence individuals’ views into cohesion with the rest of the social group (Creak, 2011 and Mercer, 2010).

Another social group factor of interest in this thesis is that of status/prestige. Status and prestige play a significant role in consumption, with some arguing that these attributes may be even more important among hierarchical, East Asian/East Asian-influenced societies (such as Vietnam (Wong and Ahuvia, 1998)). Ajzen and Fishbein (1975) included status as a mediating factor in their model of values, attitudes, and knowledge influencing behaviour, and subsequent researchers have confirmed the validity of status as a mediator (Davis, R., 1985). Use of consumer products indubitably falls into the category of ‘behaviour’ and is influenced significantly by status and thus by prestige. Many consumer products are given the appellation of “status symbol” due to their unique roles in conferring status according to social group (and social and individual belief) (Goldsmith and Clark, 2010).

It is worth taking a moment to define prestige. Prestige is variously stated to be “social approval” (Phillipe and Durand, 2011) or “social ranking” (e.g. Barkow et al., 1975). Drury (2009)’s thesis, concerned partly with how prestige mediates consumption of wildlife products, does not define prestige, but she does note that “conspicuous consumption” has been found to act within certain Asian cultures. By its nature, conspicuous consumption is driven by prestige, with “price taken as an indicator of the prestige value” (Braun and Wicklund, 1989). Yet, obtaining prestige is often more complex than simply having the wealth necessary to buy products (Barkow et al., 1975). Thus, conspicuous consumption could be thought of as one manifestation of prestige within a society. More broadly, prestige is attained through a series of ‘evaluative’ processes, of which the commodities one has are but one part of the process (Barkow et al., 1975). Ultimately, prestige is



a constantly adaptive and reflexive process, revealed perhaps most ‘easily’ through such indicators as conspicuous consumption.

Indeed, rare products are often prestigious and symbols of status, as by extension wealth and influence is usually necessary to acquire such products (Clark, 1986). Animal material artefacts are usually considered rare products, due to the difficulty in acquiring such products. For example, rhino horn and ivory are all well-known status symbols in certain Asian cultures (Clark, 1986, Vu and Nielsen, 2018), and there is evidence that certain bear parts such as bear gallbladder, bear paw, and wild bear bile are status symbols in some parts of Asia (Ma, 2015, and Wilkie et al., 2011), even as research into use of farmed bear bile indicates it may have lost its status-granting attributes in other regions of Southeast Asia (Crudge et al., 2018 and Drury, 2011).

Moreover, social structures can be important in maintaining the ‘rarity’ of a product. In China, for example, wild animal products, particularly those of large animals, were the provenance of the elites within a society, through the maintenance of exclusive hunting parks for nobility (e.g. Schafer, 1968). Thus, understanding the role of status in determining the consumption/non-consumption of animal products such as bear parts is important for understanding how entrenched the consumption of those products are within a society.

### 1.6.2 The relationships of humans with animals

To refer to someone as an “animal” in Western culture is to “banish them from the moral community” (Midgley, 1988, 35). Under this context, the notion of an animal stands unequivocally for an object that is ‘anti-human.’ However, when one delves further, animals were (and continue to be) consistently imbued with life and soul among the Western cultures (e.g. Montgomery, 2015). Yet, historically there was debate as to whether animals are ‘good’, i.e. moral, or ‘bad’, i.e. immoral (Midgley, 1988, 36-37). In the present, anecdotal evidence from human individuals who have worked with animals parallels the writings of medieval and Renaissance writers in a shared assertion of animals’ “life and soul” (e.g. Montgomery, 2015 and Mowat, 1963), yet as with early human writers, there is a notable reluctance to impart morality to the animals discussed. However, it is worth noting that discussions of animals, particularly in Western culture, often adapt the moral language used by humans to describe actions towards humans; e.g. it is ‘cruel’ to kill a cow, just as it would be ‘cruel’ to kill a human (Midgley, 1988, 45). Therefore, animals conceptually inhabit an overlapping plane with humans, although that plane varies by culture and varies in its boundaries between and within heaven, earth, and hell. Human relationships with any creature, and indeed,

any culture's relationship with animals, depends on a vast multiplicity of factors. As a small sample of the type of questions one must begin to ask to understand the role of a creature in a culture: Is this creature useful for consumption, i.e. for food, medicine, tools, or all three? Is this creature considered divine, for one reason or another? Has this creature historically impacted a culture in a positive way? Or in a negative way? Etc.

An example of the duality an animal may possess in a culture, and the many different views disparate cultures may hold towards an animal, can be found in the tiger. Western groups of people are historically removed from the tiger, and as such cultural views are of the tiger as one-dimensionally 'fierce' (Rountree, 2012). Eastern groups of people, meanwhile, have existed in close physical contact with the tiger, and as such appear to have a more varied and dynamic relationship with the tiger. Among the Hmong ethnic group, who historically inhabited China before moving south to upland areas of Southeast Asia, tigers are 'wicked' and 'deceivers' (Fadiman, 1997). This is in contrast to the Chinese ethnic groups, traditionally the enemies of the Hmong (Ng, 1993). For the Chinese ethnic groups (hereafter simply Chinese, for ease), the tiger is a symbol of power (Ward, 1979), is a symbol of creation (Bender, 2008), holds celestial symbolism as the ruler of the divine western kingdom (Tseng, 2012), and can drive evil away from households and individuals through the sheer power of symbolic representation, e.g. in illustration or dance (respectively Cohen and Jaw, 1977 and Kalsang and Stuart, 1999).

#### 1.6.2.1 *Cultural connotations of animals*

Every thought a human directs towards an animal is culturally influenced, and as a result "[reflects] that astonishing diversity of cultural tradition that is widely thought to be the hallmark of humanity" (Ingold, 1988, 1). Animals are ultimately thought of not as what they are, but instead as the collection of symbols and meaning they have been given over the centuries. Often, those symbols and meanings have a role in determining the emotion an individual may feel towards a creature, and for some animals that emotion is one of fear (Ingold, 1988, 14). One could argue that this fear is not because of certain animals' aptitude in dismembering a human (usually a rare occurrence); but rather that in many cultures, including among the Khmer and the Laos cultural group, animals can represent the antithesis of civilization, and as the ever-present reminder of what a human may become (Midgley, 1988, 35 and Davis, E.W., 2016). Indeed, for cultural groups such as the Khmer, the wilderness (*prey*) is seen as being outside of morality, and as such the animals that inhabit the wilderness exist outside of human action and form. Furthermore, animals hold "profound symbolic significance" because the "animal is both within us... and also by

definition, outside and beyond human society” (Tapper, 1988, 48). Some writers suggest that “to question [what an] ‘animal’ [is], is to question ourselves” (Ingold, 1988, 3).

Animals exist within a culture’s cosmology, defined by Mary Douglas as “the ultimate principles in the universe” (Douglas, 2004, ix), and as a “system of relations” that parallel the “system of relations” found in society (Douglas, 1988, 35). An animal cosmology, then, is the ultimate principles of animals and their place in the cosmos. More broadly, animal cosmology indicates animals’ place in folklore, and in a collective culture’s imagination, beliefs, and behaviours. Kalof and Montgomery (2011) give the example of the jaguar among the Wari of the Amazon. Among the Wari, the jaguar is interchangeable with man, hence the tribes’ propensity towards eating human flesh; the jaguar eats human flesh, and so therefore will they. With the lines blurred between jaguar and man, and man and jaguar occupying the same cosmological sphere, conceptually there is no taboo in Wari society against eating human flesh, since jaguars have been seen to do the same (Kalof and Montgomery, 2011).

### 1.6.3 Material culture and commoditisation

An early definition of material culture, given by J.H. Hutton, is “the artefacts with which man surrounds himself in his attempt to ameliorate his position in his environment” (Hutton, 1944). Recently, material culture has been defined as the relations of individuals to others and themselves through the use of material objects (Lehdonvirta, 2010). Drawing on these two examples, the definition of material culture that will be adopted within this thesis is: the artefacts of an individual’s environment that may embody relationships, memories, culture, and beliefs.

Material culture in the context of animal parts is key to understanding the relationships formed between individuals and/or groups of people and the animals around them. One example perhaps most relevant to the research of this thesis is that of the Inuit relationship with polar bears. Polar bear artefacts fulfil a variety of conceptual and spiritual roles; e.g. women consuming the penis of a polar bear to obtain fertility (D’Anglure, 1988). Bears’ role as an oft-hunted animal can also place their material artefacts into such conceptual spheres as the following; when writing about hunters, Marvin (2011) found that the material artefacts of hunting trophies (e.g. a bear skin rug) could evoke the “glorious” past, but could also reflect the “vestige of a relationship” formed between hunter and hunted.

Understanding ‘commoditisation’ is equally important. Kopytoff (1988) writes, “Commodities must be not only produced materially as things, but also culturally marked as being a certain kind of thing.” Perhaps more significantly, material objects, i.e. commodities, are always physical representations of an abstraction (Žižek, 2016, 47). Žižek (2016, 47) argues that

... abstraction of the value of a commodity is its ‘objective’ constituent.

Simply, commodities are not objects if they are somehow devoid of abstraction, and thus to understand and investigate the significance of an object, one must fully attempt to understand the levels of abstraction that have ‘created’ that object.

This holds true when attempting to understand wild animal products. Wild animal products act like other commodities in that consumption of such products often holds social and political meaning for consumers (Appadurai, 1986). The consumption of wild animal products in Southeast Asia is becoming increasingly documented by conservationists (e.g. Crudge et al., 2018, Drury, 2011, Davis et al., 2016, and Krishnasamy et al., 2018), as well as anthropologists (e.g. Singh, 2010), in recognition of the ‘biodiversity crisis’ in Southeast Asia that is fuelled in large part by consumption of wild animal products within both East and Southeast Asia (Sodhi et al., 2004 and Veríssimo et al., 2012). Motivations for consumption of wild animal products have been argued to be influenced primarily by the desire to increase one’s prestige in urban Vietnam (Drury, 2009), regardless of the animal product; although Drury (2011) notes that bear bile’s pervasiveness in Vietnamese culture may have removed the influence of prestige from bile’s consumption. In Laos, Davis et al. (2016 and unpublished data) attempted to study consumption broadly among Laos nationals, yet found significant ethnic variation and struggled to isolate consistent patterns among the groups, which indicated variable motivations for consumption among the demographic and ethnic groups identified. Singh (2010) approached wildlife consumption in Laos from an anthropological standpoint, with the aim of understanding what consumption of animals might indicate broadly about Lao nationals’ “social expressions”. In her study, she argued that the consumption of wildlife in Laos may have previously been thought of as a ‘rural’ activity, yet due to strong Chinese and Vietnamese interest, wildlife consumption may now be increasingly seen as a desirable expression of modernity (and by extension ‘prosperity’) (Singh, 2010). Singh (2010) also uncovered intrinsic beliefs in wildlife meat as possessing power, and/or being cleaner and ‘tastier’. However, she urged understanding of wildlife consumption as a process that is constantly being reinvented according to external context, and not as something exclusively ‘traditional’, or as a “symbol of Lao identity” (Singh, 2010).

It is vital to understand the cultural markers that drive the commoditisation of wild animal products, including bear parts. For example, bear bile and gallbladder are known to be widely used as medicine within Asia and Southeast Asia (Crudge et al., 2018, Davis et al., 2016, Drury, 2009, 2011 and Dutton et al., 2011). Commoditisation rests on widespread, social belief; by extension, arguably there is a social belief present in many Asian cultures that bear bile is effective. However, the reasons for this belief, and the mechanics governing its maintenance, are poorly understood. Thus, a culturally and socially-focused approach is vital.

#### *1.6.3.1 Animals as commodities*

Like animals, commodities are symbolically constructed and culturally-influenced. What is valuable in one culture may not be at all valuable in another. As a superficial example, bear paw is considered a delicacy in China and is a valuable and symbolic commodity (Sethy and Chauhan, 2011); however, a Western individual receiving a bear paw would not attach such significant or positive symbolism with the object. Therefore, a bear paw is ‘culturally-marked’ (Kopytoff, 1988, 64). Although there are general, culturally-influenced meanings attached to objects, these meanings are by no means shared by every member of a culture. Individuals will classify commodities according to societal networks “whose members also belong to other networks expounding yet other value systems” (Kopytoff, 1988, 78). Therefore, commodities can be thought of as existing within an extremely variable web of constructed ideas, thoughts, values. This web becomes especially complex when the commodity in question is scarce, as wildlife products throughout the world, and particularly within Southeast Asia, are increasingly becoming (Donovan, 1999). Scarce commodities can then elicit human behavioural actions aimed at increasing prestige by the purchase/consumption of such items, for example.

#### *1.6.3.2 Commodities and communication*

Although individuals may often signal honestly, there is an inherent element of deception in all forms of communication across the animal kingdom (Searcy and Nowicki, 2005). One form of deception, discussed in greater detail below, is that of counterfeit items in lieu of luxury goods. The signaller relies upon the deception working, and will make decisions based upon the amount of risk involved in this deception being detected (Kempen, 2003). In the context of bear parts, it is possible that individuals may actively pay more for bear gallbladder wine because they perceive higher price to be an indicator of authenticity, versus the pig gallbladder wine that may be sold as bear gallbladder wine.

Importantly, commodities are nested within “those social relations which define who—individually or collectively—may or may not do what, when, and where, under what conditions” (Pred, 1996, pg 13). For instance, commodities that are expensive are inaccessible and thus kept separate from the poor and disadvantaged. This can encourage tensions as poorer individuals strive to equalise the power imbalance by purchasing expensive commodities, while higher status individuals strive to maintain the imbalance through further acquiring of expensive and thus inaccessible commodities. By extension, this interplay is also a result of prestige bias, wherein individuals attempt to emulate higher-status purchasing behaviour and gain the accompanying prestige (Henrich, 2001).

Ultimately, commodities are ‘enmeshed’ within a complex network of social relations and influencers (Pred, 1996). Commodities can therefore be active objects of deceit, used perhaps to communicate greater status, thus acknowledging power relations. In addition, commodities can be physical symbols of identity (Pred, 1996); the easiest example of this being clothing, a conspicuous marker of identity and status (Crane, 2012). Thus, understanding the motivations behind use of a commodity necessitates thorough understanding of the social and cultural context.

## **1.7 Consumption**

Consumption is defined here as the use of an object (i.e. commodity) that has been produced (Graeber, 2011), which in turn is a “symbolic action” (Gell, 1986). ‘Consumption’ revolves around commodities. Bear products are commodities, and thus are embedded within the dynamic, culturally-specific process of consumption. Broadly, consumption has been argued to be ritualized ‘material destruction’ and a manifestation of ‘material desire’, with desire and consumption intrinsically tied together (Graeber, 2011). Graeber (2011) argues that consumption is a ‘Western’ concept, rooted in Judeo-Christian cultural desires to find paradise. This desire to find paradise brings with it the associated implication that the material goods there would be ultimate fulfilment; thus, consumption is a never-ending quest for such fulfilment (Graeber, 2011).

‘Consumption’ can also be the act of imbuing a commodity with extrinsic and often powerful properties. For example, the relics of the saints, which were so popularly traded in medieval Europe, were not ‘destroyed’, but instead kept and woven into rituals. Possession of the relics generated “community identity [and] local prestige” (Appadurai, 1988, pg. 23); yet one could perhaps apply Graeber’s (2011) ‘desire’ premise by saying that the consumption of relics was out

of desire for strengthened identity and greater prestige, even if the goal was not explicitly to obtain 'hedonistic' paradise.

Another aspect of consumption is the act of gift-giving, itself a meaningful and complex process. Bourdieu (1977) writes that gift-giving is essentially overlaid on the 'raw' economic consumptive framework, and equally 'essential' to society. This may be especially true in collectivist, i.e. group-oriented societies, which are argued to be predominant in East and Southeast Asia (e.g. Merluzzi, 2013). Giving gifts maintains social relations and can increase one's social capital and/or social approval and by extension prestige (discussed at greater length within this chapter). Thus, an important commodity beyond the 'physical' is being exchanged in the gift-giving process. Yet, the exchange of gifts is not always strictly positive: gifts can be 'present' or 'poison' (High, 2010b). The sense of obligation that can enter into the gift-giving process can cause an individual to feel additional anxieties that may supersede the true nature of the gift (High, 2010b). This perhaps can be exemplified in Cambodia, where gift-giving is an essential component of the ruling government's "nation-building", with the process of giving gifts to rural communities legitimised as "in line with historical conceptualizations of kingship", i.e., those rural communities 'favoured' with gifts will be obligated to pledge their loyalties to the ruling party (Norén-Nilsson, 2017). At a more localised level, High (2010) shows that the obligations that gifts demand act to 'drive' social relationships. This is exemplified by the prevalence of giving bear bile as a gift in Vietnam (Davis et al., 2019); the gift of medicine holds powerful connotations of care and compassion (Kleinman, 1997), and with successful treatment of the receiver's ailment comes the obligation to return such care and compassion to the 'original' giver. This could easily be in the form of reciprocal giving of bear bile or some other medicinal product, as an 'equal' exchange.

Throughout East and Southeast Asia, variable expressions of consumption can be found. One relevant example is the importance placed on consumption of clothing and other commodities by rural Thai migrants to urban Bangkok (Mills, 1997). In this sphere, the importance of conspicuous consumption is directly related to social mobility and success, a trend seen throughout Asia (Chua, 2002). It is well-documented that 'consumerism' is increasingly becoming prominent throughout East and Southeast Asia (Tu, 2014 and Van-Tien Dao et al., 2014). Yet, consumer systems throughout Asia are hybridised and unique. For example, the conspicuous consumption of condominiums and high-rises was documented in 1990's Malaysia to be tied to a feeling of modernity and 'progress'. However, Malay individuals, accustomed to rural land dwellings that were one floor, were apprehensive about purchasing high-rises because Malays liked "to have their

feet on the ground” (Talib, 2002, pg. 41). One can theorize that the consumptive practices of other endemic Southeast Asian cultures, such as those of the Cambodians and the cultural groups within Laos, may have begun such a hybridisation process, where products of the ‘West’ are at times reluctantly adopted, or transformed in the process of their adoption.

Animals as objects of consumption, with the categorization of what this implies, have been under scrutiny for hundreds of years. Yourcenar (1954) writes of Hadrian categorizing animals as objects coexisting in the same physical plane as humans, and thus perhaps not as far removed from humans as objects for consumption as one might like. This parallels modern Western consumers, who debate the ‘ethics’ of animal consumption. It has been argued that Western consumers grapple with what has been called the Judeo-Christian notion of the animal as an object (Evans and Miele, 2012 and White, 1967). In addition, it is argued that the consumption of animals is tied to an individual’s perception of the humanity held by animals, which in turn is influenced by one’s cultural identity, for it is an individual’s culture that dictates what place an animal holds within it. Among the Inuits, for instance, polar bears are given the status of ‘semi-human’, which in turn has led to numerous taboos surrounding the consumption of polar bear products (D’Anglure 1988). Although consumption is allowed, and in some respects actively encouraged (among young males the consumption of polar bear flesh will imbue them with good hunting ability), it is forbidden in other instances, primarily if a polar bear has “already eaten human flesh” (D’Anglure 1988). Thus, consumption of polar bear products possesses a duality and is a material representation of an ‘abstraction’.

### 1.7.1 Consumptive networks

An established concept within anthropology is that of socially facilitated networks between individuals within communities, societies, and regions (including global regions (Eriksen and Nielsen, 2013)) (e.g. Ambrus et al., 2014, Lehdonvirta et al., 2015 and Nevins and Peluso, 2018); and, where these networks serve to act as a potent form of resource for the individuals embedded within them (Wilhelm, 2011). According to Wolfe (1978), the concept of networks and their utilisation in anthropology is due to an interest in “relations rather than things”, “process rather than form”, “elementary phenomena rather than institutions”, and “generative models rather than functional ones”. Wolfe (1978) argues that these four aspects work together to lead to a network model, in that “relations... are elementary phenomena” and “processes...are...subject.. to continual regeneration”. Simply, network models are means of understanding relations between ‘actors’, which in turn can give insight into, for example, the use of ‘insurance’ within small, rural



communities in Peru (Ambrus et al., 2014), or the Chinese commercial networks of nineteenth century East and Southeast Asia (Nevins and Peluso, 2018). In addition, networks in anthropology act to provide a “theory of social structure” for the communit(ies) being studied, although Lomi et al. (2016) warn that if key variables such as geography or time are ignored from the model conceptualisation, inferences about social structure may be incorrect. Additionally, some social structures are explicitly hierarchical, where each higher layer “establishes the decision premises for the immediately lower layer” (Lomi et al., 2016). This too can influence interpretations of societal social structure, if the explicit hierarchy is not known and/or not included in analysis of the network. Finally, studying communities and their networks enables anthropologists to categorise societies, with networks (potentially) situating societies within the wider world (Berreman et al., 1978).

Consumption networks are specific social networks that study the flow of commodities between actors. As is true of networks generally, consumption networks can provide inferences about social structure. In addition, studying the flow of commodities enables researchers to gain inferences such as how certain commodities are used within a society, how these commodities are thought of (including symbolic/prestigious characteristics), what this flow of commodities may represent, and etc. Consideration of consumption networks has become increasingly emphasised in social-ecological studies of bushmeat, for example, due to increasing understanding of the interplay between rural and urban communities, and the influence urban demand can have on facilitating and encouraging the continued use of bushmeat (e.g. Van Vliet et al., 2015 and Watkin Lui et al., 2016). Consumptive networks are also being explored in studies of illegal wildlife trade, as means of delivering insights into avenues of most effective enforcement, policy creation, and demand reduction behaviour change (e.g. Truong et al., 2015); although many of these studies continue to keep their primary focus on trade rather than the social aspects of these networks (e.g. Phelps et al., 2016); often because the focus of the planned conservation intervention is enforcement and the elimination of criminal networks (Ayling, 2013). In addition, the work of scientists and social scientists on the products consumed in the illegal wildlife trade continues to be focused on ‘high-profile’ products such as rhino horn and ivory (e.g. South and Wyatt, 2011). Indeed, the IUCN published a specific working document related to the use of social network analysis in understanding the illegal wildlife trade and facilitating targeted and adaptable interventions, yet the document focused primarily on large charismatic animals, and on criminal and trade networks (Clifton and Rastogi, 2016).

Current anthropological work in Southeast Asia around networks is extensive, exploring topics such as, for example, the networks of Chinese temples in Southeast Asia and their societal, monetary, and symbolic connection to corresponding temples within China (Chee-Beng, 2012), and the role of community networks in enabling poor communities in Jakarta to manage disasters such as flood and fire (Wilhelm, 2011). However, within Cambodia and Laos, there has not been much anthropological research generally, compared to such surrounding countries as Thailand (e.g. Embree, 1950); probably due to the near constant wars and unrest in the twentieth century (e.g. Embree, 1948) in the Indochina region of Vietnam, Cambodia, and Laos (discussed more thoroughly in **Chapter 2**). Nonetheless, in the last decade the anthropologist Sarinda Singh has performed extensive anthropological studies within northern Laos and northern Cambodia. She has examined, for example, provincial Lao government officials working within the upland areas of Laos, and these officials' relationships with the central lowland authorities (within Laos there is noted conflict between the uplands and the lowlands; simplistically, between the 'dominant' ethnic group of Lao Loum and the 'upland' ethnic groups such as the Hmong, **Chapter 2** (Singh, 2011)). Within this exploration of the machinations of bureaucracy and the complicated power dynamics intrinsic within Laos' Communist government mechanics, she briefly mentions the role of "patronage networks", wherein a provincial Laos official grants favours to local upland people, against the regulations of the centralised lowland bureaucracy. Similarly, in Cambodia she explored trade at the Cambodia – Laos border, with consideration of the intrinsic patronage networks within the Cambodian political state that she argues facilitate both legal and illegal trade at this 'porous' border (Singh, 2014). Generally, her 2014 and 2011 papers share remarkable similarities in revealing the powerful role of patronage networks in the facilitation of illegal trade (primarily illegal logging, in her studies), despite Cambodia and Laos' different political systems. Indeed, she has found in recent studies of Lao villagers living in Cambodia at the Cambodia – Laos border that the "general public" also use networks of familial/social 'connections' to facilitate the transport of illegally logged timber across the Cambodia - Laos border (Singh, 2017). Such connections are not dominated by the dynamics of power that characterise patronage networks (e.g. Bearfield, 2009), but rather achieve their efficacy through mutualistic exchange of goods that benefit all actors. In addition, Singh notes that one single actor can be highly influential in facilitating the flow of illegally logged rosewood, by acting as a "keeper at the gate" for important connections across the border (Singh, 2017).

Although not specifically highlighted as hugely important within Singh's (2017) work, kinship networks used to facilitate some type of good (whether tangible or intangible) have often proven

to be essential towards understanding society within Southeast Asia (e.g. Hinton, 1983). Bentley (1986), for instance, notes that the Khmer ruling class attempted to exploit stated kin connections with other powerful families, so as to maintain and gain political power. In ancient Khmer, kinship could therefore be considered a “collection of symbols” rather than strictly tied to ‘genealogical’ (i.e. biological) connections (Peletz, 1995). Indeed, kinship is generally not thought of in anthropology as a biological feature; rather, kinship is defined by cultural demarcations (Peletz, 1995). Within studies of networks, recognition of the potential influence of kinship is deeply important, as individuals often tend to interact most with those they consider kin (thus cultivating a higher social connection and higher chance of flow of goods, for example), and may furthermore be more likely to give favours to those they consider kin (Dunbar and Spoors, 1995). Thus, understanding consumptive and social networks also necessitates understanding of whom may be considered kin.

Other research has been performed into other social and/or consumptive networks in the region. For instance, Hinton (1983) studied the Karen, a remote “hill tribe” found in Myanmar and Thailand, and their role in impeding the flow of opium traded throughout the Asian region. This necessitated understanding of Hmong (another hill tribe found in the highlands of Thailand, Laos, and China; discussed at greater length in **Chapter 2**) social networks. It is argued by Hinton (1983) as well as others (e.g. Baird and Vue, 2017) that Hmong social networks are strong due to kin ties, even despite great distance between communities. Thus, as Hinton (1983) argues, the Hmong social networks facilitated the effective cultivation of poppies and thus the flow of opium throughout Asia by exploiting familial connections and social ties, much like the Khmer-Laos people and their exploitation of such kinship networks when trading illegally logged goods (Singh, 2017).

Singh’s earlier work within Laos focused on the politics surrounding the wildlife trade, again with reference to networks and specifically to the long-standing wildlife trade networks within the region (Singh, 2008). She consulted historic sources, as well as the published works of conservationists (e.g. Duckworth et al., 1999), and argued that wildlife products have played a key role in regional trade networks and as objects of prestige (e.g. as tributary to rulers) (Singh, 2008). However, the associated social aspects of facilitation in a consumptive network of wildlife was not a focus of her work, and as such using her work to obtain deeper insights into wildlife trade networks is not possible. The strongest research into social ties (with associated analysis of kinship) and their role within consumptive networks within illegal wildlife trade is anthropological

conservation work on the consumption of bushmeat (e.g. Bakkegaard et al., 2017 and Van Vliet et al., 2015). Yet, despite acknowledgement of social ties and direct analysis of the consumptive network, i.e. the flow of bushmeat between actors, both Bakkegaard et al. (2017) and Van Vliet et al. (2015) note that bushmeat flows between a variety of actors, whether bound through kinship and close social ties or not. Indeed, monetary capital may be in many ways a better determinant of an individual's inclusion within the bushmeat consumptive network (Bakkegaard et al., 2017).

In understanding aspects of the illegal trade in bear products, there has been little explicit research into networks of any kind, whether consumptive, criminal, or etc. Research has been centred around the in-country markets for bear products, as well as trade across country borders (e.g. Dang, 2006, Foley et al., 2011, Mills and Servheen, 1994, Servheen, 1999 and Shepherd, 2006); however, individual actors are generally not considered, beyond one study within Myanmar that explored the trade in bear parts across the China-Myanmar border (Nijman et al., 2017). This study showed the flow of the consumptive product (bear parts) through conversations with poachers who knew where their trading contact was from, yet the authors did not create a full network because the buyers themselves were not consulted, nor were the poachers asked how they had created such connections (Nijman et al., 2017, Figure 1 in the paper). Instead, the research to date most closely aligned with understanding consumptive and social networks and their role in facilitating bear product use and trade is the work of Davis et al. (2019). As has already been discussed extensively within this chapter, there have been several other social science projects related to bear part use, including the work of Vu (2010) in Vietnam, somewhat indirectly Drury (2009, 2011) in Vietnam, and Sukanan and Anthony (2019) in Laos (with substantial support in funding and survey design from Free the Bears). Yet, Davis et al. (2019)'s study on bear product use in Vietnam is most closely aligned with understanding the network of social relations between individuals involved in purchasing, selling, consuming, and giving bear products. In their study of urban Vietnamese consumers (specifically those in Hanoi and Ho Chi Minh City) several individuals stated that they had been given bear bile by a friend or a relative, although they did not know where that individual had gotten the bile from (e.g. whether the bile was farmed or wild) (Davis et al., 2019). Therefore, in urban Vietnam bear bile appears to exist within a network of 'gifting' by an individual actor, presumably to a variety of other actors within their friend and family network. It is possible that this pattern may be found in Cambodia and Laos as well, and this thesis will explore the possibility of such localised social networks.

Although understanding the consumptive regional and international network of a product such as bear bile is important, understanding why it is used and who may be driving its use may not be elucidated through simply assessing the regional network of trade. Moreover, it is well beyond the means of many conservation organisations to attempt such international analyses, particularly for the oft-overlooked bear species. Although it has long been believed that the bears in countries such as Cambodia and Laos serve in part to supply the demand for bear bile in China and Vietnam (e.g. Krishnasamy et al., 2018, Livingstone et al., 2018, and M. Hunt, pers. comm.), with the implication of a regional and international illegal network of trade in bear products, bears within the countries can be inferred to be more commonly a source of bear bile for in-country users (Crudge et al., 2018, Davis et al., 2019, and this thesis). Moreover, attempts at halting consumption of bear products have been focused on the major consumer countries of China and Vietnam (e.g. Animals Asia, 2017), with little recognition of the in-country markets of Cambodia and Laos. This thesis therefore will act to enhance understanding of in-country consumptive networks of bear bile, with reference to the spread of the consumption of bear bile and other bear products through more localised social networks.

#### 1.7.2 Consumption of products for status

Ridgeway (2014) defines status as an individual's sense of value to others, and within a society. Status consumption, therefore, is the use of products deemed to increase one's status (Eastman et al., 1999). What is seductive about consumption products is their ability to transcend class structures, and to be a fairly accessible means of gaining status (e.g. poor Congolese inhabitants of Brazzaville using elegant dress as a form of power to “contest and conceal their social marginalization” (Martin, 1994)).

As discussed previously, deception is a major part of status consumption, particularly in developing countries, and often accomplished through counterfeit luxury items (Kempen, 2003). Individuals buy these counterfeit items with the hope that other individuals will be effectively deceived into believing the item is real. This phenomenon has been explained as being the result of an essential need for status by individuals of the lower classes (Kempen, 2003). When resources and power are little to non-existent, poorer groups of people will rely on deceptive means, e.g. purchase of counterfeit goods, to transmit a commitment to functionality and worth, thus artificially encouraging other individuals to hold them in esteem (Ridgeway, 2014). This type of consumptive expression may be applied to wild animal products, but comprehensive investigations of such operating mechanisms have been scant in Southeast Asia.

What is well-known is how important status is in dictating demand for products within Asia. Throughout East Asia rapid economic growth has created a middle class with the ability and desire to purchase products that increase their social standing and communicate their newly acquired economic power (Chua, 2009). Indeed, the Asian markets are now the dominant market for many luxury brands (Schütte and Ciarlante, 2016). In recognition of this, many marketing campaigns in Asia directly appeal to the “status-seeking nature of conspicuous consumption” within the region (Schütte and Ciarlante, 2016, 102). Items are carefully designed to encourage the consumers to believe that buying such items indicates their high taste. Additionally, Western consumer items have been purported to act as symbols of individuality within such collectivist countries as Japan (Schütte and Ciarlante, 2016, 103). In more economically disadvantaged countries in Asia, such as Thailand, consumerism of Western goods is symbolic of ‘modernisation’; thus, if a Thai individual uses French perfume, they are enhancing their status by indicating that they are active members of the modern world (Schütte and Ciarlante, 2016, 105).

#### *1.7.2.1 Food as health, food as language*

The use of food for health has a long and well-documented genus in China (Wu and Tan, 2001). In traditional Chinese medicine (as in traditional Vietnamese), the philosophy is one of balance, of striving for harmony between yin and yang. Food serves an integral role in accomplishing this balance (Wu and Tan, 2001). However, in Vietnam, which shares many elements of its medical philosophy with China (**Section 1.2**), the picture is more complex. Drury (2009) found that the consumption of wild meat was not driven primarily by a desire to achieve greater health, but rather by belief in wild meat’s rarity and value as an expensive product. Such consumption may have initially been for health, and the use of wild meat for health maintenance does continue to be a stated and conceptualised driver of wild meat consumption, even if this motivation is part of a suite of motivators (Shairp et al., 2016).

Every consumptive act of food is undoubtedly imbued with symbols (Gunew, 2000). How food is perceived and consumed can in turn serve to reinforce power structures, e.g. the ‘Westernisation’ of Asian food serving to further stereotype Asians into benign categories (Ching, 1997). As will be discussed at greater length within this thesis, the consumption of wild meat in particular serves to exemplify this dynamic nature of food. In Southeast Asia, wild meat is often consumed by economically disadvantaged individuals living near the forest, and yet consumption of wild meat can also be a sign of status and prestige, when consumed within an urban context (Drury, 2009).

In Laos, the consumption of wild meat is indicative of national identity, regardless of economic and/or social status, and thus this consumption transmutes the powerful message of similarity and solidarity with one's neighbours (Singh, 2008). In such an ethnically pluralistic country as Laos (**Chapter 2**), wild meat consumption may act as a 'simple' and 'easy' language of unity. This consumption of wild animals is further discussed below.

### 1.7.3 Consumption of wild animals

Although status is recognised as being a powerful facet of 'new' Asian consumerism, it is less certain how much of a role status plays in the consumption of illegal wild animal parts in Asia. For instance, Århem and Sprenger (2015) argue that in Laos and other rural regions of Southeast Asia consumption of wild animals occurs solely for sustenance and/or medical reasons, although animals are recognised as possessing significant spiritual power. Yet, as discussed above, wild meat consumption in urban Vietnam (which is over a third of the country's population at 34.2% (Trading Economics, 2018)) has been documented to be almost exclusively for reasons of status. True wild meat (as opposed to farmed meat) is difficult to obtain and expensive, thus ensuring that consumption of wild meat is only something relatively affluent individuals can afford to do (Drury, 2011). Recent preliminary research performed in Cambodia has shown that consumption of wild meat, including bear meat, may be an affluent act in certain areas; while in other areas it is a behaviour reserved for lower-status individuals (Flora and Fauna International, pers. comm., **Chapters 4 and 6**). If bear meat consumption continues to be an affluent behaviour, that trend may have negative implications for bear conservation in Southeast Asia, since urban (and more affluent) populations are projected to become the dominant populations in those countries (Buhaug and Urdal, 2013).

Similarly, medical use of wild animals is complex and culturally mediated. Traditional Chinese medicine has used animals for medical purposes for thousands of years (Kaptchuk, 2014), as has traditional Vietnamese medicine (Lee e al., 2014). However, the reasons behind this consumption have not been fully explored. A prevailing, accepted belief is that animals are used in traditional medicine for their perceived qualities; e.g. the strength of a tiger transmuting strength to the human. Although this belief may be driving use of some animal products, emerging research performed by users of traditional Asian medicine has begun to unveil the true health benefits of certain wild animal products such as bear bile (Feng et al., 2009), which indicates a medical basis for at least some animal products.

The picture is similar in Cambodia and Laos, where little written records exist but prevailing beliefs in certain animals' efficacies continue to drive trade (e.g. Nekaris et al., 2010). This indicates that anthropological studies to understand the rationale(s) behind consumption of wild animals are a necessity in these regions, since written documentation is sparse to non-existent. Moreover, the reasons behind use of a wild animal product for medicine are complex, difficult to address, and constantly evolving. Perhaps the most telling example is the issue of rhino horn medicine consumption in Vietnam. Lack of socially-oriented research has led to the creation of demand reduction campaigns founded on outdated assertions, e.g. that rhino horn is used as an aphrodisiac (Vu and Nielsen, 2018). The use of rhino horn as an aphrodisiac is now generally dismissed in Vietnam, yet use continues due to social pressures, gift-giving networks, and prestige (Vu and Nielsen, 2018). Indeed, the perception of rhino horn as an aphrodisiac may be a Western misconception; there is evidence that in traditional Vietnamese medicine rhino horn is prescribed as a fever reducer (Calhoun, 1985 and Purnell, 2008).

#### 1.7.4 Understanding illegal wildlife consumption through specialised questioning techniques

The consumption of wildlife products can be considered a 'sensitive' behaviour in certain contexts. 'Sensitive' is used here to indicate an unwillingness on the part of individuals to admit to their use of a product, usually to certain groups or demographics. For example, individuals who use wildlife products illegally are often unwilling to discuss their use with conservationists (e.g. Razafimanahaka et al., 2012), who may have been behind certain strictures and regulations that caused what is often perceived as historic and legitimate use to become illegal (Biggs et al., 2017).

Despite this knowledge that illegal wildlife use is often perceived as sensitive, researchers have commonly used direct questions, for example "Do you use bear parts?". However, direct questions about these behaviours can sometimes result in deceit from participants due to worries about getting punished for an illegal action, and/or social stigma that might be associated with the behaviour (St. John et al., 2010, 2015). Killing bears is illegal in most Asian countries, and use of bear parts is, by extension, often illegal (Burgess et al., 2014), as many users of bear parts will either by necessity or choice source their bear products illegally (Davis et al., 2016 and Shepherd and Nijman, 2008). Therefore, users of bear parts may be unwilling to directly admit to their use due to legality concerns. It is currently unknown what the perceived social sensitivity is of using bear parts; therefore, one of the secondary aims of this thesis is to understand whether social desirability bias affects reporting of results. Social desirability bias is defined here as a bias towards inaccurately



reporting one's behaviour to conform to the perceived social norms of the interviewer and/or community (Nuno and St. John, 2010 and St. John et al., 2015).

Alternatives to direct questioning, such as randomized response technique (RRT), unmatched count technique (UCT) and nominative technique (NT), may provide a better picture of use by enabling respondents to answer confidentially and provide more truthful responses (St. John et al., 2010). RRT uses a randomisation tool, most commonly a die, to integrate probability into the given response of the respondent. This probability ensures that the 'true' response of the interviewee is never known by the interviewer, thus ensuring complete anonymity. In UCT, responses are shielded by asking respondents to state the number of actions performed, some of which may be considered sensitive. In NT, respondents are asked to discuss the behaviour of their social group, rather than their own behaviour, thus allowing the respondent to keep their own behaviour hidden. Additionally, false consensus bias (FCB) can assist in estimating the prevalence of certain behaviours in a population by using respondents' own perceptions of a behaviour's prevalence among their social group as an indicator of the respondent's own behaviour (Dawes, 1989). In a conservation setting, this technique has been paired with RRT as an additional measure of behaviour prevalence (St. John et al., 2011), under the assumption that individuals who engage in a sensitive behaviour will estimate a greater proportion of the population as being involved in that behaviour (St. John et al., 2015). All four methods will be discussed at greater length in **Chapter 3**.

These methods are beginning to be applied to conservation settings, though their use is rare in Asia. In the published literature, RRT, paired with an analysis of potential FCB, has been proven to be successful in Taiwan, when asking respondents about illegal carnivore killing (St. John et al., 2015). Prevalence estimates derived from RRT responses were found to be much higher than from direct questions for the sensitive behaviour, and correlated with an observable false consensus effect. UCT has not been used widely in Asia, but in Tanzania UCT appeared successful in encouraging respondents to answer truthfully about poaching (Nuno et al., 2013). One previous study of UCT has been conducted in Cambodia, though the method was found to be unsuccessful, hypothesised to be because the behaviour in question had a low 'true' prevalence within the population (Ibbett et al., 2017). Additionally, an online survey conducted by Hinsley et al. (2017), which included individuals from Indonesia, Malaysia, and Japan, found no evidence of an effect when using UCT in comparison to direct questions. There has been no published conservation research using NT in Southeast Asia. More generally, NT isn't prevalent in conservation studies,

apart from St. John et al. (2010), who found it to be ineffective in their study about illegal fishing in Wales. However, they hypothesised this inefficacy was due to the respondents in their study being unfamiliar with their friends' illegal fishing behaviour, rather than any issues with implementation.

## 1.8 Research aims

Anthropological techniques have been under-utilised in conservation, despite documented proof that biological conservation is intertwined with human societies, culture, and actions. Furthermore, although bear part use is potentially sensitive for illegality and/or status reasons, anonymous/specialised questioning techniques have not been used to understand the true prevalence of bear part use anywhere in Asia. Finally, throughout the region there is a lack of available data about the use of illegal wildlife parts generally, including bear parts. As such, this thesis aims fill these research voids by providing qualitative context to the use of bear parts in two source countries of bear parts, Cambodia and Laos, and to use Cambodia as a case study of the applicability of specialised questioning techniques in understanding the prevalence of bear part use in Asia.

Thus, the research aims are as follows:

- Improve understanding of the role that bears hold in Khmer belief systems, along with motivations for use of bear parts and how bear parts are used by the Khmer (**Chapter 4**)
- Improve understanding of the role that bears hold in the Laos cultural group's belief systems, as well as motivations for use of bear parts and how these parts are used, as well as how these beliefs and motivations compare and differ from the Khmer ethnic group's beliefs and motivations (**Chapter 5**)
- To demonstrate the extent of use of bear products, and how use of bear parts for medicine is spatially distinct (**Chapters 4 and 5**)
- Provide a comprehensive case study of the use of specialised questioning techniques in Cambodia as tools to effectively understand the prevalence of bear part use (**Chapter 6**)
- Use the information gathered here to provide recommendations for future conservation steps (**Chapter 7**)

## 1.9 Thesis structure

**Chapter 2** of this thesis provides some expositional information on the study populations and study sites, along with the cultural and philosophical context of each. **Chapter 3** is a discussion of methodology. **Chapter 4** will be a comprehensive examination of bears and bear part use in Khmer culture, and **Chapter 5** will examine bears and bear part use in the Laos cultural group. **Chapter 6** will address the issue of understanding a sensitive behaviour by a discussion of specialised questioning techniques used in Cambodia. Finally, **Chapter 7** will discuss conclusions and recommendations.

## CHAPTER 2: Study sites

### 2.1 Introduction

This chapter will provide necessary socio-cultural and geographic context to the research presented in this thesis. Cambodia and Laos were chosen as study countries for three reasons: 1) both countries have endemic populations of sun bears and Asiatic black bears; 2) both countries lie in close proximity to China, the single largest market for bear parts (specifically bear bile) (Dutton et al., 2011); and 3) the residents of both countries have been confirmed as using bear parts (Free the Bears, pers. comm. and Davis et al., 2016).

Several key attributes were isolated as being important to understand and acknowledge when performing research in both Cambodia and Laos. These attributes are encapsulated by the following questions:

- 1) **Which cultural group** is predominant in the area (if any)?
- 2) Is the area **rural or urban**?
- 3) Is there high or low **wildlife contact**?
- 4) Do they **use** bear parts?

**Table 1:** The properties of each study site. There is variation in the scale of urbanity, the predominant ethnic groups residing in the sites, and the contact the groups living in each site have with wildlife. Note: KH is the accepted abbreviation for Cambodia, and LA is the accepted abbreviation for Laos.

<i>Location</i>	<i>Wildlife contact</i>	<i>Rural v urban</i>	<i>Cultural group</i>
<i>Phnom Penh, KH</i>	Low	Urban	Khmer
<i>Stung Treng, KH</i>	High	Rural	Khmer & Lao
<i>Cardamom Mountains, KH</i>	High	Rural	Khmer
<i>Luang Prabang, LA</i>	Medium	Semi-urban	Lao

As can be seen from **Table 1**, the Cambodian study sites vary in urbanity, which allows for comparison of prevalence of use between the two conditions. The Cambodian study sites contrast with Luang Prabang, Laos, by being ‘extremes’, while Luang Prabang is somewhere between the two states of rural or urban and wildlife contact or no wildlife contact. However, Luang Prabang

does share some similarity of culture with Stung Treng, which allows for comparisons and interpretations of use.

In two of the three Cambodian sites quantitative data was the only data collected for this thesis, while in one (Luang Prabang, Laos) only qualitative data was collected for this thesis (**Table 2**). Qualitative data was not collected at two of the Cambodian sites due to time and personnel constraints.

**Table 2:** Table of the type of data collected at each site. Quantitative data was collected at all Cambodian study sites. At Luang Prabang, only qualitative data was collected for this thesis. Quantitative data was collected at Luang Prabang in 2014 and the results were published in 2016 (Davis et al., 2016).

<i>Location</i>	<i>Quantitative</i>	<i>Qualitative</i>
<i>Phnom Penh</i>	x	x
<i>Stung Treng</i>	x	
<i>Cardamom Mountains</i>	x	
<i>Luang Prabang</i>	x (prior to this thesis)	x

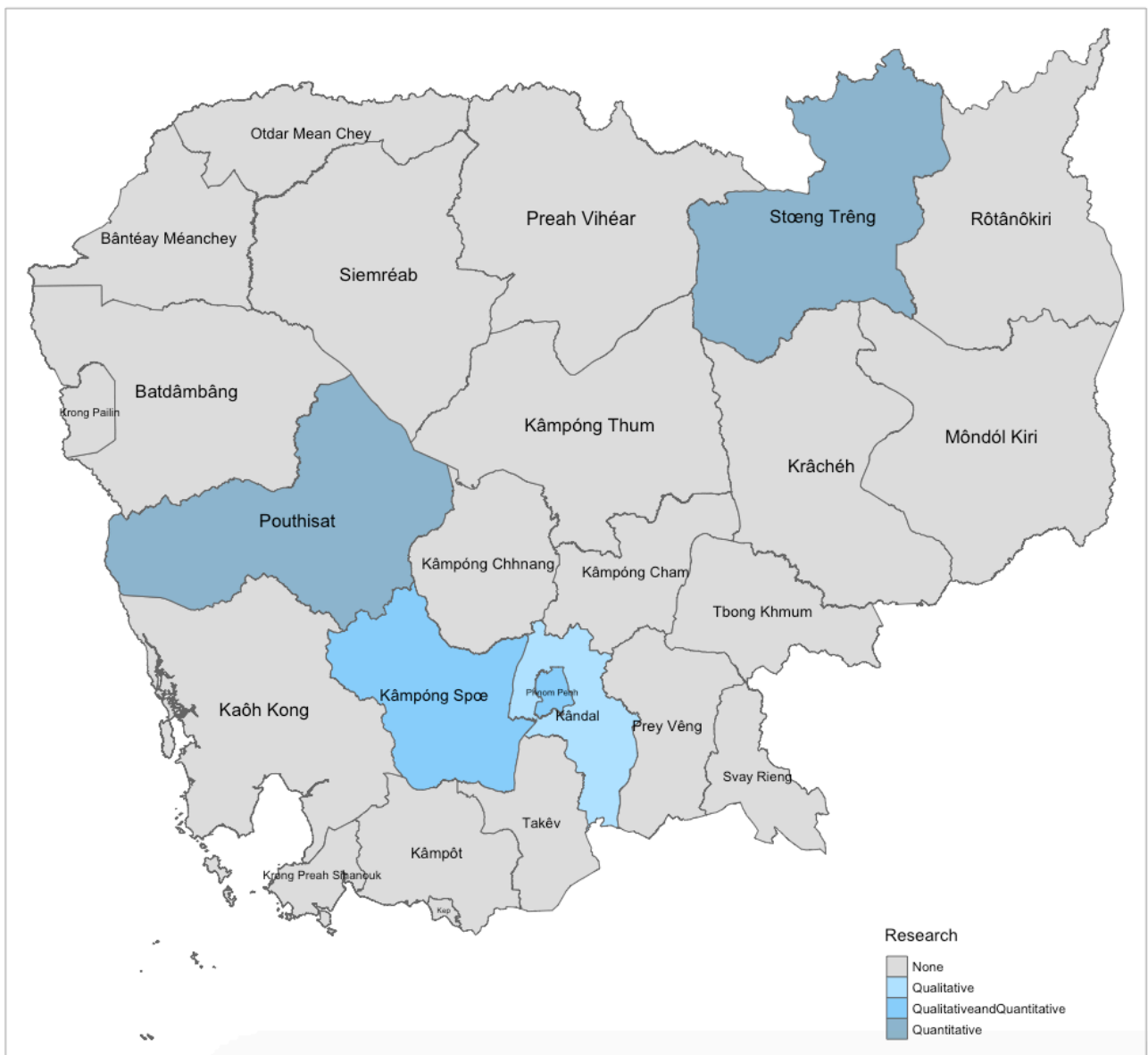
Due to the variation within study sites and the difference in data collected, discussion of comparisons within this thesis will be limited to sites that share similarly collected data. Therefore, all sites within Cambodia will be discussed and compared, and Phnom Penh and Luang Prabang will be briefly compared and extensively discussed as stand-alone entities.

## 2.2 Study sites

### 2.2.1 Cambodia

Cambodia shares its borders with Thailand, Laos, Vietnam, and the Gulf of Thailand. The Mekong River runs from north to south through Cambodia, and through two of the study sites discussed in this thesis (**Figure 1**). Cambodia’s geography is varied, with flat delta landscapes (e.g. Phnom Penh), water-logged terrain (e.g. Stung Treng), mountainous areas (e.g. the Cardamom Mountains), and coastal landscapes. Sun bears and Asiatic bears are endemic to Cambodia, and although population estimates are nearly non-existent, there have been sightings of bears in the Cardamom Mountains (Gray et al., 2017b), and anecdotal evidence of bears living around Stung Treng. The Cardamom Mountains are particularly important for being a reputed “source site” of many animal

parts, including bear parts. Phnom Penh is reportedly a “sink site” for animal parts obtained all throughout Cambodia, and a national highway between Phnom Penh and the Cardamom Mountains ensures an active wildlife trade route between the Cardamoms and the capital, according to communication from the CEO of Free the Bears, who has nearly two decades experience working in the region (M. Hunt, pers. comm.). Use of bear parts has been documented at all three study sites. The three study sites are discussed in more detail below.



**Figure 2:** Map of the provinces where research has been conducted in Cambodia by the interviewer, SDZG, and FTB (map created with R and the package “tmap” (R Core Team, 2018 and Tennekes, 2018)). In this map, the provinces are written phonetically. However, the anglicised variations will be used throughout this thesis.

### 2.2.1.1 *Phnom Penh*

The capital of Cambodia, Phnom Penh, has been a documented, significant trading hub in Southeast Asia since the 1600’s (Cooke, 2007 and Eibhara, 1984). Because of its pluralistic trading nature, Phnom Penh has also been a centre of ethnic diversity, with historically large populations of Chinese and Vietnamese (Cooke, 2007) (though by the end of the Cambodian genocide no Vietnamese were documented to be remaining in Phnom Penh). Cooke (2007) cites the account of Spooner (1862) who noted that the Vietnamese would purchase items in Phnom Penh and ship them down the river to Vietnam, making an 80% profit:

Herbal medicines, ebony, trắc wood, calambac, rhinoceros horn, elephant tusks, southern ginseng, cardamom, *sha nhon*, and pepper are the best known, but there are countless other products like coconut oil, lacquer, purple ants, yellow wax, etc. . . . Merchants come here to trade for local products and make big profits.

- Account of a Vietnamese traveller in Phnom Penh, early 1800’s (Cooke, 2007)

Phnom Penh therefore has figured prominently in the trading landscape of Southeast Asia. Seizures of rhinoceros horn in the modern day confirm that Phnom Penh is still significant in traditional medicine trading (Maza and Sokchea, 2016).

Of additional importance is the high presence of Chinese in Phnom Penh. As the historic middle class the Chinese have been a substantial part of Phnom Penh since at least the 1800’s (Cooke, 2007). Willmott (2011) cites the pre-Khmer Rouge population of the Phnom Penh Chinese as comprising at least 150,000 individuals, and the entire Chinese population of Cambodia numbering 8% of the country’s total population. The Phnom Penh population was almost exclusively Cantonese, and about a fifth of the population had been born in China (Willmott, 2011). This indicates that prior to the Khmer Rouge Chinese culture was strong amongst the Chinese population, despite a high-prevalence of what would today be termed “second-generation”

immigrants influenced by Khmer culture. Furthermore, the Chinese community maintained itself as a separate entity from the Khmer (Willmott, 2011).

Now, the Chinese community is a significant aspect of life in Phnom Penh, and the Chinese are key players in the continuing development of Phnom Penh (Marks, 2000). This is important because the Chinese are “the largest single market for bear bile” (Dutton et al., 2011). An aim of this research is to understand the influence of the Chinese on bear part purchasing behaviour. Additionally, the confirmed, prevalent use of bear parts by the Chinese, coupled with their perceived elevated role as investors and businesspeople, may have an effect on increasing Khmer bear part use as a means of gaining increased status in the Khmer-Chinese/Chinese community.

#### *2.2.1.2 Stung Treng*

Stung Treng was chosen as a study site because it has one of the lowest population densities of any province in Cambodia, with 7 people per km<sup>2</sup> in Stung Treng, versus 64 people per km<sup>2</sup> in all of Cambodia (Thoun and Vannara, 2005). Stung Treng has also been noted as being relatively underdeveloped in comparison to other areas in Cambodia, with little infrastructure and the majority of residents practicing small-scale farming/fishing (Bühler et al., 2015). Several community engagement projects have been performed in the region, primarily associated with sustainable fishing practices (Thoun and Vannara, 2005) but also associated with understanding fish habitats and fish population density in the region (Chan et al., 2005).

Additionally, Stung Treng is located near the borders of Laos and Vietnam and many Laos nationals and Vietnamese individuals will seasonally fish in Stung Treng (Thoun and Vannara 2005), which may be why Stung Treng is relatively ethnically diverse in comparison to other areas in Cambodia. Its situation near these borders may also have influenced its status as an illegal wildlife trading hub (**Figure 2**), though further research would be needed to confirm this. Moreover, in Stung Treng there is ample ability to collect land animals because the region, despite extensive logging, has maintained relatively high forest cover (Bühler et al., 2015).





**Figure 3:** Illegal wildlife products being traded at the main market in Stung Treng. Pictured are loris pelts, porcupines, wild pig, and deer. In the yellow bag is a monitor lizard, in the tan bag is a civet, and in the white bag to the upper left is a live loris (Photo by Thona Lim, FTB).

### 2.2.1.3 Cardamom Mountains

The Cardamom Mountains are claimed to be “one of the largest remaining wilderness areas in Southeast Asia”, and have been documented as hosting a variety of endemic mammals (Gray et al., 2017b and Reimer and Walter, 2013). Because of their ecological value, the mountains have been a large focus of biological research in Cambodia (e.g. Coudrat et al., 2011, Grismer et al., 2007 and Neang et al., 2012). It is also an area where some moves towards community-based ecotourism have been proposed (Reimer and Walter, 2013).

As in most of Cambodia, the dominant ethnic group is the Khmer, followed by those who identify as Khmer-Chinese. Compared to Stung Treng, the Cardamom Mountains are relatively homogenous in their ethnic make-up (**Appendix II**). It is possible that this region is indicative of rural Khmer beliefs and practices throughout Cambodia, making it an ideal study site for obtaining such broad understanding.

### 2.2.2 Laos

Laos is a land-locked country that lies beneath China and Myanmar, with Thailand on its west side, Vietnam on its east, and Cambodia south (**Figure 4**). Its population density is small in comparison

to other Southeast Asian countries (Johnson et al., 2006), and it is comprised both of low-land plains and mountainous, “highland” regions. It is also reported to have populations of sun and Asiatic black bears (Scotson, 2012), though reports have indicated for nearly two decades that these populations are low (Duckworth et al., 1999). Certainly, bear parts are used in and around Luang Prabang (Davis et al., 2016), though it is uncertain how prevalent use is among the Laos cultural group in other areas of Laos.



**Figure 4:** Map of the provinces where research has been conducted in Laos by the interviewer (with indication of the quantitative research performed in 2014 (Davis et al., 2016) (map created with R and the package “tmap” (R Core Team, 2018 and Tennekes, 2018)). Similarly to **Figure 2** above, the province names are here written phonetically, while the anglicised versions are used in this thesis.

### 2.2.2.1 Luang Prabang

Luang Prabang is a UNESCO world heritage site situated in northern Laos at the confluence of the Mekong River and the Nam Khan tributary. Its world heritage status was obtained officially

for “successful fusion” of French colonial architecture and traditional Lao architecture that created a ‘unique’ and “remarkably well-preserved” city (Long and Sweet, 2006). Long and Sweet (2006) discuss at length the problems with this listing, which ‘disturbingly’ imply that the French colonial period, and accompanying architecture, was key in giving Luang Prabang the historical value that is now celebrated; at the same time, the listing forces an “Orientalized mystique” that ignores the rich, diverse history of Luang Prabang.

However, it has been further argued that this emphasis on old-world Orientalism has encouraged a thriving tourist industry within the town (Long and Sweet, 2006). Tourists come from all over the world, but it is significant that Luang Prabang is relatively close to the Chinese border (**Figure 3**). A high number of Chinese tourists come to Luang Prabang, and appear to influence the economy, with ivory openly sold in Luang Prabang (**Figures 4 and 5**). Indeed, Chinese tourists are encouraged by both Laos and China to travel to Laos (Xu et al., 2006). Some have argued this is a Chinese method of maintaining use of illegal wildlife products whilst retaining the endemic animal populations China has left, by taking advantage of weak enforcement in Laos (Donovan, 1999). Certainly, it is well-known that many, if not most, bear bile farms operating in northern Laos are intended for Chinese tourists (Krishnasamy et al., 2018 and Livingstone et al., 2018). Luang Prabang is therefore an interesting study site to compare to Phnom Penh; Phnom Penh has a stable, integrated Chinese community, while Luang Prabang has a lucrative, yet transient, Chinese community.





**Figure 5 and Figure 6:** From left to right: Ivory advertised outside a shop in Luang Prabang; ivory being sold at a shop on the main street in Luang Prabang.

Luang Prabang is a town of around 50,000, but it is situated in a vast, forested landscape (**Figure 6**), with a low density of individuals residing within it in comparison to forest cover (Sodhi et al., 2010). This presumably has implications for bear populations in that the significant level of cover can sustain large populations of bears; however, it has been documented that the wild bears of Laos are supplying bear farms throughout the country (Livingstone et al., 2018).



**Figure 7:** View of Luang Prabang town. Extensive forest can be seen surrounding the town.

## **2.3 Brief histories of Cambodia and Laos**

### 2.3.1 Cambodia

#### *2.3.1.1 Early Khmer*

The Kingdom of Cambodia is an ancient empire, with a long, documented history of a structured society in the region. Harris (2008) cites a “Khmer identity” existing in the region of Cambodia from as early as 4,200 BCE (Before the Common Era), though other scholars place the genesis of a Khmer society as being much later, following a migration of people from China into what is now Cambodia (Ross and the Library of Congress Research Division, 1990).

Whenever the genesis of Khmer society, what is well-known is that the country of Cambodia, ideally situated as it is in the heart of Indochina, was a hub of trade. There was a significant assimilation of Indian culture due to this trade. With this embrace of Indian culture came Theravada Buddhism (Harris, 2008). The Khmer court practiced a variety of Buddhist cults, even as many members of the nobility, including the royalty, continued to revere traditional Hindu deities. However, as Harris (2008) wryly notes, “It goes without saying that the majority of the population continued to practice ancestral [spirit] cults.”

Buddhism waxed and waned for the next several hundred years. Its gradual ascension to prominence in the Middle Ages (~1100 CE) is reflected in every aspect of Angkor Wat, which was built under a Hindu belief system, yet adapted later to mirror the Buddhist tenets that had become ingrained in Khmer society (Chihara, 1996). As one example of Buddhism’s integration into Khmer society, the Buddhist cosmic cycle of “origination and dissolution” was used as Khmer royalty’s affirmation of divine power as one king died and another ascended (Harris, 2008).

#### *2.3.1.2 French colonialism*

By the late 1800’s, Cambodia was no longer the prosperous Khmer empire of the Middle Ages. A vassal to both Annam and Siam (modern Vietnam and Thailand, respectively), the Kingdom of Cambodia actively encouraged French ‘protection’, and in 1863 Cambodia officially became a French colony. This served to exacerbate existing ethnic frustrations, particularly between Cambodia and Vietnam. The French used previous Vietnamese invasions of Cambodia and Laos as justification for their own expansions in those regions, ignored previous national boundaries, and relied heavily upon foreign workers, primarily the Chinese and Vietnamese, within both Cambodia and Laos (Goscha, 2009).

#### *2.3.1.3 Early-mid twentieth century*

By the 1960’s Cambodia was fully independent from French rule, but ethnic tensions were bubbling, particularly between the Cambodians and the Vietnamese. In 1935, Phnom Penh was comprised of 61.5% Vietnamese nationals, most of whom had been brought with the French as labour, which had encouraged increasing resentment from Cambodians towards the Vietnamese (Goscha, 2009). In the 60’s, yet more resentment towards the Vietnamese rose among Cambodians due to the spill-over of Vietcong troops into Cambodia. This renewed old Cambodian anger over Vietnam’s previous attempts at dominion over areas near the Mekong considered to be Cambodian land (An, 1978).

In 1970, Cambodia's ruling prince Norodom Sihanouk was ousted and exiled, with one reason for his removal cited by those who deposed him as his inability, or unwillingness, to remove the Vietcong from Cambodia (Gordon and Young, 1971). His removal led directly to uncertainty and chaos. Vietnamese forces flowed into Cambodia (Gordon and Young, 1971), as Vietnamese living in Cambodia began to be killed by Khmer individuals, eventually leading, under the Khmer Rouge, to the near full-scale extermination of all ethnically Vietnamese people living in Cambodia (Heuveline, 1998).

The Khmer Rouge came to power and established the Democratic Republic of Kampuchea. The Cambodian genocide<sup>1</sup> is well-documented, and it is not for this thesis to flesh out the horrors of that time. For four years millions of Cambodians suffered. In December of 1978, the Vietnamese—so often the antagonists of Cambodia—broke apart the Democratic Republic of Kampuchea and ended the horrors of the Cambodian genocide. MacArthur (1978) wrote that the Vietnamese revealed to the world a society and a country that was “permanently maimed.”

#### *2.3.1.4 Current Cambodia*

Far from being “permanently maimed”, current Cambodia is rapidly advancing economically and as such is rapidly shifting in the attitudes and values held by Khmer individuals, to the post Khmer Rouge embrace of ‘traditional’ ancestor spirit belief structures coupled with a desire to ‘modernise’ (Arensen, 2012). This desire is apparent in the amount of foreign, particularly Chinese, investment in Cambodia’s infrastructure and economy (Frost and Ho, 2005). This investment and development has naturally had an effect on the income landscape of current Cambodia. Although more Cambodians live below the poverty line than in the neighbouring communist countries of Laos and Vietnam (40% in comparison to 36% and 37%, respectively (Dasgupta et al., 2005)), they are shoulder to shoulder with a rapidly increasing section of Cambodian society with disposable income (Varis, 2008). Nonetheless, the increasing investment of Chinese interests within Cambodia has been accompanied by a bevy of concerns, spurred by such observations as Chinese tourists using Cambodia as a ‘playground’ for its casinos and lax ‘sin’ laws, Chinese factory managers paying cheap wages and offering inadequate conditions (Chong, 2017), and vulnerable Cambodians being trafficked in Chinese ‘sin’ destinations such as Sihanoukville (Willis et al., 2016).

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<sup>1</sup> The term genocide is used here primarily for ease. As Kidron (2012) notes, genocides are usually defined as being directed against another ethnic group, rather than one’s own. However, Jonassohn and Björnson (1998) define genocide as a mass act of killing directed at a group defined by the perpetrator, which would include the Cambodian genocide.

## 2.3.2 Laos

### *2.3.2.1 Early Laos*

As is the case in most of Southeast Asia, the earliest recorded histories of Laos come from Chinese sources (Stuart-Fox, 1997). These sources term the people of the region as “Ai-Lao”, and mention a variety of “small kingdoms” in the fertile areas around the Mekong (Stuart-Fox, 1997). The Ai-Lao, however, were not the ancestors of the Lao people that now inhabit the region known as Laos. The Lao people are instead descended from the Tai ethnic group, themselves descended from an Austronesian group that migrated from China (Sagart, 2004). In this document, ‘Tai’ will be primarily used to denote the more colloquially known ‘Thai’. Nationals of Thailand will be denoted as ‘Thai’.

Unlike Cambodia, there was no “dominant” society in the region of Laos. Whereas a Khmer identity was established relatively early in documented history, with a common script, language, culture, and national identity, the people of Laos were scattered into small kingdoms with distinct societies and cultures (Stuart-Fox, 1997). Indeed, the subject of what to call the people of Laos has been a contentious issue since at least the creation of the communist state in 1975, and likely long before. As a result, much of the literature on Laos uses three broad classifications: “Lao Loum” (lowland Lao), “Lao Theung” (middle Lao), and “Lao Sung” (highland Lao). Although this is problematic, it is certainly an improvement from the “Kha” (lit. ‘slave’) classification used prior to and during the French colonisation, to refer to all non-Lao ethnic groups in Laos (Pholsena, 2002).

Like Cambodia, the early kingdoms of Laos “borrowed heavily” from Indian religions and Indian culture (Stuart-Fox, 1997). The Mongol invasion of the late Middle Ages (c.1300 CE) led to a probable assimilation of Mongol culture into these Indic frameworks, as the Laos region imitated the Mon-Indic feudalistic model seen in the *Tai mandalas* (Stuart-Fox, 1997). Mandalas are similar to the European feudal state in that they are organised networks of favours centred around an administrative centre. However, unlike the feudal society of Europe in the Middle Ages, smaller regions of control are not under the administration of a larger, overarching polity. Rather, certain regions could be under the control of several mandalas, and mandalas themselves were independent bodies (Dellios, 2003).

As was common in the region, the people residing in the Laos region were Buddhist, and a Khmer queen of the first ‘unified’ Lao empire, Lan Xang (founded in the 14<sup>th</sup> century), is believed to have introduced Theravada Buddhism to the Laos cultural group. As in Cambodia, spirit worship was still deeply ingrained in the region, as evidenced by the rituals and practices that have continued to the present (Endres and Lauser, 2012).

Lan Xang is considered the genesis of the kingdom of Laos. In contemporary Laos historiography, this genesis relies upon exclusion of the many ethnic groups in Laos by framing Lan Xang as being founded by the Lao Loum, rather than being the product of the many different cultural groups that co-existed in the area (Pholsena, 2004). What is more probable is that Lan Xang reflected contemporary Laos in its diversity of cultural groups (Berliner, 2012 and Stuart-Fox, 1993).

Lan Xang was overrun by Siam (Thailand) amid dynastic turmoil in the late 1600’s, and for an equally long stretch of time as Lan Xang had existed most of Laos’s kingdoms were under the vassalage of Siam. An anti-Siamese revolt led by Lao elites in the early 1800’s shattered what little political strength the Lao kingdom had, and led to an almost complete dissolution of centralised power. For most of the 1800’s, the region of Laos was little more than a land of scattered villages, bound together only by clan and/or ethnic ties (Stuart-Fox, 1997).

#### *2.3.2.2 French colonialism*

As with Cambodia, initial French control of the region in 1893 was encouraged by Lao nobility as a way of removing the Siamese (Stuart-Fox, 1997). The French themselves were interested in the Laos region primarily as a means of entering the Chinese markets (Brocheux and Hémery, 2011), and as with Cambodia, believed that the land could be utilised for its resources through the application of Vietnamese labour (Stuart-Fox, 1995).

Although the French had plans to build in Laos the infrastructure that they had built in Vietnam (their ‘trophy’ colony), this infrastructure was never built, nor was a unified administrative system ever truly put in place (Stuart-Fox, 1995). Thus, Laos, like Cambodia, retained a measure of independence, yet unlike Cambodia and its legacy of the Khmer Empire, Laos lacked a “national identity”, and was not forced into one by the French during the period of colonisation (Stuart-Fox, 1995).

#### *2.3.2.3 Early-mid twentieth century*



World War I had a significant impact on Laos history, as the nation asserted its independence and negotiated for alliances with Cambodia and Thailand, on the basis of shared kinship (Simmonds, 1968). This was thrown into turmoil in the 1950's as communism influenced the foreign policy of every nation. By 1960, a unified Laos was no longer in existence, and was comprised instead of Western-leaning powers, a neutral government (governing in exile), and communist forces.

The turbulent events of the 1950's-60's led to the "secret war" of Laos, wherein American aid, training, and some troops fought against communist aid, training, and troops (McCoy, 2002 and Simmonds, 1968). In effect, it set the stage for the atrocities that would occur in the Vietnam war, by causing the death of thousands of Lao nationals and creating a landscape that to this day is a patchwork of mines (Mine Advisory Group (MAG), 2016). In 1975 Laos became the Lao Peoples Democratic Republic (Lao PDR), a communist country. However, in this thesis Lao PDR will continue to be referred to as 'Laos'.

#### *2.3.2.4 Current Laos*

Laos is much like current Cambodia and Vietnam in an expressed governmental desire for 'modernisation'. Like Cambodia and Vietnam, Laos is experiencing rapid economic growth (Fabe, 2006) and increasing trade opportunities (Millar and Photakoun, 2008). Yet, in parallel to Cambodia, Laos's political goals of development and increased economic viability may or may not parallel the desires of the individuals living within the region. As in Cambodia, there are a multitude of problems associated with 'modernity' in Laos ranging from potential negative effects of foreign investment in logging (Barney, 2008), to foreign-funded hydropower (Matthews, 2012), to human trafficking associated with so-called "special/specific economic zones" (EIA, 2015). In addition, illegal wildlife trading is rampant within Laos, with the accompanying implication that the endemic wildlife populations are becoming extirpated (e.g. Crudge et al., 2016 and Scotson et al., 2017).

## **2.4 Study populations**

### 2.4.1 The Khmer

The Khmer are believed to have inhabited the region now known as Cambodia for thousands of years (Briggs, 1951). They are in the Mon-Khmer linguistic group, and are theorised to have migrated into Southeast Asia from the region of China (Kumar et al., 2006). Hinduism was the prevailing religion in the region for the early centuries of Khmer society, and Khmer Buddhism was no great departure, being also Indic in origination (Harris, 2008 and Hazra, 1982). Modern Khmer are still nearly homogenously Theravada Buddhist. As a result, Theravada Buddhism is

deeply ingrained into the Khmer identity (Langford, 2009). The Khmer are by far the predominant group living in Cambodia, with well over 90% of the population identifying as Khmer (The World Factbook, 2018).

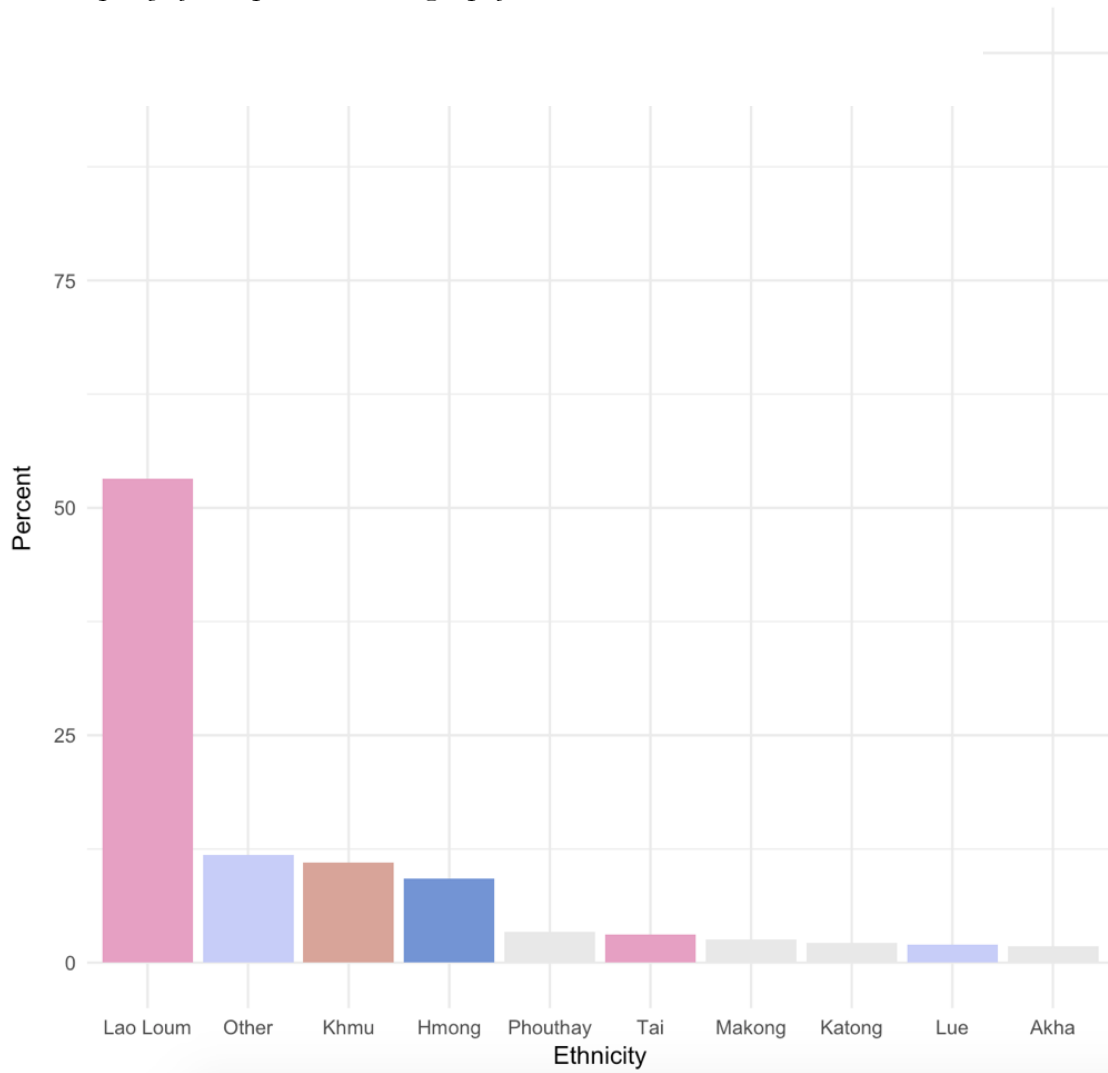
As a developing country and people, Cambodia and the Khmer face many of the same problems found in other developing countries worldwide. For example, Bourdier (2008) notes that the issue of ‘empowerment’ for rural Khmer people at the village level strays into colonial territory. The village was traditionally the power centre of rural life in Cambodia (as well as Laos and Vietnam), until the colonial and then current Cambodian administration ‘virtually’ wiped some villages off the map, and forced many others to answer to a regional authority. Additionally, individuals chosen by development agencies to lead villages often use their power to “further their own interest”, rather than to ‘empower’ their community (Bourdier, 2008).

As is the case throughout Southeast Asia, traditional medicine is localised to the region. Ovesen and Trankell (2010) emphasise that in indigenous Khmer health cosmology, illness is not primarily a question of the individual’s physical or biological condition but of “his/her integral position in the wider natural, social, and spiritual life-world.” This indigenous system of medicine was nearly eradicated under the Khmer Rouge, but has reemerged in modern times. Of particular interest are the *keru kbmae*, who combine herbal healing with spiritual healing. As Ovesen and Trankell (2010) note, the *keru kbmae* often use animal parts, which are the ‘magical’ element of the healing, i.e. with no ‘observable’ physical benefit. However, these objects do act to “[appropriate] the dangerous forces of the wilderness”, and as such Ovesen and Trankell (2010) record that animals that are perceived as powerful appear in *keru kbmae* medicine. Khmer traditional medicine is also imbued with elements of Buddhism and Hinduism by placing importance on the geography of the land. Khmer herbalists often claim to have been taught on mountains and in forests, which are both areas of significant spiritual importance (Ovesen and Trankell, 2010).

#### 2.4.2 The Laos cultural group

As has been discussed, Laos has high ethnic diversity (Berliner, 2012) and as such a thorough examination of the ethnic groups is impossible for the purposes of this thesis. Rather, the focus of this section will be on the groups that the sample group of individuals interviewed in **Chapter 5** claimed membership of (**Figure 8**).

*Frequency of most prevalent ethnic groups found in Laos*



**Figure 8:** The most prevalent ethnic groups living in Laos (CIA World Factbook, 2016). Groups that were not sampled in Chapter 5 are indicated in light grey.

*2.4.2.1 Lao/Lao Loum*

The Lao Loum are culturally similar to the ethnic Tai people, notably in terms of their social hierarchies and language (Ireson and Ireson, 1991). The Lao/Lao Loum ethnic group is defined as the group of people who reside in lowland Laos and north-eastern Thailand. Lao-Tai (or Tai-Lao) is used as the name for the overarching ethnic group of Lao-Tai people who entered the Laos region around 100 BCE (Sidwell, 2013). The invading Lao-Tai group displaced the residing groups, which included the Mon-Khmer Khmu (Ireson and Ireson 1991). To this day the Lao-Tai, usually referred to as ‘Lao’ or ‘Lao Loum’, are the most powerful ethnic group in Laos (Ireson and Ireson 1991 and Pholsena, 2004).

Like the Khmer, the Lao Loum are Theravada Buddhist. The Lao Loum practice spirit worship intertwined with (and “inseparable from”) Buddhism (Karlström, 2013), possibly because of the variety of animist ethnic groups that have resided along with the Lao Loum for centuries, and/or perhaps because the many kingdoms of Laos embraced Buddhism at varying levels of intensity. Additionally, ‘traditional’ practices are still numerous in Laos. For instance, traditional Lao medicine is extensively used in Laos and is believed by the Lao Loum population to be effective (Sydara et al., 2005).

#### 2.4.2.2 *The Hmong*

The Hmong have historically lived in geographically rugged, rural areas (the highland areas of Laos, Thailand, and Vietnam, as well as the mountains of China). Additionally, Hmong culture places emphasis upon the Hmong community, and outsiders are generally not permitted within Hmong villages (Cooper, 1979). This may be due to a long history of conflict with the ‘ruling’ dominant people groups within their country of residence. Notably, the Chinese initiated countless efforts to homogenise the Hmong into their imperial system (Fadiman, 1997). Culturally, the Hmong have more similarity with rural groups in China or even further west, in Mongolia, than they do the Lao Loum (Fadiman, 1997). They are also traditionally animist, with shamans within their communities acting as medical practitioners (Fadiman, 1997).

They are recorded as having lived originally in China (probably via the Mongolian steppes), although many Hmong migrated further south in the early 19<sup>th</sup> century after centuries of opposition to Chinese attempts to impose laws and culture upon them (Culas, 2000 and Fadiman, 1997). In Southeast Asia, the Hmong now live primarily in southern China, and in the highlands of Vietnam, Thailand, and Laos (Culas, 2000).

The Hmong are traditionally swidden farmers and do not have rulers (Fadiman, 1997). ‘Swidden’ refers here to the style of farming known variously as “slash-and-burn” and ‘subsistence’. However, “slash-and-burn” is inappropriate because many small-scale farmers do not burn the landscape, nor is slash-and-burn farming necessarily harmful to the landscape (Kleinman et al., 1995). ‘Subsistence’, likewise, is incorrect, as many swidden farmers are not just ‘subsisting’ (e.g. Mertz et al., 2005). The Hmong did, and still do, value self-containment, and are deeply community-oriented, with the only form of leaders being the shamans and elders (Fadiman, 1997). The Hmong value preservation of their ethnic heritage and have been documented as possessing little urge to integrate with communities outside their own (Fadiman, 1997). In the present day,

Hmong social networking via bonds of community is discussed as a persuasive force acting upon the economy of Laos (Baird and Vue, 2015).

#### *2.4.2.3 The Khmu*

The Khmu are reported to be the second largest ethnic group in Laos (de Sa et al., 2013) and are part of the Mon-Khmer ethnic group (Holt, 2009). Like the Hmong, the Khmu are traditionally swidden farmers (Ervard, 2007). As is the case throughout Laos, the Khmu use traditional medicine (de Sa et al., 2012). The Khmu are mountainous-dwelling people, though the Khmu have historically held ties to other ethnic groups, such as the Tai (Ervard, 2007 and Fadiman, 1997). The Khmu adopted many Tai customs, as well as Buddhism (Ervard, 2007). Perhaps most importantly, the Khmu replaced their traditional social structure, where social status was relatively negligible, and gained a Tai-influenced hierarchical class system that resulted in the lessening prestige of the priests, traditionally the top tier in the villages, and the creation of a class system modulated by wealth. This system has carried through into the present day, though there are still vestiges of the previous elders and priest-led hierarchy of the Khmu, the traditional structure of which shared deep similarities with other mountain-dwelling ethnic groups, such as the Hmong (Ervard, 2007).

#### *2.4.2.4 Tai Dam*

Tai Dam, similarly, are also part of the broad ethno-linguistic ‘Tai’ grouping that stretches across lower Southeast Asia. The Tai Dam are found in much the same areas in Laos as the Hmong and the Khmu, practice swidden farming, are animist and now Buddhist (but not historically (Keyes, 1992)), and are called “Black Tai” for their cultural tradition of wearing black clothing (Tapp, 2002). Ethnographic work on the Tai Dam is limited, bar some work on the traditional political organisation of the Tai Dam (Condominas, 1976) and the linguistic structure of the Tai Dam language (as spoken in Vietnam (Hartmann, 1981)).

#### *2.4.2.5 Iu Mien (Hmong-Yao)*

The Iu Mien/Yao ethnic group<sup>2</sup> share a similar cultural history to the Hmong in that both migrated into Laos (and Thailand and Vietnam) from southern China, following a campaign intended to remove the Chinese highland ethnic groups (Sprenger, 2013). They are also swidden farmers, and like the Hmong, they have had very little hierarchy and no definable “leader” of the Yao (although

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<sup>2</sup> “Iu Mien” is the term for a linguistic group within the Yao group (Sprenger, 2013), though the terms are often used interchangeably.

some Yao have successfully expanded their influence beyond their village and into multiple villages in a region) (Sprenger, 2013).

A “major reference point of identity” in Yao culture is the Chinese imperial court, Chinese society, and Chinese political structure (Sprenger, 2013), which marks a large departure from the Hmong history of constant conflict with the Chinese empire. This reference point is provided by the Yao origin story, which has the Yao as having descended from an emperor’s revered dog. The Yao, therefore, see themselves, and are in turn seen by the Chinese, as existing both within society and outside of it, as the dog did (and does) in contemporary Asian society (Sprenger, 2013). Furthermore, the Yao traditionally practice Taoism, and indeed are believed to have been the originators of the religious Taoism still practiced widely in China to this day (Sprenger, 2013). The Yao also believe that they were the ‘original’ group in China, and thus retain ‘Chineseness’ despite their migration across boundaries and into such countries as Laos and Thailand (Sprenger, 2013).

#### *2.4.2.6 Lue (Lii)*

Of the ethnic groups discussed above, the Lue are most similar to the Lao Loum in terms of their culture, traditions, and actions. The Lue, like the Lao Loum, are sedentary farmers, and speak varying ‘dialects’ of Tai (Moerman, 1965). They also share the practice of Theravada Buddhism, and their writing script is very similar to that used by the Tai and Lao Loum. Keyes (1992) writes that at points in Lue history, the Laos state has ‘subsumed’ them entirely into the Lao Loum. Currently in Laos, the Lue are classified as a unique ethnic group, under the broad category of “Lao Loum” (Keyes, 1992).

Moerman (1965) and Keyes (1992) both write that in contrast to other groups in Laos, such as the Hmong or Yao, the Lue have a less definite ‘identity’; they share so many cultural similarities with the Lao Loum – the “national culture” of Laos – that often they are indistinguishable. What is important, however, is that the Lue have their own language, and define themselves as ‘Lue’, and thus they are a definite, unique ethnic group.

#### *2.4.2.7 Comments*

Of course, the ‘markers’ discussed as pertaining to the groups above are fluid and ever-changing. As Moerman noted in 1965, there is often a frustrating (for anthropologists and others studying them) diversity of use of cultural markers in the groups of Laos (and Thailand); for example, Moerman writes that some Lue in an area of Thailand wear a green sarong as their ‘marker’, while

other Lue in other areas do not, and in those areas the green sarong is instead worn by an entirely different group, the Khyn. Whether this diversity of cultural markers within these ethnic groups corresponds to a diversity of attitudes and beliefs is not fully known.

However, cultural markers are becoming less and less prevalent throughout Southeast Asia as globalisation increasingly connects the populations of those regions. The days of tribal divisions and homogenous villages are slowly drifting away, as inter-group marriages occur with greater frequency and communication increases in efficacy.

## **2.5 Culture and philosophy**

### 2.5.1 Theravada Buddhist ideals and the natural world

Buddhism is often represented as a remarkably eco-centric religion (Swearer, 2006). Although Theravada Buddhism is considered to be less ‘ecological’ compared to other branches of Buddhism, Theravada Buddhism still emphasises the ‘inter-dependence’ of all living things, and contains some key doctrines, such as that of *dukkha*, or “shared suffering”, that are cited by Buddhist ecologists, e.g. when considering a clear-cut forest (the forest has suffered, as humans suffer) (Swearer, 2006). Additionally, Buddhists are not, by religious doctrine, allowed to cause harm to any creature, and this has often been interpreted to mean that Buddhists should also care for animals (and by extension for plants) (Harris, 1991). Swearer (2006) denotes this branch of eco-Buddhist philosophy as ‘eco-apology’, and as with any religion, there are critiques of such an interpretation. Harris (1991) argues that in basal Buddhism (and by extension Theravada Buddhism), the spiritual importance is solely on humans, with little regard to the natural world. Animals are unlucky to have been born animals, but Buddhists should be concerned with the self and self-enlightenment, rather than beings that co-exist in the same space (Harris, 1991). Instead, Swearer (2006), paraphrasing Harris (1991), cites eco-Buddhism as being the result of “a type of globalization that promotes an erosion of culture-specific boundaries and a *homogenization or uniformity of attitude* (italics mine) that overrides significant differences in doctrine”. By this argument, global Buddhism is moving towards a homogeneity of positive attitudes towards the natural world. Whether or not this is the case in Southeast Asia is to be seen, but certainly it is to be expected that there will be significant spatial variation in the interpretation of what comprises a good Buddhist’s actions towards the natural world.

### 2.5.2 Cambodian cosmology of the natural world

Khmer cosmology has three essential components at its core that are immutable regardless of whether one is considering human society, the wild, or divinity. One is that of the *prey*, powerful spirits of questionable moral character, which includes demons, guardian spirits, and such forest animals as elephants and tigers (Keyes et al., 1994). The complement to the *prey* are the *srok*, the beings who inhabit the “civilised realm” (humans, kings). Finally, there are the *tevoda*, the gods of the universe.

The *srok* are believed to possess greater power than the *prey*, and this is used as justification for why the *prey* are still allowed to roam the universe (Keyes et al., 1994). Although the *prey* may cause chaos and/or may act wickedly, the *srok* will always ultimately emerge triumphant. The *tevoda* are unconcerned with the doings of the *srok* and *prey*, and exist in relative isolation (Keyes et al., 1994). *Srok* and *prey*, however, are important forces acting in the Khmer world, and in particular the ‘natural’ world of wilderness and animals.

#### 2.5.2.1 *The forest and the animals within*

The Khmer believe the forests to be inhabited by *neak ta prey*, “powerful, wild, and largely malevolent” guardians of these areas (E.W. Davis, 2016). The forest is filled with such malevolent spirits, yet one can also be slaughtered by the spirits of the forest for having a malevolent heart (Arensen, 2012). Arensen’s (2012) documentation of folklore in northwest Cambodia reveals a powerful image of the forest as the ultimate decider of morality. The forest will provide if one has a good heart, but will slaughter those it perceives, in particular, to be ‘greedy’ (Arensen, 2012). This is accomplished through animals, often tigers or snakes, that are performing the bidding of “forest guardians”, who are angered by the immorality of the humans entering their realm (Arensen, 2012). Thus, the forest can be seen as civilised in the context of its judgment, if wild in its execution. The forest is multifaceted, and is either wild or civilised depending on the morality of the creature or being interacting with it (Edwards, 2008).

The forest is a place of retribution for taboos in Khmer culture. It is said that if one gossips, talks badly about another, or is in any small way wicked, the spirits of the forest will take vengeance (Arensen, 2012). Arensen (2012) cites a villager in northwestern Cambodia who states, wicked people “don’t live [in the forest] long.” By extension, the forest is reserved solely for those people who are ‘good.’ When one is good, the forest may be entered, trees may even be felled (with appropriate prayers and rituals), and one may inhabit the sacred realm of the forest (Arensen, 2012). That the forest is sacred is affirmed in folktales about *saccang*, semi-divine, humanoid beings



analogous to Western civilisation's mythology of Elves and fairies (Arensen, 2012). Sometimes they serve to guide those of pure heart who are lost in the forest. Arensen (2012) argues that the *saccang* serve to act, not only as physical guides, but also as moral guides, and as “a promise of what the forest can become and a judgment of what humans so often fail to be.”

The avarice that Khmer mythology turns to most is that of greed. The villagers that Arensen (2012) spoke with indicated that entering the forest to hunt or fell trees for material gain is taboo. This is distinct between felling trees and hunting as needed, for firewood and for sustenance, and has implications for Khmer perceptions of poachers-for-trade and illegal loggers. Under this belief, poachers-for-trade are the ultimate representation of greed, and as such are deserving of punishment by the forest spirits (Arensen, 2012). Although, it should be noted that the definition of what constitutes ‘poaching’ is spatially-specific, and thus this belief may not be as conservation-positive as it appears.

It is likely that such taboos around greed are tied up with an understanding of the connection between Khmer and forest. The Khmer villagers that Arensen (2012) spoke with emphasised that the forest and the humans were bound together, and that whatever threatened the humans would threaten the forest, and vice versa. If deforestation harmed the forest, it would harm the humans as well. The civilised and the wild are bound together in Khmer cosmology, even as they are simultaneously made distinct. This is illustrated in Khmer perceptions of agriculture. Agriculture is seen as bringing prosperity to the area, with that prosperity instrumental in appeasing the spirits of the forest, causing them to grow sated and content, as the people grow sated and content (Arensen, 2012). Thus, deforestation for agriculture becomes something of a necessity, even as Khmer culture gives trees precedence as shelter, as places of spiritual enlightenment (as in the case of the Buddha) and as “repositories of ancestral spirits” (Edwards, 2008). This connection between the forest and one's ancestors is ingrained in not only the perception of those ancestors as living within the trees, but also as the ancestors having come themselves from the forest. Debré (1976) cites a Khmer man: “My father said “The Khmers must not attack trees, they must not forget that our ancestors came from the forest.””

### 2.5.3 Laos cultural group cosmologies of the natural world

A full discussion of the individual cosmologies of each ethnic group represented in this thesis is not possible; however, every ethnic group in Laos share similarities of concepts and cosmological

structure, and as such a general overview will be given of Laos cultural group cosmology as a whole.

### 2.5.3.1 *Wilderness and animals*

Most of the groups that comprise the Laos cultural group practice animism in conjunction with Buddhism. Århem K. and Sprenger (2015) write that animism is a “sentient ecology... a universe of communicating and interacting ‘persons’”, e.g., tree spirits and spirits of the forest. Using the Katu ethnic group as an example of a primarily animistic group resident in Laos, N. Århem (2015) professes that the Laos animist cosmology, like the Khmer cosmology, is comprised of several significant components. One is that of *abhuay*, or “landscape spirits”, which can be as spatially broad as an entire forest, or as narrow as one tiger (Århem N., 2015). Another is that of *mabhuay*, or “spirit places”. These spirit places are areas of spiritual importance, and N. Århem (2015) argues they also possess ecological importance. Generally, the *mabhuay* are also associated with taboos against defilement, which can help to preserve areas of forest given the demarcation of *mabhuay*.

More generally, as concerns the wilderness and the animals within, the Laos cultural group believe in a body of spirits that are similar to the Khmer *prey*. The forest is the home of unsettling *phii*, which are ‘bad’ and ‘dangerous’ spirits (Karlström, 2009), indicating - as with the Khmer - that the ‘wild’ is seen in a negative light among the people of the Laos cultural group. Indeed, Singh (2010) states that the Laos cultural group belief in the negativity of the wild extends to those animals that reside in the wild. They are ‘inferior’ to the domesticated animals of civilisation. Yet, as Singh (2010) discusses at length, this cosmological belief appears to have no effect on consumption of animals in Laos due to a variety of extraneous factors; in brief: a more nuanced interpretation of the wild as ‘evil’, yet also beneficial and resource-laden, and the lure of gained economic prosperity through supplying wild meat to neighbouring countries (primarily Vietnam and China) to fulfil the consumption goals of those countries’ residents.

## 2.6 Summary

Cambodia and Laos are fertile lands, both crossed by the Mekong, and both with a diversity of landscapes within their politically-defined regions. Within Cambodia, surveys and interviews were performed at three study sites: Phnom Penh, Stung Treng, and the Cardamom Mountains. Each reflects current Cambodia in that in Phnom Penh, significant development and investment are increasing the amount of disposable income available to some members of Cambodian society, while in Stung Treng there is little infrastructure and little industry. The Cardamom Mountains,

meanwhile, reflect the extraordinary biodiversity Cambodia possesses, and represent a potential opportunity for future capacity-building of eco-tourism initiatives within the region.

In Laos, only one site has been studied, but that site – Luang Prabang - is important in revealing the shape the future of Laos may take. In Luang Prabang, there is conflict between past and present, between endemic ways of life and increasing foreign influence, as well as the foreign influence of Western interests and ideals possibly conflicting with Chinese interests and ideals. There is also, as is the case everywhere in Southeast Asia, conflict between preservation of endemic forests, and increasing ‘development’.

Both countries practice Theravada Buddhism, and have for hundreds of years. A tenet of Buddhism is to not cause harm to any living thing, though in practice this tenet is often interpreted according to an individual’s situation in life. Additionally, Buddhists believe in the “shared suffering” of all individuals, and as such will sometimes interpret this tenet to mean that Buddhists should work to halt the destruction of forests/landscapes. However, there is also substantial evidence that the Buddhism practiced throughout Cambodia and Laos can be interpreted as individually-focused, with emphasis on self-enlightenment, rather than the care of animals and plants (who are also seen as ‘immoral’ beings in the Buddhist cosmos).

Laos’s historic scattered kingdoms and societies allowed various forms of endemic beliefs to flourish and maintain importance. In Cambodia, a unified kingdom persisted over many hundreds of years, which ingrained Buddhism more deeply within the belief systems of the Khmer. Nonetheless, both countries’ cultural groups have complex spiritual belief systems with clearly delineated boundaries between the wild and the “civilised”. Although these belief systems are important in understanding current Laos and Cambodia, the modern desires of the countries’ elites and middle status individuals for prosperity through economic advancement have begun to shift the narrative of wild versus civilised. In modern Laos and Cambodia, the wild is seen as the key to “modernisation” and development (Laos: High, 2010a and Cambodia: Un and So, 2009). However, the wild is also believed to be the source of traditional medicine products and the key to health (Laos: Elkington et al., 2009 and Cambodia: Ashwell and Walston, 2008). Additionally, the influence of the Chinese, a politically and economically powerful actor in Asia (e.g. Urban et al., 2013), may increase the consumption of wildlife products in both places as the Khmer and the Laos cultural groups attempt to gain increasing status by emulating Chinese wildlife consumptive practices.

## **CHAPTER 3: Past research and methodology**

### **3.1 Research Permission**

Permission to perform surveys and interviews was given by Miami University Research Compliance (Ref. # 01334e), as well as the University of Bristol Faculty of Arts Ethics Committee. The Cambodian Ministry of the Environment provided permission for the work performed in each site in Cambodia, and in Laos the Luang Prabang Tourism Office gave permission to perform interviews in Luang Prabang and the surrounding areas.

### **3.2 Collaborators**

My collaborators for this project are Free the Bears and San Diego Zoo Global. Free the Bears is a non-profit organisation based in Cambodia and Laos. The organisation cites as its mission statement “To protect, preserve, and enrich the lives of bears throughout the world” (Free the Bears, 2016). Free the Bears (FTB) have bear rescue sanctuaries in Cambodia, Laos, and Vietnam, and have committed to educating the public of these regions about the effect of the bear part trade on the animals’ well-being, as well as the effect on the bear population as a whole. To accomplish this, they have contracted San Diego Zoo Global to create replicable, effective methodologies, that may be used in countries throughout Asia and Southeast Asia, to understand consumption of bear products, and which may be used as the foundation of future behaviour change campaigns. San Diego Zoo Global is uniquely suited to gather this information, with a dedicated social science research division, Community Engagement, where researchers have mixed social science and conservation backgrounds. Overall, the stated mission of San Diego Zoo Global (SDZG) is “[we are] committed to saving species worldwide by uniting our expertise in animal care and conservation science with our dedication to inspiring passion for nature” (San Diego Zoo Global, 2016).

During the research conducted in this thesis I was a contractor for Community Engagement, and throughout the course of this project (beginning in 2014) I have supported FTB by advising in-country research technicians, and training research assistants, as well as research personnel. I have trained these individuals in social science techniques, including the use of specialised questioning techniques (SQTs), as well as in statistical analysis methods. I was also a co-supervisor for a master’s student who managed the field team that performed the SQTs in the Cardamom Mountains.

In turn, FTB have supported me by obtaining permits for all of the work performed, and through managing the field team when the SQTs data was collected in the two sites of Stung Treng and Phnom Penh. SDZG has supported me through providing the funds to hire interpreters, research assistants, and to pay the research technician at FTB, who manages the field teams. The support I have given SDZG in this project is use of all of the research performed within this study to inform future projects, specifically targeted, conclusive, and effective behaviour change initiatives to reduce use of bear products in Cambodia and Laos.

### **3.3 Field Site Selection**

Studies of illegal bear part trafficking have primarily chosen countries based on crime prevalence and accessibility (INTERPOL, 2014). In this study, countries have been chosen based on accessibility, contacts, and the conditions within these countries. Cambodia is believed to be a ‘source’ site of wild bear parts for surrounding countries’ consumption (Foley et al., 2011). Laos was chosen for a variety of reasons; it contains bear bile farms (Livingstone and Shepherd, 2014 and Livingstone et al., 2018), and it is often compared to Cambodia in terms of economic growth and conservation issues facing the country (e.g. Dasgupta et al., 2005). Field sites in country were chosen for ability to obtain permits, as well as for their ethnic composition, environmental influences, and geographical position, as discussed in **Chapter 2**.

### **3.4 Fieldwork Schedule**

Initial fieldwork was performed in Phnom Penh, Cambodia in October to November 2016, where I performed semi-structured interviews (SSIs) of Khmer nationals, and trained Khmer survey assistants in specialised questioning techniques (SQTs). I returned to the UK in November 2016, while the Khmer survey assistants performed the SQTs and conducted quantitative questionnaires (**Appendix III**) at Stung Treng during that month. The same survey team travelled to the Cardamom Mountains in April 2017, and conducted data collection there. In late July 2017, I returned to Phnom Penh and conducted data analysis of the SQT data gathered, while consulting on the data collection occurring in Phnom Penh. Phnom Penh data collection ended in September 2017. During August 2017, I performed SSIs in Luang Prabang, and ended my field season, although I continued to analyse data.

### **3.5 Theoretical basis of this PhD**

My educational background is in zoology, and as such this has influenced the formation of this PhD into being founded on conservation and anthropological principles, with an emphasis on

quantitative data and analyses, paired with qualitative data for contextual understanding and interpretation (discussed at greater length in **Chapter 1**). As such, this PhD is anthropological, yet follows the format of biological PhDs in being a succession of hypotheses tested through the use of various methods. Additionally, within this PhD methodologies themselves will be tested (the SQTs, **Chapter 6**).

### **3.6 Data sources**

The data analysed and discussed within this thesis comes from three primary sources:

- 1) Semi-structured interviews (SSIs) performed in Phnom Penh, KH and the surrounding areas by myself and interpreters (n = 136);
- 2) Semi-structured interviews performed in Luang Prabang, LA by me and an interpreter (n = 79);
- 3) Closed-questionnaires performed in three sites in Cambodia (northeast, central-west, and the capital of Cambodia) by a survey team comprised of Cambodian nationals (n = 1,936).

The survey instruments used for each data source were created by the following individuals:

- 1) Myself (with advice and suggestions from my supervisor)
- 2) Myself (with advice and suggestions from my supervisor)
- 3) The research team and I of San Diego Zoo Global and Free the Bears (Dr J. A. Glikman, B. Crudge, T. Lim, D. O'Connor, and M. Hunt)

#### 3.6.1 Explanation for use of instruments

A previous quantitative study was performed in Luang Prabang, LA (Davis et al., 2016, questionnaire within the article's supplementary data), and was the foundation point for the creation of the questionnaire in Cambodia during this study (**Appendix III**). The questionnaire that was used in Cambodia built upon the knowledge gained from the conduction of the Luang Prabang survey of strengths and weaknesses of the instrument. Specifically, the changes made in the evolution of the Cambodia instrument, from the Luang Prabang instrument, are as follows:

- 1) A key difference of the questionnaires was the implementation. In Laos the surveys were self-administered, which was deemed appropriate at that time, considering the potential

sensitivity of the questions asked (such as “have you used bear bile?”). However, the consequence of this was that many of the surveys were incomplete, thus making  $n > 200$  of the responses for most of the questions impossible to analyse. As the Cambodian surveys also included specialised questioning techniques intended to reduce bias (discussed within the introduction and at greater length in this chapter), it was considered most appropriate and most efficacious in ensuring complete data to have survey assistants administer the surveys directly to the respondents.

- 2) Demographic section placed at the beginning of the questionnaire rather than at the end. The justification for this change was, as above, because greater than  $n = 200$  of the data collected in Laos ended up being unusable due to demographics not being filled out. This could have been for a variety of reasons, including concerns over sensitivity, as well as survey fatigue. As sensitivity of giving demographic information is a constant regardless of placement, the concern of survey fatigue was addressed by having demographic questions at the start of the questionnaire, so that at least some questions could be usable if the respondent ended the interview before the conclusion of the questionnaire.
- 3) The questionnaires shared a “highest level of education” question, but within the Cambodian questionnaire demographics section more options were included, specifically: literacy certificate; part of primary school; and high school. This was to reflect the reality of education within Cambodia, particularly within rural areas (such as the Cardamom Mountains, one of the study sites). These insights into rural Cambodian education and the possible levels an individual might achieve were gained from the Cambodian research team (e.g. Free the Bears Research Programme Officer T. Lim)
- 4) Within the demographics section, Cambodian respondents were asked in which area they had received their highest level of education, between “Cambodia”, “elsewhere in Asia”, and “outside Asia”. This was intended to act as a proxy of wealth, as anecdotal observations of life in Phnom Penh is that Cambodians with more wealth are more likely to perform their studies outside of Cambodia (T. Lim, pers. comm.), due for example to noted problems with Cambodia’s higher education systems (Ford, 2015 and Vicheth, 2012).
- 5) Throughout the Cambodian questionnaire the “open response” questions of the Laos questionnaire were heavily minimised, if not removed altogether. This was again due to problems of non-response within the Laos survey in 2014, as well as inconsistency in inputting the data, due primarily to the language barrier as, for example, the Laos research assistants translated nationalities and ethnicities into English (for example the spelling of

‘Hmong’, a common ethnic group in northern Laos, was given variously as ‘mong’, ‘mon’, and the standard spelling). Therefore, in the Cambodian questionnaire, a question such as “what is your nationality?” gave the respondent the option of stating “Cambodian” or “Other:\_\_\_\_\_”, which was then stated directly to the interviewer.

- 6) The fundamental structure of the Cambodian questionnaire was also changed, beyond the switched placement of the demographics. In Laos, the questionnaire was created to investigate value orientations, attitudes, beliefs, knowledge, and behavioural intentions at the beginning (Davis et al., 2016). In addition, the section was modelled on the accepted survey frameworks of exploring such hierarchical behaviour, used widely within human dimensions of conservation research in North America and Europe (e.g. Teel and Manfredi, 2010). However, in Cambodia these questions were significantly pared down, and were placed closer to the end of the questionnaire (this change in placement was not for a significant reason). The questions were pared down for several reasons: 1) the semi-structured interviews I performed (**Chapter 4**) were believed to sufficiently explore the values of Khmer individuals towards bears; thus questions about value orientations were removed from the Cambodian survey; 2) some questions were perceived to be unnecessarily repetitive when exploring certain broad beliefs (e.g. “It is not important to me if wild bears are killed to obtain bile” and “It is important to me that bear bile is legally available to anyone”) and thus were consolidated into e.g. “It is acceptable to use bile from bears that are farmed”; and 3) answers to these questions were not consistent in Laos according to such internal measures of reliability as Cronbach’s alpha, and were perceived to be probably ineffective in a Southeast Asian cultural context (Davis et al., forthcoming).
- 7) Within the Cambodia questionnaire a question was included asking about the perceived values of different social groups (e.g. monks, family, etc). This was included to inform planned, future behaviour change efforts within the country (not part of this thesis, but currently being implemented as of February 2019) of influencer groups to be targeted when attempting to change social norms around bear product use. This was the rationale behind the similar, following question, “how much do you value the work of the following groups?”, which asked about traditional healers, Western medical experts, and etc, using a standard Likert scale (again, please refer to **Appendix III** to see these questions).
- 8) Within the Cambodian questionnaire two questions were included (Questions 11 and 12) intending to investigate the medical plurality of practices by medical practitioners known by the respondents, as well as the potential medical plurality behaviours of the respondents themselves. Specifically, respondents were queried about whether they and/or medical



practitioners they knew were more likely to use Western medicine, traditional medicine, or a combination. This was included because it was perceived to have been an oversight not to investigate this potential medical plurality within Laos.

- 9) A key change between the Laos questionnaire and the Cambodian questionnaire was the addition of specialised questioning techniques intended to reduce bias when asking about sensitive questions such as bear product use (discussed at greater length in this chapter and within **Chapter 6**).

Thus, the quantitative instruments possess fundamental differences, despite sharing a “common ancestor”. Comparisons between the two instruments and two sets of quantitative data are therefore limited within this thesis; rather, the results of the 2016 article are referenced, as would be the case for any other research article of relevance.

In addition, semi-structured interviews were performed in two out of the four research sites: Phnom Penh, KH and Luang Prabang, LA. They were not performed in Stung Treng, KH, or the Cardamom Mountains, KH due to time and money constraints as well as the capacity of my local collaborators. Moreover, the presence of a Western national at these sites may have skewed the results gathered by acting to hamper the trust built between the Cambodian Free the Bears personnel and the local stakeholders. Ultimately, however, the multi-site fieldwork conducted quantitatively throughout Cambodia (**Chapter 4**) is valuable for providing insights on bear part use across the country. In addition, the semi-structured interview instrument evolved within and between interviews in Phnom Penh, KH and Luang Prabang, LA. The changes were as follows:

- 1) The free-listing technique used in Cambodia (**Section 3.9.1**) was abandoned for the interviews in Laos, as the respondents in Laos seemed uncomfortable and confused when attempting to free-list their thoughts. Having respondents create a map of animals in relation to themselves was abandoned for the same reasons.
- 2) Question 3 of the Laos interview guide included an additional question “If you don’t know of any distinct to your culture, do you know of any distinct to *other cultures*?” This was intended to encompass the potentiality that individuals who identified as Lao Loum, for example, might know a Hmong folktale about bears.
- 3) Question 5 of the Laos interview guide added the following question: “How do you think that bear populations in the wild are? Do you think they are increasing, decreasing, or staying the same? And why?” This was perceived to have been an oversight for not being

included within the Cambodian interview guide, as understanding the level of knowledge respondents have about bear populations may be important in understanding whether this is a potential barrier in use of bear products.

- 4) A specialised questioning technique, nominative technique, was added to the Laos interview questionnaire (the mechanics of this technique are discussed at greater length within this chapter). This technique was added for three reasons: 1) to explore its efficacy within a small qualitative study (**Chapter 5** and Davis et al., forthcoming); 2) to provide clarity generally on the efficacy of this technique in overcoming response bias in conservation social science surveys; and 3) to obtain the most “accurate” possible measure of bear product prevalence within the Luang Prabang sample.
- 5) Question 10 of the Laos interview guide was an addition, i.e. not present within the Cambodian questionnaire: “Do you think that bear parts are a part of your culture?” This was again added because it was perceived to have been an oversight in the Cambodian questionnaire to not investigate the potential cultural markings of use of bear products.
- 6) Another addition to the Laos questionnaire was the question “Do you think bear parts from wild bears are more effective than those from captive bears? Why?” This was again perceived to have been an oversight when designing the interview guide for Cambodia. Potentially, this was an oversight because bear bile farms have not been found to be present within Cambodia (M. Hunt, pers. comm.); however, considering the broader landscape/market of bear bile and its use, this question is a necessary component of any exploration of bear bile use in Southeast Asia.
- 7) “How do you think people who use bear parts are perceived in Chinese culture?” was added on to the question “How do you think people who use bear parts are perceived in your culture?” for the Laos questionnaire. This was due to the study site context of Luang Prabang, with a noted Chinese population both of transient tourists and Chinese individuals with businesses directed at these tourists (for example, the many ivory shops along the Luang Prabang main street). The question was intended both to explore the potential connectedness of the respondents with Chinese individuals, as well as their own perceptions of bear product use in Chinese culture. This was considered important due to the noted prevalence of bear bile use within China (Dutton et al., 2011), along with claims of Chinese individuals actively seeking out bear bile products in Laos (Krishnasamy et al., 2018 and Livingstone et al., 2018) (discussed further in **Chapter 1**, the **Introduction**).
- 8) Another key addition of the Laos questionnaire was “Have you ever consumed bear parts or other bear products?” This was not specifically asked within the Cambodian

questionnaire, although in certain interviews where the respondent was perceived to be sufficiently comfortable it was asked, usually following after “Would you consider someone who used bear parts to be of high-status?” Otherwise, individuals in Cambodia were asked whether they had “ever known someone to use bear products”, but this was again at my discretion, according to how comfortable the interviewee appeared to be. Although comfort was of course still the ultimate priority in Laos, I added the question in because I wished to use it as a comparisational data point with the specialised questioning technique (nominative technique). Additionally, the first few interviews made it apparent that individuals interviewed in Luang Prabang were much more comfortable talking about their use, compared to individuals in Phnom Penh and the surrounding areas.

- 9) “Who do you think is the typical person who uses bear parts?” was also added to the Laos questionnaire. This was intended as a potential method of understanding perceived characteristics of bear product consumers. This was believed to be relevant following both the interviews in Phnom Penh, where higher status individuals were dismissive of users of bear products as using something ‘traditional’ and ‘untested’ (yet appeared to be the group most likely to have used bear products, **Chapter 4**), as well as the results of Drury (2009), where she found distinct characteristics of bear bile consumers. Using this same logic, two more follow-up questions were added: “Do you think women or men use bear parts more in your culture? Why?” and “What age groups do you think will be primarily using bear parts?”, which were intended to directly explore potential perceived or real bias in the consumer profiles of bear product users in Luang Prabang.
- 10) A section was also added on the media, within the Laos interview guide. The first two questions within this section were intended to explore which forms of media were most engaged with by the sample. Around this time, I began to learn and actively engage with literature around the use of conservation marketing to influence consumers. It was in light of this gained knowledge that I added this section, thinking that this information would be important for future behaviour change efforts, as media can be hugely influential in determining individuals’ actions (e.g. Bennett et al., 2017). The third question of the media section asked about Chinese media, to try to gain some understanding of the potential influence of the Chinese within the Laos media landscape. This was partly for the reason discussed above and in **Chapter 2** of the Chinese nationals tourist and tourist-oriented population within Luang Prabang, and partly because a Chinese conservation television show was mentioned by a respondent in Phnom Penh, indicating a potential level of access.

- 11) A Chinese-oriented social network analysis section was added, again due to the reasons discussed above in point “7” of this list. This section was intended to more deeply explore the influence of Chinese individuals within a Laos nationals’ social group, particularly as regarded medicine and consumer items (two potential spheres of use for bear products, as isolated in the results of the research performed in **Chapter 4** and the research of Davis et al., 2016, Krishnasamy et al., 2018 and Livingstone et al., 2018 in Laos).
- 12) Finally, a section was added to further explore an individuals’ potential interaction with Chinese individuals and with China. This was again to explore the potential influence of the Chinese market, as well as the influence of traditional Chinese medicine, in Laos individuals’ bear part use.

### 3.6.2 Variables collected

The socio-demographic variables collected in the SSIs performed in Phnom Penh and Luang Prabang are presented below in **Table 3**, with accompanying justification for collecting each variable. In **Table 4** the variables collected in the closed questionnaires are shown, with accompanying justification for collecting the variables.

**Table 3:** Table of the variables collected through SSIs performed in Phnom Penh, KH and Luang Prabang, LA. All variables were collected from anonymous respondents.

<i>Variable</i>	<i>Justification</i>	<i>Measurement</i>
<b>Age</b>	In the nearby country of Vietnam wildlife use (and by extension bear part use) is found primarily among older age groups (Drury, 2009), so it is important to understand whether this is true in Cambodia and Laos as well.	Respondents were asked to state their age, under the assumption that even if they were uncertain of the exact year, their stated age would be a ‘close-enough’ estimate.
<b>Gender</b>	Using Vietnam again as a comparison, bear parts are found to be used primarily by male individuals (Drury, 2009). Because little is known about bear part use in Cambodia and	Respondents were asked to state the gender they identified as.

Laos, it is necessary to also understand trends of use among genders.

<b>Ethnicit(ies)</b>	Bear parts are known to be used for medical reasons and for status in such countries as China (Dutton et al., 2011) and Vietnam (Drury, 2011). However, the medical reasons for use appear to vary by country, and as use of medicine and conceptions of status can be culturally and ethnically influenced, this is an important variable to consider.	Respondents were asked to state the ethnicities that they identified with.
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<b>Occupation</b>	This was collected to use as additional insight into understanding an individual's status. Drury (2011) found that status influenced use of wildlife products in Vietnam, so understanding the influence of status on bear part use in Cambodia and Laos in theory is also essential for understanding which groups of people are using bear parts.	Respondents were asked to state their occupation.
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<b>Birthplace</b>	Because bear part use is little understood, this variable was collected to perhaps elucidate whether bear part use is a) concentrated in certain areas of Cambodia and Laos and b) whether individuals are	Respondents were asked to state their birthplace.
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	influenced by their birthplace in their use of bear parts.	
<b>Lived most of life</b>	This ties in with the above variable by acting to understand whether bear part use is determined by the location an individual is born in, and/or the location they have spent most of their life.	Respondents were asked to state where they lived most of their life.
<b>Lived most recently</b>	This is again unpicking where influence to use bear parts comes from, i.e. whether it is something that is encouraged early in life when growing up, or is the product of later life experiences and interactions.	Respondents were asked to state where they had lived most recently.
<b>Culture</b>	Bear part use is influenced by culture in that individuals across Asia are influenced by the medical beliefs and the practices of the culture they belong to. For example, individuals who identify with Chinese culture may be more likely to use bear parts because bear parts are accepted and also easily accessible due to the bear bile farm industry in China (Dutton et al., 2011).	Respondents were asked to state the culture they believed they most identified with through free-listing (no set list was provided).
<b>Religion(s)</b>	Religious values have been argued to have an effect on an individual's actions towards wildlife and the environment (e.g. Sherkat and Ellison, 2007).	Respondents stated the religion(s) that they identified with.

The variables collected in data source three of the questionnaires performed throughout Cambodia are presented below in **Table 4**.

**Table 4:** Table of the variables collected through closed questionnaires performed in Stung Treng, KH, the Cardamom Mountains, KH, and Phnom Penh, KH. All variables were collected from anonymous respondents.

<i>Variable</i>	<i>Justification</i>	<i>Measurement</i>
<b>Age</b>	In the nearby country of Vietnam wildlife use (and by extension bear part use) is found primarily among older age groups (Drury, 2009), so it is important to understand whether this is true in Cambodia as well.	Respondents were asked to state their age, under the assumption that even if they were uncertain of the exact year, their stated age would be a ‘close-enough’ estimate.
<b>Gender</b>	Using Vietnam again as a comparison, bear parts are found to be used primarily by male individuals (Drury, 2009). Because little is known about bear part use in Cambodia, it is necessary to also understand trends of use among genders.	Respondents were asked to state the gender they identified as.
<b>Education level</b>	Education level is used in this study as an additional measure of status, with the assumption being that individuals with lower education levels will also be of lower-status. By extension, this variable is important for understanding whether bear part use is mediated by status. In addition, education has been	Respondents were asked to state the highest level of education that they had obtained.

	found in other sociological studies to be a useful proxy for the relative income of an individual (when paired with occupation) (Gong et al., 2012).	
<b>Education location</b>	This is also used as a proxy for understanding status, as Cambodian individuals who study in other countries such as Thailand or the United Kingdom are more likely to have more wealth and by extension they will be of higher status (B. Crudge and M. Hunt, pers. comm.).	Respondents were asked to state where their highest level of education took place.
<b>Ethnicit(ies)</b>	Bear parts are known to be used for medical reasons and for status in such countries as China (Dutton et al., 2011) and Vietnam (Drury, 2011). However, the medical reasons for use appear to vary by country, and as use of medicine and conceptions of status can be culturally and ethnically influenced, this is an important variable to consider.	Respondents were asked to state the ethnicities that they identified with.
<b>Occupation</b>	This was collected to use as additional insight into understanding an individual's status. Drury (2011) found that status influenced use of wildlife products in Vietnam, so understanding the influence of	Respondents were asked to state their occupation.



status on bear part use in Cambodia and Laos in theory is also essential for understanding which groups of people are using bear parts.

**Birthplace**

Because bear part use is little understood, this variable was collected to perhaps elucidate whether bear part use is a) concentrated in certain areas of Cambodia and Laos and b) whether individuals are influenced by their birthplace in their use of bear parts.

Respondents were asked to state their birthplace.

**Lived most of life**

This ties in with the above variable by acting to understand whether bear part use is determined by the location an individual is born in, and/or the location they have spent most of their life.

Respondents were asked to state where they lived most of their life.

**Lived most recently**

This is again unpicking where influence to use bear parts comes from, i.e. whether it is something that is encouraged early in life when growing up, or is the product of later life experiences and interactions.

Respondents were asked to state where they had lived most recently.

**Religion**

Religious values have been argued to have an effect on an individual's actions towards wildlife and the environment (e.g. Sherkat and Ellison, 2007).

Respondents stated the religion(s) that they identified with.

Additional external variables were collected, presented in **Table 5**.

**Table 5:** Table of the additional variables collected through SSIs performed in Phnom Penh, KH and Luang Prabang, LA. All variables were collected from anonymous respondents.

<i>Variable</i>	<i>Justification</i>	<i>Measurement</i>
<b>Location of interview</b>	As is common in cities, some areas are wealthier than others. Additionally, some areas are known for having certain types of industry, e.g. traditional market shops. As such, the area may have an influence on the people encountered and even the beliefs of the people living and/or working within the area.	Using Google Maps, personal observation, and information from the interpreter.
<b>Geography of area</b>	This can act as an indicator to the extent of wildlife that may be found in the region.	Using Google Maps, personal observation, and information from the interpreter and other knowledgeable sources such as FTB staff.
<b>Urban/rural</b>	It is believed that individuals living in urban areas will have different beliefs from rural individuals (for example, some research has shown that urban Japanese individuals may hold more pro-environmental attitudes in comparison to rural Japanese (Aoyagi-Usui et al., 2003)), and this may influence consumption of bear parts	Using Google Maps, personal observation, and information from other knowledgeable sources such as FTB staff.

<b>Interpreter</b>	I wanted to indicate whether bias was present according to the interpreter used.	Noting down interpreter.
<b>Interpreter Gender</b>	The gender of the individual asking questions may have an influence on the results obtained in interviews.	Noting down interpreter's gender.
<b>My presence</b>	My presence as a "Western" woman could have an influence on people's admittance of use and people's admittance of reasons for use.	Noting down my presence.
<b>Language interview conducted in</b>	This is another proxy for status, as individuals who were interviewed in English tended to be higher status.	Noting down language interview conducted in.
<b>Reliability</b>	This was added due to one interpreter's perceived unreliability when asking certain questions. This allows for more truthful interpretation of the results obtained.	My observation of the interview and responses obtained, and my indication of the perceived reliability.
<b>Oral consent</b>	To leave a paper trail that consent had been given for each interview conducted.	Verbal affirmation of consent from respondents.

### 3.7 Quantitative Research

Quantitative methods are generally defined as being the processes used to analyse data and find patterns (Bernard, 2011). What marks them as separate from qualitative analysis is that they enable the researcher to precisely control the answers received and to collect data that can be analysed through structured statistical means (Newing, 2010). They are also effective for quickly gaining

larger quantities of information than is often possible through qualitative methods that are frequently lengthy and time-consuming. This is especially important when implementing specialised questioning techniques, which purposefully introduce variability into the method, which then requires larger sample sizes to “smooth out” the variability (Nuno and St. John, 2015).

The questionnaire used in Cambodia was designed to understand bear part consumption throughout the country (**Appendix III**). Therefore, the questions were designed to understand respondents’ wildlife value orientations, attitudes, knowledge, and behaviours associated with bear part use. Additionally, use was directly asked about and questions designed to understand respondents’ use of medicine, as bear parts are often used for medical reasons throughout Asia.

The questionnaires were all administered face-to-face to ensure full completion of the survey. The questionnaire was translated and back-translated multiple times by FTB’s Khmer research assistant, T. Lim, to ensure that the questionnaire was understandable to all Cambodians and that no information was lost in collection. The questionnaire was also sent for review by experts in the field. Additionally, the questionnaire was piloted among approximately twenty Royal University of Phnom Penh students.

### 3.7.1 Specialised questioning techniques

Specialised questioning techniques (SQTs) are methods for reducing bias when asking about sensitive behaviours. Bias primarily results from respondents’ concerns over illegality, and/or concerns about the social undesirability of the behaviour, but may also occur because of the gender of the interviewer, and even the manner in which a sensitive question is read out (Nuno and St. John, 2015 and St. John et al., 2010). Although a variety of methods have been created to encourage more truthful responses, SQTs have been proposed as structured means with which to investigate sensitive topics (Nuno and St. John, 2015), such as bear part use, an illegal activity. Four specialised questioning techniques were used in this study: randomised response technique (RRT), unmatched count technique (UCT), nominative technique (NT), and false consensus bias (FCB).

RRT injects a measure of probability into the question and answer between an interviewer and a respondent, and ensures that the interviewer does not know the respondents’ answer (Blair et al., 2015). In the survey used, the interviewer gave the respondent a die with four blank sides, one red side, and one green side. When asked one of the RRT questions (**Appendix III**), the respondent

would roll a die and shield the die from the interviewer's view with a cup. If the blank side came up, the respondent would answer truthfully. If the red side came up, the respondent would *always* say no, regardless of the actual answer. Similarly, if a green side came up, the respondent would *always* answer yes, regardless of the actual answer. RRT is extremely effective in eliciting truthful answers (Lensvelt-Mulders et al., 2005, and St. John et al., 2010); particularly about such illegal activities as, for instance, the bear part trade. Furthermore, it has so far only been used once in Southeast Asia (St. John et al., 2018).

UCT does not contain a random element, but rather uses a sheet of pictures corresponding to behaviours (**Appendix IV**). Respondents are initially separated into two groups: 'A' is the treatment group, while 'B' is the control group. 'B' group respondents are shown four pictures with accompanying explanation that correspond to non-sensitive behaviours. Respondents state the number of behaviours that they have performed, from the list; e.g. 'three'. 'A' group respondents are shown the same four non-sensitive behaviours, along with a sensitive behaviour (**Appendix IV**). These respondents are also asked to state the number of behaviours they have performed. The non-sensitive behaviours are carefully chosen to ensure that at least one behaviour will be so common that everyone will have performed that behaviour within the last year, and one behaviour will be so uncommon that people will rarely have performed that behaviour. This ensures, if respondents trust the method, that the results will be grouped from two to four, with few outliers and no zeros (Hinsley et al., 2016). UCT has been used unsuccessfully in Cambodia in one study of illegal resource use (Ibbett et al., 2017). This study is the first instance of UCT being used to understand illegal wildlife use in Southeast Asia. It was determined that UCT failed in the study due to the behaviours in question, illegal bird hunting and egg collection, being too low in their 'true' prevalence within the target population (residents of Mondolkiri, a rural area northeast of Phnom Penh).

NT is different from both of the methods discussed above in that it can be administered without the respondent's knowledge that it is a separate test. Furthermore, NT relies on the premise that individuals are comfortable discussing their friends and/or relatives' illegal and/or socially undesirable behaviour, though unwilling to discuss their own. In nominative technique, the respondent is asked:

**16 a. How many of your close friends do you know for certain have used/consumed bear parts for medicine or other purposes?**

The respondent is then asked to think about those friends and nominate one friend from that list. The interviewer then asks:

**16 b. Other than you, how many other people do you believe know that the nominated friend has used bear parts or products for medicine or other purposes?**

For each question, the respondent gives a number. By asking the follow-up question B, duplication of individuals is accounted for. 'Duplication' refers to individuals mentioning more than one person who knows about the use of other individuals, e.g. if an individual was a hunter in the village and supplied other villagers with bear parts, villagers may cite that hunter often as using and/or knowing about other villagers' use.

Finally, assessing the level of false consensus bias (FCB) present within a population assists in estimating the prevalence of certain behaviours respondents' own perceptions of a behavior's prevalence among their social group as an indicator of the respondent's own behaviour. To accomplish this, individuals are asked how many individuals of their social group have performed a behaviour, in this case **"What percentage of your friends and family do you believe use bear parts?"** In this study, the individuals were given a categorical scale to choose from that ranged from '0-20%', to '21-30%', and so on up to 100% (**Appendix III**).

Although specialised questioning techniques appear to be more accurate methods for estimating the prevalence of sensitive behaviours, there are still some problems. Nuno and St. John (2015) note that although these methods provide anonymity to the respondents, respondents may still be wary of the methods and thus prevalence estimates obtained are often still more conservative than the 'true' prevalence of the behaviour. Additionally, it is argued that UCT and RRT are most accurate when large samples are collected, which can be costly for researchers.

Perhaps most importantly, research is only just beginning to reveal the strengths and weaknesses of these techniques when used in conservation to understand conservation-negative behaviours and/or beliefs (Nuno and St. John, 2015). As Nuno and St. John (2015) point out, comparative work like that undertaken in this thesis is essential for furthering understanding of the issues associated with specialised questioning techniques.

### 3.7.2 Research Assistants

A team of nine Khmer research assistants was used. Four were women and five were men. The research assistants had all completed Biology degrees at the Royal University of Phnom Penh (RUPP). All research assistants, and the Cambodian research programme officer for FTB, T. Lim, participated in two, week-long training sessions facilitated by myself and colleagues. T. Lim acted as translator during the training sessions, and accompanied the research team during their data collection at field sites, to ensure the work was undertaken successfully.

Questionnaires took approximately 20 to 35 minutes to complete, and each interviewer was able to complete roughly six questionnaires a day. T. Lim conferred with research assistants at the end of most field days and wrote additional contextual notes pertaining to the interviews performed.

## **3.8 Sampling Method**

Two of the sites' samples were chosen through cluster random sampling. In Stung Treng and the Cardamom Mountains districts were divided by commune. Each commune was then further divided into randomly selected streets where the survey team would perform interviews. Each research assistant walked a different street each day, as assigned by the research manager in the morning. Research assistants surveyed every 4<sup>th</sup> household on their left. The research team found that in both sites they were at times forced to perform convenience sampling due to the scattered households and rural area. Each research assistant surveyed only one person in each household, and alternated genders to match the 'true' gender ratio in both sites of 50:50. Every person interviewed was over eighteen.

In Phnom Penh, the sampling sites were chosen by the Ministry of the Environment as being the public parks. As many public parks in Phnom Penh tend not to be populated during the day, the survey team by necessity focused their efforts at the riverside area of Phnom Penh, in front of the Royal Palace, because visitors to that area are constant and fluctuating. The team did not interview any person who had been living in Phnom Penh for less than two years, so as to ensure that the data collected represented Phnom Penh residents. As in Stung Treng and the Cardamom Mountains, the team alternated between genders when asking for responses.

### 3.8.1 The Sampling Population

The average number of refusals for Stung Treng before a successful interview was very low, at just 0.5. Although the highest number of refusals was seven, the low average indicates that the majority

of individuals approached were happy to sit and perform the questionnaire. The average number of refusals was slightly higher in the Cardamom Mountains at 0.8, which may be the result of an outlier of a very high number of refusals (18) before one successful interview. In Phnom Penh, the average refusal was 0.7, with the highest number of refusals being eight. In all three sites refusals were low and most individuals consented to perform the questionnaire on the first request of the interviewer.

Potential interviewees were informed that the survey was completely confidential and anonymous, and that they could refuse to answer any question or stop the interview at any time. Verbal consent was considered given if interviewees indicated understanding and acceptance of the terms. Written consent was not obtained due to time concerns, additionally some individuals were illiterate. The interview was not allowed to move forward if verbal consent was not obtained. Research assistants were thoroughly trained in understanding this, and T. Lim was always present at field sites to ensure that interviews were conducted to the highest ethical standard.

Because the research team was mixed gender, it is hoped that any gender bias will be accounted for in the data. In Stung Treng, 51.2% of the sample was female, and 48.8% of the sample was male. This aligns with the 2008 census record of the population ratio in Stung Treng, with 50.2% of the population found to be female, and 49.8% found to be male. In the Cardamom Mountains sample, 52% of the sample was female, and 48% of the sample was male, which corresponds to the average age proportion of the three provinces' population census: 50.8% female and 49.2% male. In Phnom Penh, 50% of the sample were female, and 50% were male. This is slightly different from the "true" gender ratio in Phnom Penh of 53% female and 47% male.

### **3.9 Qualitative Research**

Qualitative, semi-structured interviews (SSIs) are useful for understanding the context of results obtained through quantitative means, and for elucidating fine-scale trends and patterns of belief and action. Furthermore, qualitative interviews are often essential for understanding the baseline assumptions that may influence quantitative interviews, and projects that rely upon quantitative means alone may find that the questions asked are not the "right" questions, particularly in socio-cultural contexts that differ from the researchers' background(s) (Drury et al., 2011 and Li and Ernst, 2012) Despite these known issues with quantitative research, qualitative research has been under-utilised in conservation (Drury et al., 2011) and is still subject to criticism within the discipline (Rust et al., 2017).



In Cambodia, SSIs have been performed for myriad social health issues including the spread of avian flu (Van Kerhove et al., 2009), and the utilisation of maternal health resources (Matsuoka et al., 2010). SSIs have also been used extensively in biological studies in Cambodia, unlike has been noted to be the case in other parts of the world (Drury et al., 2011). Studies that have used SSIs include use of local knowledge to perform field surveys of slow loris (Starr et al., 2011), local knowledge for field surveys of the Irrawaddy dolphin (Baird and Beasley, 2005), and in community forest management (Nathan and Boon, 2012). Additionally, SSIs have been used to understand illegal wildlife trade topics such as the trade in slow lorises within Cambodia (Starr et al., 2010), as well as the illegal trade in endangered plants (Phelps and Webb, 2015).

Although SSIs have been less utilised in Laos, there is a fairly substantial body of literature for agriculture studies (Douangsavanh et al., 2006 and Seidenberg et al., 2003) and for health (Stenson et al., 2001). Similar biological studies utilising SSIs to those performed in Cambodia have been performed in Laos, including use of SSIs in determining the status of a vulnerable species (Johnson et al., 2005), as well as the perceptions of bears, and emotions held towards bears, among communities affected by bear crop-raiding (Scotson et al., 2014). Qualitative research using SSIs and centred specifically on the wildlife trade in Laos appears in Singh (2010), and informal, unstructured interviews have been performed among Laos communities where bear bile farms are located, such as Boten (Krishnasamy et al., 2018).

### 3.9.1 Qualitative questionnaire and additional materials: Phnom Penh

The questionnaire used for the SSI interviews performed in Phnom Penh (**Appendix V**) was accompanied by several additional ‘exercises’. After answering the initial demographic questions, respondents were asked to indicate categories of status among their society and where they would categorise themselves. This was called a “status-ranking exercise” (**Table 7**). After performing this exercise, respondents were then asked to ‘freelist’ four concepts: Khmer, Animal, Forest, and Bear. In freelisting, respondents are encouraged to simply list whatever comes to mind when they consider those concepts. Freelisting is ‘well-established’ within the social sciences for a variety of reasons, including its simplicity, flexibility, and powerful ability to provide important baseline knowledge about a concept in a culture (Califf and Stumpf, 2018 and Quinlan, 2005).

These particular symbols of “Khmer, Animal, Forest, and Bear” were chosen as a means of understanding Khmer cosmology, and bears’ specific place within, through their interrogation by

the subjects in free-listing. The Khmer as a people are highly homogenised and it is well-known that their cosmology has been dominated and shaped by Theravada Buddhism for centuries (e.g. Hansen, 2004). Yet, Khmer belief in intrinsic spirits, and their association with features of the natural landscape, including animals, has also been well-established (Arensen, 2012). Therefore, Khmer cosmology, though it is so strongly and obviously linked with Theravada Buddhism (Hansen, 2004), may yet still be conceptualised in other ways by Khmer individuals as linked with the natural environment. In turn, this forms Khmer identity, through the held beliefs and subsequent behaviours of Khmer individuals within a natural sphere. Understanding how individuals perceive themselves as part of a group, and as they move through space, is deeply important when unpicking behaviours and investigating such behaviours' potential cultural significance. For instance, if a Lao Communist party leader in Vientiane were asked what it means to be Lao, they may state a sanctioned ideology, potentially "one unified people"; thus symbolising that they have both the luxury of being the 'dominant' ethnic group separate from the realities of everyday life in Laos, and the luxury of ignoring ethnic tensions in such areas as northern Laos (Friederichson and Neef, 2010). A clear theme of domination would rise from such an investigation of their identity (e.g. Scott, 1990), and it would follow that this official's behaviour would likely include the support and implementation of 'dominative' official governmental policies. Interrogating the perception Khmer individuals have of the Khmer can thus reveal the level of domination the Khmer may feel over nature, if the Khmer symbolise 'Khmer' as e.g. 'civilisation', which is conceptually distinct from the 'wild' in Khmer cosmology (Arensen, 2012 and **Chapter 4**).

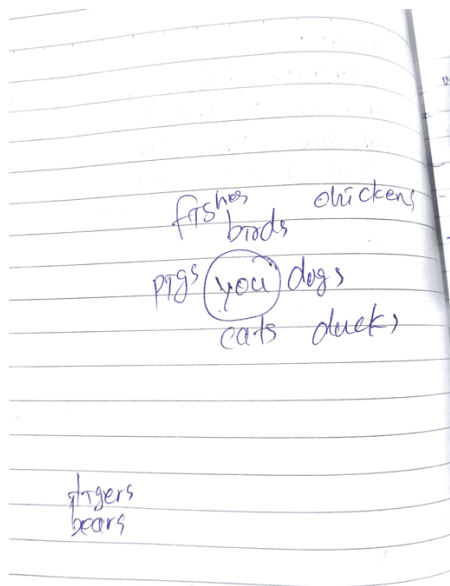
Having respondents conceptualise 'animal' is another means of unpicking the symbols and meaning that may be associated with them. As discussed more extensively in **Chapter 1**, animals and humans' intertwined states ensure that a plethora of symbols will be attached to individual animals, and the concept of an animal generally within a society's cosmology. This is encapsulated by the very insult of 'animal', historically (and into the present) so often used derogatorily within Western society and often as a symbol of the little power held by whatever object is being insulted (Scott, 1990). Thus, if the Khmer hold predominantly negative words, thoughts, and phrases associated with animals, then it follows that the behaviours associated with animals will be negative as well.

Understanding conceptualisation of bear habitat, i.e. the 'forest', is another important component of bears as symbols within Khmer cosmology. As is again discussed more extensively in **Chapter**

4, the ‘wild’ in Khmer cosmology is entirely distinct from ‘civilisation’, with belief in the spirits of the forest providing boundaries and guidelines for what may be done in the forest by the ‘common’ individual (Arensen, 2012), as opposed to the Theravada Buddhist strictures governing day to day ‘civilised’ life. Therefore, a Khmer individual’s behaviours and subsequent actions will differ in the forest compared to everyday life, as they move symbolically between these two divergent spheres. Reflection of the forest by respondents, and specifically how it is symbolised, will consequently bring with it an understanding of how the animals within it are treated, as additional symbols nested within this overarching conceptualisation.

The flow of the free-listing was intended to follow a cascade of thought from the symbols associated with broad, over-arching Khmer, into symbols associated with ‘animal’, the eternal, consistent counterpart to man (**Chapter 1**), and the symbols of the ‘forest’, the bear’s home and the ‘opposing’ sphere to the home of the Khmer (Arensen, 2012), and finally into the symbols and concepts attached to the bear. The bear could be integral to any and all of those overarching entities, as those entities could themselves be integral to conceptualising the bear. Further, the Khmer will adapt and react to the bear according to the symbols connected with it (e.g. Scott, 1990), and therefore understanding of these symbols will provide insight into the behaviours the Khmer subsequently direct towards the bear.

After freelisting, respondents were then asked to create a map of animals in relation to themselves (**Figure 8**). Finally, they were given a “divine scale” (**Table 6**) where they were asked to place all of the animals that they could think of in to one of the categories given.



**Figure 9:** Example of an animal relation map.

**Table 6:** Representation of the divine categories given to individuals. Individuals were encouraged to place animals within the three categories indicated here, with accompanying explanation for their placement of bears.

<b>Heaven</b>
<b>Earth</b>
<b>Hell</b>

Interviews were not recorded due to the possible sensitivity of the topic of bear part use, which is an illegal and potentially socially sensitive activity within both Cambodia and Laos. I believed that individuals may become uncomfortable if they were asked to discuss their use of bear products with a recording device; additionally, the government of Cambodia’s track record, in particular, is such that I was wary of gaining any information that could be potentially confiscated and used against any individual I interviewed (Human Rights Watch, 2019).

The lack of a recording device was not considered to be an impediment, however. Having an interpreter allowed me to write the responses through the time when the next question was asked, yet I found across the board that I was able to keep up completely with what was said during the interview, due to very fast writing on my part and my own personal ‘shorthand’. This was true

even during those interviews conducted in English where I did not have the luxury of slowing down my writing speed due to the delays inherent in interpretation.

Due to the game of ‘telephone’ that interpretation naturally is, a level of detail may have been absent when it came to my record of those interviews that were not conducted in English. As will be discussed below in **Section 3.9.2**, this was luckily very apparent when using my first interpreter in Cambodia, and enabled me to ask additional questions to try to pull out, through other means, the details that he was unable to communicate. My second interpreter in Cambodia, however, was always very clear, thorough, and descriptive. When somebody we interviewed said a long response and she told me a short response in return, she would always explain to me why that was so that I did not feel that truly significant information was missing. For example, in one instance a gentleman we interviewed had quite a lot to say, but she informed me that everything he was saying were general complaints about the politics in Cambodia, rather than anything to do with the questions I was asking. Although this may have provided some interesting context, we had performed enough interviews together at that point where I trusted her to know what was relevant and what was not, and to communicate the relevant aspects.

As is again discussed at greater length below, my interpreter in Laos at times seemed to think that the questions I was asking would not help me to answer the questions I wished to answer, which initially caused some back and forth as I pushed her to ask those questions. Nonetheless, for the questions she asked she appeared to interpret everything directly as it was stated to her by the respondents.

Ultimately, attempts at conducting research in a language that the researcher doesn’t know will be subject to biases and loss of information (Newing, 2010). Yet, I believe that having positive and highly communicative relationships with interpreters, as I did with my interpreters in Cambodia and Laos, makes huge strides towards ensuring that as much information is gained as possible, even within the bounds of such limitations.

### 3.9.2 Qualitative sampling

SSIs were performed in Phnom Penh, Cambodia, and Luang Prabang, Laos. A total of 136 interviews were performed in Phnom Penh and surrounding areas. 128 interviews were completed with the assistance of a Cambodian interpreter, and 11 interviews were performed in English. Two interpreters were used in Phnom Penh. One was a male biology student at the Royal University of

Phnom Penh (RUPP). The other was a female tourism student at the RUPP. The interpreters varied in skill level. The male interpreter was less skilled in English and moreover deeply passionate about conservation. I was aware of his conservation passion, and as such I insisted he avoid mentioning the word conservation or indeed talking about bears beyond the questions I was asking. I also denoted on my notes the interviews performed with him to ensure correct interpretation of responses that may have been unduly biased by his views. Approximately a third of the way through my fieldwork in Phnom Penh, I fully replaced him with my other interpreter, and she performed the majority of the interviews.

The female interpreter, LN, was extremely skilled with English and was also naturally good at performing interviews and allowing the conversation to flow. As she also had no bias towards conservation, she was excellent at conducting interviews that would discuss potentially conservation-negative behaviours. Furthermore, she was skilled at eliciting answers beyond one word and clearly elicited trust from the range of participants (e.g. male, female, old, young) spoken to.

I was present for every interview performed, bar fourteen. I removed myself in particular on one day of interviews performed in Orussey Market, a well-known traditional medicine place, in the hope that LN would be able to interview traditional medicine shop owners. However, LN was unsuccessful, indicating that there may be an amount of wariness present in traditional medicine sellers when discussing illegal wildlife issues.

A total of 79 interviews were performed in Luang Prabang. All interviews were performed in Lao, with the assistance of an interpreter. One interpreter was used in Luang Prabang. She spoke excellent English and as an active member of the Luang Prabang Women's Union (LPWU) she had many connections. She was not trained in qualitative research, which hampered some interviews in the amount of information gathered. Other interviews were enhanced by her status as a woman and as a fairly prominent member of the community, as women were very willing to discuss their own bear part use and their aspirations towards use with her.

I transcribed interviews at the time of the interview. Post-interviews I would immediately enter the interview answers into a spreadsheet, along with all of my associated notes regarding additional information and context, e.g. interviews in the market where a group of women chimed in for the answers.

In both research sites interviews initially lasted about an hour, but as the interpreter became comfortable with the questions and the flow of the interview, interviews proceeded more rapidly. Respondents in Cambodia were fairly reserved about discussing bear part use, possibly because many self-proclaimed users were high-status individuals (discussed in greater depth in **Chapter 4**). Respondents in Laos, however, were very comfortable discussing their own use and their aspirations of use (**Chapter 5**).

In both places interviewees were approached in public areas such as markets and parks, as well as in cafes (Phnom Penh) and peoples' houses (both areas). A reasonable spread of status appeared to be obtained in Phnom Penh and surrounding areas. In Luang Prabang, most individuals spoken to tended to be of middle to lower-status. High-status Lao nationals are less prevalent compared to Phnom Penh, and they are additionally fairly inaccessible in comparison to higher status Khmer. Demographics for each location are presented within each research chapter (**Chapters 4, 5, and 6**).

Initially, respondents were sampled by convenience in an effort to gather information from a diverse spread of individuals. I aimed to avoid interviewing individuals who all appeared to be part of the same social group; for example, I would only interview one individual who was in a group of *tuk tuk* drivers in an area. However, there were some 'paired' interviews when it was deemed appropriate; for example, if a young woman was shy about discussing her opinion, the presence of another female friend often enabled her to discuss her opinion more boldly.

As samples were collected in diverse areas of Phnom Penh and a picture of bear part use among elites emerged, I began to perform targeted samples of the higher status individuals who would congregate in Phnom Penh coffee shops.

### 3.9.3 Data Analysis

Qualitative data was collated in Microsoft Excel daily upon completion of interviews, and analysed for themes over the following weeks, while remembrance of the interviews was high. A running journal of notes and observations was compiled in Microsoft Word and on the interview data spreadsheet. Themes and points of interest were discussed extensively with Cambodian and Lao colleagues, my interpreters, and non-Lao/Cambodian national colleagues who have over a decade of experience working in each country. Each group was helpful in interpreting trends seen and in

providing advice on fine-scale research sites (e.g. traditional medicine markets, villages known for extensive bear part use). Quantitative data was collected into Excel and analysed using R (R Core Team, 2018).

Status was partly “self-measured” using the wealth-ranking sheet (**Table 7**), and partly measured by observation. Income was not measured, partly due to the sensitivity of the subject, and partly because income can be an inaccurate measure of status (Vyas and Kumaranayake, 2006). The status-ranking sheet followed the format of **Table 7**.

**Table 7:** Individuals were asked to describe the characteristics of each category isolated below.

<b>Highest status</b>
<b>Higher status than my own</b>
<b>My status</b>
<b>Lower-status than my own</b>
<b>Lowest status</b>

An important note about this status-ranking exercise is that in Laos that individuals struggled with self-defining status, which according to the interpreter may be due to Laos’ state structure. Laos is communist, and as has been noted elsewhere in the literature, this may have an influence on how individuals perceive and define status (Nguyen-Marshall et al., 2011).

Finally, to rank bears in Khmer and Laos cultural group cosmology, a “divinity ranking” exercise was used, similar in structure to the status-ranking exercise given to the respondents (**Table 6**). Like the status-ranking, this exercise was intended to gain a picture of bears in the sample groups’ belief systems, as the respondents saw it.

A small amount of qualitative data in the Phnom Penh sample was missing (n = 3), but as the qualitative data was analysed broadly, this missing data did not have an effect on the interpretation.

### 3.10 Quantitative analysis



Specialised questioning techniques were calculated using the respective formulas. For randomised response technique (RRT), the formula used was:

$$(1) \quad \pi = \frac{(\lambda - \theta)}{s}$$

(St John et al., 2014, using Hox and Lensvelt-Mulders, 2004)

In this equation,  $\pi$  is the anticipated proportion of the sample who are truthfully admitting to the behaviour.  $\lambda$  is the proportion of all answers in the sample that are “yes”, with  $\theta$  standing for the probability of the answer being a “forced” yes. Finally,  $s$  is the proportion of truthful answers (St John et al., 2014).

The formula for unmatched count technique (UCT) is simpler than that of RRT. In UCT, the average number given for Group B (the control group) is subtracted from the average number given for Group A (the treatment group). This can be represented formulaically as follows:

$$(2) \quad \pi = \bar{x}_A - \bar{x}_B$$

Finally, nominative technique (NT) uses a formula to assess prevalence and account for duplication of response. The formula is as follows:

$$(3) \quad T_X = \sum_{j=i}^n \frac{A_j}{1+B_j}$$

(Nuno and St John, 2015)

With  $T_X$  representative of the “true” number of individuals in a sample size ( $n$ ) performing the sensitive behaviour.  $A_j$  represents the number of rule breakers that  $j$  knows, with  $B_j$  representing the number of friends, other than  $j$ , that know of the “nominated friend’s rule-breaking” (Nuno and St. John, 2015).

The quantitative data collected did not suffer from any non-responses, though some responses were “not determined” (ND) or “don’t know” (DK). Other statistical tests performed within this thesis were a standard chi-squared test, a Wilcoxon comparison test, a correlation analysis, and binomial generalised linear models. All statistical tests were performed in R (R Core Team, 2018). In some places, confidence intervals are reported rather than statistical tests for significance, as a

more effective way of showing the spread of the responses, potential overlap, and the ‘true’ values of the population (e.g. Greenland et al., 2016).

### **3.11 Summary and next chapters**

Human behaviour is complex and necessitates the application of diverse techniques in understanding and identifying the motivations for, and patterns of, behaviour (Rust et al., 2017). As such, employing mixed quantitative and qualitative methods is a powerful strategy for gaining a deep and broad picture of behaviour. As discussed within this chapter, this thesis adopts this mixed methods approach for the country of Cambodia, with qualitative SSIs designed to provide deeper contextual understanding to the quantitative, specialised questioning techniques (SQTs). The methodological strategy for Laos is slightly different, in that quantitative data was collected previously in Davis et al. (2016), rather than in this thesis; however, as in Cambodia the qualitative research collected here is used to provide a deeper interpretation of the trends and patterns noted within Davis et al.’s (2016) previously published work. In addition, the results of the qualitative SSIs performed in Cambodia and Laos will be compared and contrasted with each other, to provide an emerging picture of bear part use generally in these two oft-compared countries, as well as any spatial variation that may be occurring.

Directly following this chapter will be a qualitative exploration of bear part use among the Khmer (**Chapter 4**), followed by a similar exploration of use among Laos nationals (**Chapter 5**). Both qualitative chapters will approach understanding of use from the “ground up” by attempting to illuminate the broad cultural beliefs and emotions associated with bears for each group. However, an important difference between the chapters is the ethnic makeup of the samples (and by extension the ethnic makeup of the countries themselves). As discussed more extensively in **Chapter 2**, Laos is ethnically heterogenous, unlike Cambodia, which is highly homogenous. In Laos there are therefore accompanying differences in cultural diversity, beliefs, and practices, which underlie interpretation of the results collected.

Together, the chapters reveal the complexity of bear part use in Asia. Both countries are unique in their use of bear parts, and as such **Chapters 4 & 5** are not analogous in interpretation. Instead, the chapters are two disparate and at times contrasting units. However, they do share important similarities in the motivations for using bear parts, which will be discussed within the chapters. More specifically, the structure of **Chapter 4** will consist of a discussion of themes and patterns isolated from the qualitative data collected in Cambodia, through the course of fieldwork in

autumn 2016. There will also be some minor discussion of quantitative data, collected throughout autumn 2016, spring 2017, and summer 2017, which will serve to provide additional explanation to the patterns and insights seen. **Chapter 5** will be entirely focused on the qualitative data collected in Laos in late summer 2017, with some reference to the results of Davis et al. (2016).

# CHAPTER 4: An analysis of bears and bear part use among the Khmer

## 4.1 Introduction

Cambodia is known to be a player in bear part use and trade, yet there has been little published research illuminating Cambodia's role as either a supplier or consumer of bear products (**Chapters 1 & 2**). In this study, Cambodia's role as a consumer is investigated, using a mixed methods, socio-centric approach. Therefore, this chapter on the Khmer as a consumer group will build from a discussion of Khmer society, Khmer cosmology as it concerns bears, and subsequently into the motivations for using bear parts, the ways that bear parts are used, and any social, spatial, and demographic variations associated with this use. Results from the quantitative study conducted in Cambodia (**Chapter 6**) will also be referenced within this chapter to provide additional context to the insights gained from the qualitative study.

## 4.2 Status among the Khmer

One over-arching exercise that was unconnected to discussions of bears, but intimately connected with any discussion of the respondents themselves, was the status-ranking exercise performed by the respondents (**Chapter 3**). This was to gain an understanding of the social hierarchy of Cambodia, as other than articles noting the rapidly increasing wealth divide in Cambodia (e.g. Winter, 2008), there is little-to-no published research about Khmer social hierarchy. This is relevant in the context of this thesis because wildlife product use has been argued to be tied to prestige in other parts of Southeast Asia (e.g. Drury, 2011). However, understanding whether prestige is acting as a determining factor of bear part use in Cambodia would be impossible without understanding how Khmer individuals define prestige and, by extension, how they categorise their society.

The self-defined status-ranking in this study was used to understand what types of conceptual differentiations the Khmer individuals use to separate and categorise their fellow Khmer by status (Berger et al., 1972). A defining feature of status is that it is usually dictated by respect, whether actual or perceived (Magee and Galinsky, 2011). Often status categorisations are based on such indicators as income, social mobility, or education (of which these indicators often interplay with one another) (Berger et al., 1972). The status-ranking used in this study was self-defined for several reasons: previous studies undertaken have shown that direct questions about income tend to make

people uneasy (Riphahn and Serfling, 2005); education has been shown to be an inadequate stand-in indicator for income or social status (e.g. Galobardes et al., 2006); and self-defined status has been shown to be interchangeable with income categorisation in several areas of Asia (Yamaoka, 2008).

The responses given by the sample to the status-ranking exercise (n = 136) indicated that many of the Khmer sampled considered all of Cambodia to have roughly the same level of status. It was common for respondents to state that the highest-status individuals were the prime minister/king (i.e. relatively unattainable positions), followed by parents, monks, or businessmen. Finally, the status level lower than most individuals was defined as being farmers, followed by the lowest status of beggars and thieves. However, it was also common in the sample for individuals to see Khmer society as being structured as simply rich versus poor, with the categories of “my status”, “lower than me”, and “lowest status” all indicated as being the same category, versus the higher status rankings of ‘businessmen’ and ‘king/prime minister’.

Several individuals of what appeared to be upper-middle to upper status (defined here by the interviewer because they had the disposable income to buy new iPhones, expensive laptops, and to sit in expensive cafés) either refused to rank their society, or stated that class and status were only determined by knowledge (/respect. The two terms were often used interchangeably, with more knowledgeable individuals accorded higher respect in the self-stated social indicator.). Arguably, this in itself indicates knowledge of a hierarchy, as to reject the notion of status and class is to assume that the interviewer is asking about income-mediated status. By presenting another definition of status, the respondents who did so were indicating that either they had no method of social evaluation (a fairly improbable assertion), or that they were rejecting the “usual” notion of income as a social evaluator (e.g. Narayan and Prichett, 1999 and Yamaoka, 2008).

As occupation can provide contextual information about status, occupation was one of the demographic questions asked within the qualitative study. Additionally, Drury (2011) found that occupation had an effect on wildlife product consumption in Vietnam, with individuals in business-related occupations more likely to consume wildlife products. In the Phnom Penh sample (n = 136) a substantial portion of individuals were well-educated and worked in well-paid sectors. For example, 15% of the individuals self-stated their occupation as ‘businessperson’, while other individuals were involved in government work (5%), finance (4%), and other higher income

careers. As the majority of Cambodians work in service or lower income work, this was also reflected, with 24% of the sample stating that they worked in this industry.

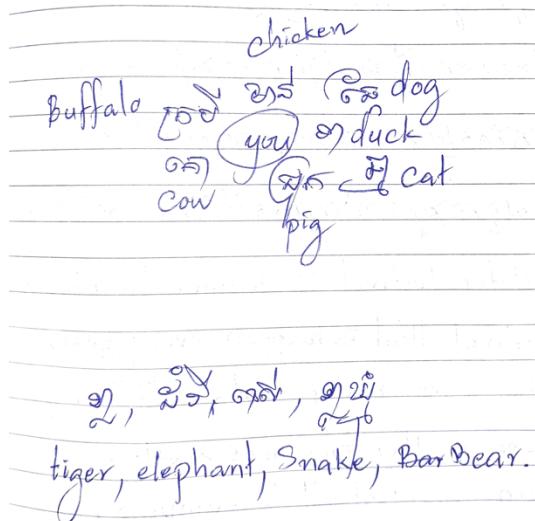
Other occupational categories were more nuanced than those mentioned above. For example, the category of ‘housewife’ (4%) captured two disparate women: one was interviewed as she chatted with a group of tuk tuk drivers and appeared according to the sample’s status-ranking to be middle status, while another self-defined housewife was interviewed while she sat in an expensive café, her new iPhone and costly purse on the table before her, all indicators of greater wealth and inclusion by extension into an upper status-ranking.

### **4.3 Modern Khmer cosmology**

#### 4.3.1 Bears, divinity, and the Khmer

As discussed at greater length in **Chapter 3**, respondents were asked to create a ‘map’ of all of the animals that they could think of in the few moments they were given, and then write those animals around the word ‘you/me’, according to how close/far they believed themselves to be to the animal. They were not instructed on what the parameters of close/far were, and thus it was left to their interpretation, e.g. physical distance, mental distance, etc. This method was used to gain an understanding of how the Khmer pictured their relationship to the animal world around them. Variations on this technique are used commonly in disciplines that study the environment, as it is a useful method for understanding a respondent, and by extension a sample’s, perceptions of the world around them (e.g. Barazza, 1999).

An example of a typical Khmer map can be seen in **Figure 9**. Most maps looked like the one depicted in **Figure 9**, with bears purposefully placed very separate from the respondent. Later, when freelisting their thoughts on bears, respondents wrote statements that encapsulated that feeling of separation: e.g., bears “live in the forest”, “[I’ve] never seen”, and “it is a wild animal”.



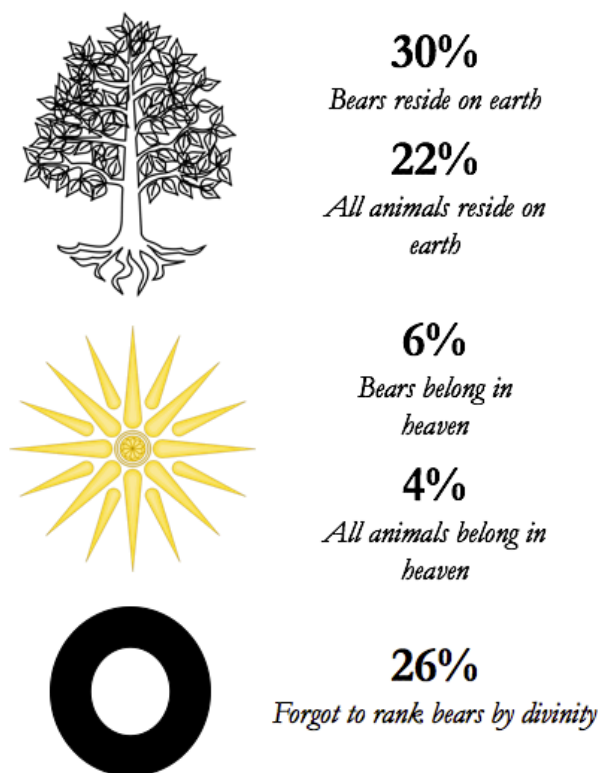
**Figure 10:** A typical Khmer individual’s animal relation map. This respondent, #98, was a 63-year-old woman, and a shopkeeper of what most Khmer would consider to be middle status, according to sample-defined status-rankings.

The 63-year-old woman who drew the animal map depicted in **Figure 10** discussed feeling afraid of bears, so her placement of bears next to tigers, snakes, and elephants (which are often perceived as dangerous animals (e.g. Arensen, 2012 and McCann and Hsu, 2014) is expected. Although she spent the majority of her life in Siem Reap, a semi-rural area, her later statements of bears as dangerous in her free-listing and during the questionnaire placed bears firmly in the forest and separate from what she believed to be her domestic world. This belief was found to be widespread in the sample, and has a current basis. Although past and present records of bear populations in Cambodia are limited, the scale of deforestation within Cambodia implies that less and less human-bear interaction will occur, as forest habitats increasingly disappear (K. Davis et al., 2015).

Respondents were then asked to place animals along a “divine scale” of three broad categories: ‘heaven’, ‘earth’, and ‘hell’. Heaven was defined according to Khmer understanding as having such attributes as: peaceful, beautiful, devoid of pain and sorrow, and a place of goodness. Similarly, hell was defined as a place of torment, filled with wicked individuals, evil spirits, and other tortures. Despite some controversy over the idea of Buddhism having defined spiritual structures of heaven or hell, it is theoretically and practically sound that the concepts of hell and heaven in Buddhist thought have a long historical genus (Braarvig, 2009 and Swearer, 2010). This is supported by modern, practicing Khmer Buddhists’ adherence to them, which in turn was supported by many discussions with interpreters, Khmer colleagues, and the interview subjects themselves.

It was hoped that respondents would place the animals they had been thinking of in relation to themselves along the ranking of divinity, and mostly this was accomplished. However, the respondents habitually forgot to place ‘bear’ on either the animal map or on the divinity ranking. Often, they had to be reminded to place a bear on the animal map, and then reminded again to place a bear when they were placing animals along the divinity ranking, indicating that bears are not high in the Khmer belief/thought system.

Broad themes of belief in bears’ place along the divinity scale were isolated from the collected responses (**Figure 11**). Most individuals who thought to place bears placed them on earth. When asked why they had placed bears on earth, many Khmer stated that they believed all animals should reside on earth. Modern Khmer cosmology appears to be removed from belief in animals as possessing otherworldly power, though as seen in **Figure 11**, a small percentage of the Khmer sampled still do believe that bears may possess divinity.



**Figure 11:** Graphic representing the percentage of individuals (n = 136) who believed in the concepts represented. (Figure author’s own, all pictures in the graphic are from Wikimedia Commons).



A third of the individuals sampled (30%) believed that bears reside on earth, rather than in heaven or hell (**Figure 11**). Only 6% of individuals believed that bears belong in heaven. Both statements were coupled with nearly equal belief in all animals' place in earth and heaven. However, it is perhaps most telling that a large number of individuals did not consider bears at all when ranking animals on the divinity scale.

It is possible that although religion may not be nearly as influential in dictating Khmer beliefs and perceptions of bears, the media may play a role in influencing their perceptions. For example, a large billboard in Phnom Penh depicted a lovable bear surrounded by soft blues and butterflies as a means of marketing a product, which may encourage the perceptions of the individuals sampled that bears belong on earth. Individuals will also have seen bears in cartoons (a popular Russian TV show for children, with a bear as a central character, was mentioned by several respondents), and in other videos and stories. This may be the primary influencer on Khmer perceptions of the bear. In general, bears were spoken of positively, regardless of which divine category respondents placed them into, as illustrated by the below quotes:

The bear should be in heaven, because it is a kind animal.

- #68, 32-year-old Khmer female, small shop keeper

Maybe it doesn't belong in heaven, but I pity it.

- #80, 35-year-old Khmer-Chinese male, businessman

Bears are not like tigers that always kill people. Some people feed bears like they are their children.

- #36, 62-year-old Khmer female, water-lily seller

Bears never bully others- bears are not cruel.

- #19, 18-year-old female Khmer-Chinese, coffee seller

Bears are kind and lovely.

- #56, 27-year-old Khmer female, assistant supervisor at a restaurant

Bears were placed by respondents into heaven because they are perceived to be kind, rather than spiritually powerful. This may suggest two things: 1) bears do not hold a significant place in the cosmological landscape of Khmer Theravada Buddhism and 2) individuals may not use bears due to anthropomorphic rationale rather than religious conviction. However, the response given by

#80, the Khmer-Chinese businessman, is inconsistent with the other responses. Pity does not indicate necessarily positive feelings about the bear, as it arguably can be accompanied by/arise from feelings of contempt (Callan, 1988 and Kimball, 2004). However, the pairing of pity with a desire to place the bear in heaven shows that the pity alluded to by the Khmer-Chinese businessman is more aligned with the pity of “compassion, sympathy... care, and concern” that Kimball (2004) states as being another interpretation of pity. However, Kimball (2004) argues that pity is now more commonly aligned with inaction, rather than the action implied by compassion. Perhaps most importantly, Kimball (2004) writes that pity “includes an element of psychological distancing from the sufferer not present in compassion”. This indicates that, as will be seen throughout this chapter, modern Khmer feel themselves to be distant from bears in their thoughts, even as they think of bears as ‘kind’ and worthy of a place in heaven.

#### 4.3.2 The forest and the modern Khmer

Forests have been depicted in Cambodia as mythical and transformative (Arensen, 2012). As the place where bears are historically found in Asia, understanding forests is important for understanding beliefs and actions associated with bears. Overwhelmingly, the Khmer spoken to felt positively about the forest. Although they spoke of it in mythical terms, it was a mythos more akin to sacred Mount Meru than the Buddhist hell, *Naraka*. It was spoken of as feeling “fresh” and “cool”, an unconscious or perhaps conscious contrast to the heat and dust of Phnom Penh. Several said that simply to step in the forest would make them feel happy. Indeed, a number of respondents said that the forest was a place of peace, rather than the chaotic and wild force it has been said to be in Buddhist belief systems (Edwards, 2008).

The respondents consistently understood that deforestation had occurred in Cambodia, and were consistent in their feelings of sorrow over deforestation. They accurately noted that the forest acts to stop floods, and that the forest helps with the climate. Environmental education is officially integrated into the school curriculum in Cambodia (Bhandari and Abe, 2000), as well as in monk education, so most individuals in Cambodia should have adequate knowledge about the environment and common environmental issues such as deforestation (although environmental values do not appear to have been formally evaluated within the country).

One respondent despondently wrote that the forest, although beautiful, has “hunters, guns, and pollution”. Another blamed the deforestation of Cambodia on war, which contrasts Arensen’s (2012) work, where she found that the wars of the 1970’s may actually have assisted in preserving

the forest, by imbuing the forest with mines, bombs, and the spirits of those who were violently killed in the conflict. Nearly every respondent wrote that they wanted their forests to be protected.

This is enlightening information for what it reveals about Khmer perception of bears. Rather than believing the forest to be dangerous, and by extension that dangerous creatures reside within it (as found by Arensen (2012)), the Khmer spoken to overwhelmingly valued the forest and felt positively about it. This implies that those same positive feelings will extend to those creatures that reside within it, and indeed, nearly half of the respondents remarked that they believed bears to be a lovely and kind animal. However, those same positive feelings did not extend to the forest-dwelling tigers, and it is worth taking time to explore why this might be.

#### 4.3.3 The bear as a contrast to the tiger

Discussion of bears with the Khmer sample often brought with it discussion of tigers, perhaps because the process of thinking about one large mega-fauna leads into thinking of another, or perhaps because the word ‘bear’ in Khmer, *klak-mom*, literally translates as “tiger bee”. One of the informants hypothesised that this was because bears “eat bees” (i.e. get honey), and are roughly the same size as a tiger. Another informant said that she thought the name might cause people to like bears because “the name ‘tiger bee’ is cute”, evoking as it does the image of a tiger, up a tree, foraging for honey.

However, tigers themselves were not viewed positively by the men and women spoken to. If respondents placed tigers on their divinity ranking (which most of them did), they nearly unanimously placed tigers in the ‘hell/wickedness’ category (in contrast to the near unanimous placement of bears in the ‘earth’ category). Respondents spoke of tigers as ‘scary’ and ‘dangerous’, and attributed evil to tigers by labelling them as ‘wicked’ and ‘cruel’. These negative categorisations were often spoken of in direct contrast to bears, as seen in the following quote from #20, a 24-year-old Khmer woman who sold coffee:

People are not afraid of bears for they are not cruel. They may not be as strong as tigers that can attack people. If people don't hurt [bears] first, they will not hurt us back.  
Bears are not like tigers, that always kill people.

#124, a 45-year-old Khmer man, said that bears

Would run away, but would not kill... Bear is not as cruel as tigers. Bear will only attack

to protect itself.

Here, tigers are framed as “cruel”, unlike bears, who are given the Buddhist quality of self-defence rather than uninitiated attack (Kopel, 2007). In truth, tigers are undeserving of this appellation, primarily because they have not been documented (since 1800, and even before) to have killed anyone in Cambodia (Tilson and Nyhus, 2009). Moreover, tigers are believed to have been extirpated from Cambodia due to intensive hunting pressure, with no sightings of tigers even in designated protected areas (O’Kelly et al., 2012). However, neither animal’s reputation is particularly helped by sensationalist media of purported bear and tiger attacks, such as those shared on YouTube.

Indeed, several respondents mentioned videos of bear attacks, but always with the caveat that such videos were of polar bears or grizzly bears. However, the Asiatic bears found in Cambodia were spoken of as having the ability to “fight like the tiger”, but with the difference that “the bear wants to protect itself from other animals and people.” Again, bears reflect Buddhist belief in the positive quality of having the ability to fight, but exercising the right not to use that power; a parallel seen most famously in the Buddha himself (Kopel, 2007). This theme of bears as essentially virtuous humans is embodied further:

When bears leave the forest, they are taken somewhere they are protected. Bears fight to protect themselves in the forest. When they meet another animal, such as a tiger, they ask the animal to fight with them, to protect themselves. The bear will also hit people to protect itself, because it is afraid.

It can be seen that aspects of chivalry and honour are attributed to the bear. In addition, within the quote is the phrasing “the bear *asks*”, which was unique to discussions of the bear. No other animal was discussed by the respondents as being anthropomorphic in the sense that they speak and interact as a human would, although tigers were anthropomorphised as being ‘cruel’. Cruelty involves ‘agency’ and thus cruelty is usually defined as being a fully human trait, with animals acting according to logical need (Stade, 2016). However, the concept of agency in the animal world is often debated, and what may appear cruel to a human (e.g. killing an animal and eating it while it is still alive) is not in the animal kingdom the known infliction of suffering on another (Stade, 2016). The phrasing of “the bear asks” refers back to this concept of agency, by indicating that the bear is acting according to rules of conduct, rather than random, savage brutality. Although brutality is superficially similar to cruelty, the connotations are slightly different, in that cruelty *does*

imply a goal of inflicting pain. Indeed, the respondents' use of 'cruelty' seemed intended as a means of framing the tiger in one-dimensional, negative terms, considering the lack of other explanatory adjectives and verbs afforded to the tiger.

Khmer in more rural areas, for example in the northwest of Cambodia, have been documented as viewing the tiger as possessed by guardian spirits of indeterminate moral proclivity (Arensen, 2012). However, Arensen (2012) found in her study that if a human was killed or mauled by a tiger, it was justified as being indicative of evil in the human's heart, rather than any evil possessed by the tiger itself. Yet, although Arensen (2012) reports that the tiger can be possessed by a guardian spirit, she makes no reference to the ability of bears to be possessed by forest guardian spirits. One possibility is that folktales and beliefs specific to bears and their place within the forest have been unable to attach to bears in any 'meaningful' way. In the next section, this possible disconnect is explored by analysing bear folktales within Khmer society.

#### 4.3.4 Bear folktales

Folktales are defined by Bascom (1965) as "prose narratives which are regarded as fiction." He distinguishes them from myths and legends, though he notes that myths and legends have at times been defined as folktales. Harun and Jamaludin (2013), paraphrasing Bascom (1965), write that folktales "carry a meaningful message and embedded cultural identity". Others have defined folklore as "artistic communication in small groups" (Ben-Amos, 2014). Taken together, folklore becomes communicated, prose narratives among groups, that carry a meaningful message and embedded cultural identity, although some have argued that Ben-Amos's (2014) "small groups" is too constraining. For example, Bascom (1965) cites the story of Little Red Riding Hood as 'folklore', but Little Red Riding Hood is now the folklore of a vast group of individuals. Perhaps a better definition would be "artistic communication *originating* in small groups".

In modern Khmer folklore, the representation of bears is tenuous and sporadic, with few individuals knowing bear-related stories. However, one story told by three respondents was to do with bears' foraging habits and how humans stand to gain by those habits. This story followed the essential framework exemplified by the quote below:

Bears climb up trees and eat bees [obtains honey]. Don't eat anything other than the bees. People think that when the bear climbs and picks up the bee, the human can stay behind and touch the bear to ask for the bees (the human does not speak). The bear will pass over bees. It is believed that the bears close their eyes, so do not know that it is

a human touching them. Have to be careful that bear doesn't finish [eating bees], because when it finishes it opens its eyes. Old story.

The people who told this story were older men who had in turn been told the story by older relatives, and they told it a little sheepishly, as though they knew it sounded fantastical. Perhaps in the past there was someone who was very brave (and a little foolish) who successfully tricked a bear into giving them honey. It is also possible that the story has a symbolic and/or metaphorical element that was not communicated by the respondents. Neither the interpreters, nor Cambodian colleagues who discussed the folktale later, flagged the story as metaphorical or symbolic, but it is possible that the symbolic undertones of the tale are so embedded in Khmer society that they are difficult to consciously pick out.

What is perhaps most striking about this folktale is the acceptance the bear purportedly will have towards the human asking it for honey. In this story the human can get away with the act because the bear has its eyes closed; however, one would think other factors would cause a bear to realise that a human was sharing its tree. The fact that the bear apparently does not may point to a perception amongst Khmer society, and many other societies, that bears and humans share significant similarities, enough that a bear may be “duped” into believing a human was another bear.

Another story told was essentially a parable. It concerns a man who had a bear as a pet. The bear was devoted to him, but that devotion led to harm. The story was told in two slightly different versions. Version 1 follows:

There is a Khmer story that a man went into the forest with a bear, and the man told the bear to attack any animal that might hurt him. But then the man was sleeping and a fly landed on his nose, so the bear was confused and threw a rock at the fly, badly hurting the man. Moral is, you should not get somebody stupid to protect you [should not rely on stupid people?]

Version 2:

The owner of a bear was sleeping, and a fly flew onto his nose. Bear tried to protect his owner by throwing a rock at owner's nose, hurting the owner. Moral is to surround yourself with educated people, otherwise you may be hurt.

Both morals, though slightly different, are essentially the same in their exultation of knowledge. Of course, it also reveals a little about how bears are thought of in Khmer culture. Whereas rabbits appear often in Buddhist stories and by extension, Khmer stories, as clever tricksters (Chanthyda, 2004), bears here are clearly rather dopey creatures. They are not very intelligent, but are (perhaps too) loyal and helpful. And indeed, this theme of bears as loyal, helpful, essentially good creatures is exemplified in another tale. A Khmer-Chinese housewife said:

...a person climbs a tree to catch bees, [but] that person can't climb down because he's afraid. The bear can help people climb down trees.

A more dramatic, yet very similar, tale was told by several of the respondents. The tale is less a historic folktale and more a 'modern' Khmer story, for it comes from a popular Khmer movie from 1972 called *Orn Euy Srey Orn* (អ្នកដើម្បីស្រីអ្នក). Essentially, the story concerns the protagonist and antagonist of the film, who go up a tree to get honeycomb. These two men go up the tree with the aid of ropes, but the antagonist, upon reaching the ground, wickedly cuts the ropes so that the protagonist will die and the antagonist may marry the woman they both love. However, a bear comes along and the protagonist is able to climb onto the bear's back while it is collecting honey. The bear then carries the man down the tree, and to safety.

All of the folktales here are positive in their perception of bears (aside from belief in bears' stupidity), and in bears' usefulness to humans. Far from being a 'wild' creature, the bear is a (slightly dopey) ally, and in one tale, a more reliable ally than one's fellow human. In a perceptual and abstract plane, it seems that the bear and the Khmer human have a relationship free of antagonism.

#### 4.3.5 Individual versus social beliefs about bears

A purely quantitative (though, due to the diversity of response, fluid) analysis of the individual beliefs held by respondents found a few broadly held emotions (**Table 8**).

**Table 8:** A broad categorisation of the emotions felt towards bears in the sample (n = 136).

<b>Afraid</b>	35.3%
<b>Happy/Excited</b>	29.3%
<b>Love and scared</b>	19.9%

<b>Surprised</b>	3%
<b>Depends</b>	2.2%
<b>Not afraid (ambivalent?)</b>	1.5%

The primary emotions cited by the individuals in the sample were either “afraid” or “happy/excited”, along with a significant portion of people who, although loving towards bears, had some measure of fear associated with this love. The rest of the sample fell into vaguer categories, with some individuals refusing to conceptualise what a meeting with a bear might feel like (“it depends”). Two other individuals simply said that they would not be afraid, and four others said only that they would be surprised.

The dominant emotion felt by the Khmer respondents was that of fear, but it is important to note that happiness, excitement, and love (a word many of the respondents used in conjunction with bears) followed closely behind. Even when speaking of fear towards bears, respondents framed their emotion in lack of knowledge more than in bears’ inherent wickedness:

[I would be] afraid, but this is because I have never seen a bear before.

Afraid. Not sure whether [a bear] is kind or not, [and] whether it will attack. So I would run away.

Many respondents said that they had heard that bears were kind animals, but they themselves were uncertain about meeting one due to the physicality of a bear. They pointed out that bears have large claws and teeth, and that bears are strong and could badly hurt a human. One respondent said somewhat admiringly:

[It is] hard to escape from bears because [they] can climb tree, swim and run. Special because it is good at everything- can eat everything, do everything.

In this vignette there can be seen, in addition to fear over bears’ perceived excellent abilities at navigating the wild, an inherent respect. Unfortunately, most respondents who were afraid of bears did not appear to share this same respect. Most simply said that “bears are dangerous”, but often accompanied this remark with the caveat that “[bears] don’t know humans, and may attack us.”



However, these feelings of uncertainty and fear were only slightly dominant in the sample. A substantial portion of the respondents were eloquent in their love of bears:

Want to play with it and touch it. Want to treat the bear well.

When [I] meet the bear, [I] would like to play with the bear.

[I] would be happy because [I] really want to see them. Not afraid- nothing to be afraid of.

My impression of bear is that it is like a toy. I feel very happy. I feel this animal is very innocent, though I know certain kinds are dangerous. General impression is that it is a very kind animal. Provides services to the environment [learned from watching Chinese TV channel]. Spreads seeds through the forest, and creates trees.

What's noteworthy about these vignettes is a lack of so-called 'real' animal knowledge, which researchers have posited is due to a lack of 'real' animal interactions (e.g. Ganea et al., 2014). The quote marks are self-placed because determining a "real animal interaction" is fraught with conceptual pitfalls. Although the Khmer respondents saying that they would like to 'play' with a bear does indicate some lack of knowledge about bears and the dangers associated with close contact, the historic and/or modern prevalence of bears as pets within Cambodia (M. Hunt, pers. comm.) means that Khmer knowledge about bears may simply be more oriented towards the bear as a pet, rather than as a wild creature of the forest. Indeed, only five of the 136 respondents discussed bears as being wild creatures. Tigers were consistently mentioned as an example of a wild animal, but bears were not.

Individuals are more likely to identify socially with those who share similar beliefs, attitudes, and values (Liviatan et al., 2008), so understanding an individual's social group can provide a measure of understanding about the individual. Consequently, respondents were asked what feelings they thought the Khmer people would have towards bears. Respondents' beliefs about what the Khmer think about bears paralleled their own responses, though there was significantly more variation in response. The concepts of 'love' and 'afraid' were again applied most to the Khmer by the Khmer respondents, falling at 27.6% and 18.9% respectively. The third most common concept applied to the Khmer was that of the Khmer using bears as a resource (9.2%). Reasons for "love" were given as being due to bears' rarity and perceived cuddly qualities, e.g.:

Thinks people love them [and] that's why teddy bears [we]re invented and are so popular.

People nowadays are afraid that we will lose it forever. Not enough conservation.

Reasons for fear were mostly given as resulting from a lack of knowledge. One respondent hypothesised:

Young people might be afraid, but older people with knowledge about bears may not be afraid of them.

Apart from the three trends discussed above, respondents mentioned many more, disparate beliefs about Khmer feelings towards bears. Some said, in unison with their individual feelings, that they believed other Khmer would love bears, but would be scared. Similarly, several respondents believed that most Khmer, rather than feeling one way or another, would simply be uneducated about bears.

Beliefs about social groups are termed “social beliefs” if it can be proven that a belief is held on condition of others also holding that belief (this statement applies equally to behaviours) (Greenwood, 2003). Similarly, an individual belief is one that is held separately from consideration of a social group (Greenwood, 2003). Greenwood (2003) elaborates that one can possess a belief/attitude/behaviour that is both social and individual, or possess two beliefs/attitudes/behaviours that are opposing for social and individual reasons. An example of the former could be someone who believes that bears should not be killed for their parts, both because they are a Royal University of Phnom Penh student studying conservation biology (social) and because they have come to the conclusion based on (what they perceive as being) rational arguments and evidence. An example of the latter could be where an individual uses bear parts and perhaps on some level believes in bear parts’ effectiveness because their social group does so, while individually feeling uncertainty and perhaps sadness at bears being killed.

Following this assertion, it seems apparent from the variety of responses gathered that there is no consistent social belief about bears among the Khmer. Citing Durkheim (1897), Greenwood (2003) states that beliefs, behaviours, and attitudes of social groups spread through imitation, i.e. “they are imitated because they are social.” A large body of research has shown that perceptions

of animals are socially held (e.g. Kellert, 1983 and Knight, A.J., 2008), as exemplified in the animal cosmologies of culture groups. Therefore, if the social group of Khmer believed strongly in bears' lovable-ness (or utility, or danger), it would be found to be the dominant belief in a sample. According to these results, no such prevailing social belief exists. Rather, the Khmer appear to hold individual beliefs separate from a prevailing social belief, likely influenced by social variables such as the media, excursions to Phnom Tamao Zoo (a popular leisure spot outside of Phnom Penh that has a bear sanctuary), and/or other emotional or rational 'arguments'.

#### 4.3.6 Khmer conservation knowledge

In the quantitative survey performed throughout Cambodia, several statements were given to individuals, all intended to measure bear conservation knowledge. Individuals were asked to state 'true' or 'false' to five given statements (**Table 9**).

**Table 9:** The percentage of correctly given answers for each knowledge statement, by study site in Cambodia and of only Khmer-identifying individuals (Phnom Penh: n = 648; Stung Treng: n = 617; Cardamom Mountains: n = 648, Total = 1,913). Individuals across all three sites were most knowledgeable that hunting bears in Cambodia is illegal, but had very little knowledge about the process of bear bile farming, specifically that bile can be extracted from a bear without killing it. The sites did not differ statistically significantly in response ( $\chi = 3.1331, p > 0.05$ ).

#### ***PERCENT OF ANSWERS CORRECT***

<b>QUESTION</b>	<b>Phnom Penh</b>	<b>Stung Treng</b>	<b>Cardamom Mountains</b>	<b>Total</b>
<b>The number of bears in the forest in Cambodia is increasing</b>	77.0%	66.5%	74.7%	72.8%
<b>Hunting bears in Cambodia is legal</b>	96.5%	92.4%	96.9%	95.3%
<b>It is possible to extract bile from a bear without killing the animal</b>	8.5%	6.8%	5.7%	7.0%
<b>Most bears in farms were born in captivity</b>	39.0%	48.6%	49.5%	45.7%
<b>Consuming bear products in Cambodia is legal</b>	70.1%	64.3%	62.8%	65.8%

These knowledge results further contextualise the place of bears in Khmer thought. The Khmer surveyed know that bear populations are declining in Cambodia, and a large percentage of surveyed individuals are aware that hunting bears is illegal. In addition, most individuals recognise that the use of bear products is an illegal activity. Khmer individuals recognise that bears cannot be hunted in Cambodia, but they are less aware of the laws around consumption.

It is also significant that individuals in Phnom Penh (and the rest of Cambodia) do not have high knowledge about the workings of bear bile farms. Bear bile farms are not present in Cambodia, and this reality of the bear product landscape within Cambodia is reflected by the knowledge held by the Khmer individuals sampled here.

#### 4.4 Bear part use among the Khmer

##### 4.4.1 Products used throughout Cambodia

Between the study sites within Cambodia frequency of direct admittance of use of bear products was found to vary (**Table 10**). This admittance of use was direct and therefore subject to bias (discussed at greater length in **Chapter 6**), and was not statistically significant between sites, when analysed using a chi-squared test ( $\chi = 12,118, p > 0.05$ ). However, these results do provide a telling indication of the spatial variation in bear product use within Cambodia.

**Table 10:** Bear products used in the three study sites in Cambodia (Phnom Penh: n = 648; Stung Treng: n = 617; Cardamom Mountains: n = 648; Total n = 1,913).

BEAR PRODUCTS	PHNOM PENH		STUNG TRENG		CARDAMOM MTNS		TOTAL	
	YES (%)	NO (%)	YES (%)	NO (%)	YES (%)	NO (%)	YES (%)	NO (%)
Bear paw soup	0.3	99.7	2.3	97.7	7.9	92.1	3.5	96.5
Bear paw rice wine	1.5	98.5	7.0	93.0	5.9	94.1	4.8	95.2
Bear bile	2.8	97.2	10.5	89.5	9.0	91.0	7.4	92.6
Bear gallbladder	3.5	96.5	8.9	91.1	9.3	90.7	7.2	92.6
Bear fat	0.9	99.1	2.3	97.7	4.9	95.1	2.7	97.3
Bear blood	0.6	99.4	3.9	96.1	9.3	90.7	4.6	95.4
Bear bone	0.6	99.4	4.1	95.9	4.8	95.2	3.1	96.9
Bear meat	1.7	98.3	6.8	93.2	22.5	77.5	10.4	89.6

Generally, Phnom Penh individuals appeared less likely to admit to using bear products, and/or genuinely use bear products at a less substantial rate, compared to areas like the Cardamom Mountains. Although it is not unheard of for large carnivores to be found in cities (Landy et al., 2018), live wild bears have never been reported in Cambodian cities. It is therefore logical that individuals in areas near remaining forested areas, such as Stung Treng and the Cardamom Mountains (**Chapter 2**), will have greater access to bears and thus greater ability to consume bear products. It is less clear whether this reflects an ‘actual’ greater preference for bear products in the rural areas of Cambodia. This will be reviewed at greater length within the discussion of this chapter.

Additionally, bear meat consumption is much higher in the Cardamom Mountains. As noted in **Chapter 2**, the Cardamom Mountains are likely a key source site of bears, and with their proximity to Phnom Penh (in terms of being well-connected on one long straight highway) this consumption of bear meat “at the source” indicates two things. One is that the monetary return on the meat is likely not sufficient for the transportation costs of getting it to the urban centre (e.g. Allebone-Webb et al., 2011), the other is that poaching of bears is clearly going on and in all likelihood is for bear gallbladders, to be distributed throughout Cambodia, and possibly beyond. This is also supported by the field team’s interactions in certain villages of the Cardamom’s, where the village chiefs were bear hunters (T. Lim, pers. comm.).

#### 4.4.2 Khmer perceptions of use

Perceptions of illegal wildlife use can often be one of the most influential aspects of use. For example, in urban Vietnam, illegal wildlife use is perceived to be the provenance of men with sufficient disposable income (Drury, 2011). As such, the most “at risk” group in urban Vietnam to use illegal wildlife will be the men attempting to gain access to this community, and it can be reasonably assumed that illegal wildlife use is ‘high-status’. Consequently, respondents were asked whether they believed that use of bear parts was high-status. Of the respondents, over half answered in the affirmative (53%, n = 71). Of those respondents who believed that bear parts are used by high-status individuals, most cited ‘businessmen’ as the most prominent users. This was often explained as being because bear parts are expensive, although some individuals also explained their assertion by saying that businesspeople “like brand name things”. This comment may be in reference to bearskin (leather) handbags, a commodity mentioned by several individuals (and discussed at greater length below). Certainly, “brand name” as a motivator for using bear products doesn’t appear to be applicable to the medical bear part market in Cambodia. Bear bile

and other bear products tend not to be branded, since it appears that they are often wild-sourced within the country. However, the mention of brand name could also be a reference to Vietnam, Laos, and/or China, where bear bile is often branded if it is farmed (Krishnasamy et al., 2018). An additional point here is that gallbladder and bile were usually specified (i.e. “bear gallbladder wine” versus “bear bile wine”), but as the products are similar (and individuals may not know exactly what is in the medical wine they are drinking, whether gallbladder or bile), both products will be considered as relatively interchangeable within discussions of their use.

The respondents who said that wealthy businessmen use bear parts and are high-status were themselves of varying levels of status. They spanned from business owners and government ministers, to tuk tuk drivers and fishmongers. Some of the higher status individuals had themselves used bear parts in business/governmental settings, and thus spoke with some measure of authority about the topic. The tuk tuk drivers and fishmongers, though not spending much time with businesspeople, perceived that businesspeople were wealthy, and thus by extension such people would be able to afford an expensive commodity like bear parts (with the additional implication that such people are also ‘high-status’). As an illustration of its expense, a well-off designer said that she believed bear gallbladder to be around \$500-600 in Cambodia (which is comparative to the price quoted for gallbladder in Japan (Mano and Ishii, 2008) and the upper end of prices quoted for gallbladder in China (Dutton et al., 2011)).

However, the Khmer individuals of middle to upper middle status did not, by and large, indicate any desire to join this group of “higher end” bile/gallbladder users. Mostly they seemed uncertain of its powers and worried about trying something “untested”. Responses ranged from an upper status housewife’s flat “I wouldn’t use that”, to an upper status consultant saying:

I knew a minister in Ratanakiri who was really rich and in a high position of government. Didn't see him use it directly, but knew that he used it. Died- gallbladder couldn't cure him of his illness.

Unlike Drury’s (2011) findings in Vietnam, there did not appear to be gender differences in response when respondents were asked whether they might consider using bear parts. As above, responses from women akin to the housewife’s flat negative were not uncommon:

I would not [use], don't like any product made of animals.

I've seen some people use handbags of bear skin. It is very expensive. I don't value those people who use these high-priced products.

Male responses were similar:

Would not use - hurts animal, is not clinically tested, would cause other illness. They make bear paw/organ wine- I do not like this.

I don't place value on traditional healing. I'm not educated to believe it works. I would consult with a professional.

As will be discussed at greater length in **Chapter 6**, gender differences may be present for *use* of bear parts in Cambodia, but may not be present when considering the motivations to use/not use parts.

Overwhelmingly, interviews with Khmer individuals of middle to upper middle status indicated that they valued Western medicine, science, and knowledge over something perceived to be traditional. Emphatic 'nos' were common when asking whether the respondents would consider use, and responses like the ones collated above were often only gained when the issue was pressed. There was also a prevailing dislike, exemplified above in the woman's comment about bear skin handbags, of showing off one's wealth. In interviews people tend to try and project the best version of themselves and/or the version that they believe that the interviewer will find most acceptable, i.e. social desirability bias (e.g. Bowling, 2005 and Wiseman, 1972). The Khmer interviewed here may have been attempting to project a version of themselves that appeared uninterested in material wealth. Moreover, as these individuals were upper status, they may believe that they do not need to use bear parts to increase their status, particularly when they have the funds to purchase more obvious signifiers of status, such as iPhones.

Additionally, the Khmer respondents projected an image of current Cambodia as an "equal" society, in that a wealthy businessman could easily have had the same early life experiences as the tuk tuk driver down the street. Sidel (2008) writes that in a "state-socialist regime" such as Cambodia, the *bourgeoisie*, i.e. middle to upper middle status, have had little political and economic power in modern history. This may be reflected in the belief among the new *bourgeoisie* that everyone is more or less equal; indeed, one could argue that a conception of a Khmer *bourgeoisie* is fought against by the very people who may be seen to form the upper status strata. This is seen in

the new *bourgeoisie* Khmer woman's vignette about a bearskin handbag being "valueless." A woman buying a bearskin handbag appears to be making an obvious attempt to distinguish herself from the middle status strata that most people believe they belong in, which makes her the subject of ire among those who are themselves beginning to obtain higher status. Writing in a Chilean context, and in the broader context of class rather than specifically status, Méndez (2008) argues that the middle-class struggle with defining what middle-class means, and in particular struggle with the moral and intellectual context of being middle-class. For example, one of Méndez's (2008) respondents proclaimed that she would not spend time in the "intellectual" quarter of Santiago because she believed it was over-priced and ostentatious. Although she self-identified as being middle-class, she continued to define herself as separate from "those" middle-class people.

Use of bear parts, therefore, is used to separate Khmer individuals who are rising in status, by acting as a moral indication. Flaunting a bearskin handbag, or exhibiting any other overt display of wealth, is off-putting to some and indicates a variation within the status strata. Presumably this also applies to using bear parts for medicine, since bear parts are expensive. However, bear parts as medicine falls into the intellectual category noted by Méndez (2008). As seen in the men's vignettes, there is a dismissal of bear parts as medicine. Here, there is an indication of knowledge as a defining factor in status. The implication is that, although certain members of their status strata may use bear parts, they define themselves as separate from that for critically thinking about the repercussions of use.

In the large quantitative survey (n = 1,913 of just Khmer individuals) performed in three sites in Cambodia (**Chapter 3**, Phnom Penh, Stung Treng, and the Cardamom Mountains) individuals were asked about their perceptions of their peers' use of bear bile. The results of the nationwide sample revealed that over half of the individuals sampled (55.8%, n = 1079) answered "True" when asked "**Most people whose opinion you value...have used bear bile for medicine and other purposes in the past**". A third of the sample (34%, n = 657) stated "True" when asked "**Most people whose opinion you value...will use bear bile in the future**". Finally, 21.8% of the sample (n = 421) stated "True" when asked "**Most people whose opinion you value...believe you should use bear bile**". Therefore, use is perceived as having been a broadly prevalent behaviour amongst one's social group. Additionally, there is a belief that this use will continue to be relatively prevalent amongst one's social group, although use will be less prevalent than it may have been in the past. Finally, a fifth of the individuals in Cambodia perceived that they may be the recipient of some social pressure to use bear bile, in the future.



However, the percentage of individuals who believed their social group had, would, and thought they should use bear bile were lower in Phnom Penh compared to the overall estimate of all of Cambodia, although the difference in perceived use was not statistically significant between sites ( $\chi = 4.5143$ ,  $p > 0.05$ ). In Phnom Penh, 39% of the individuals sampled ( $n = 253$ ) believed most of the people they valued had used bear bile in the past, 29.6% ( $n = 192$ ) believed that people they valued would use bear bile in the future, and 12.9% ( $n = 84$ ) believed that people they valued thought they should use bear bile in the future.

Although the difference in perception was not found to be statistically significant between sites, this finding may be significant when considering the context of the qualitative results from Phnom Penh presented above. The Phnom Penh individuals' perceptions appears to be of decreasing bear bile use in Cambodia's urban centre. However, it is possible that either: individuals in Phnom Penh are continuing to use bear products at a similar rate to the rest of Cambodia, but the preferences for type of product have changed, where bear bile is no longer encouraged, while other bear products are; or, there is greater sensitivity in admitting to bear bile use in Phnom Penh, even when discussing one's social group.

#### 4.4.3 Demographics of use: quantitative research

As individuals in Phnom Penh are the primary focus group of this chapter, a binomial generalised linear model of use of bear products among that sample is reported in **Figure 11**.

```

Call:
glm(formula = Use ~ Sex + Age + Age2 + Education_level + Education_location +
     KNOWLEDGE_LEVEL, family = "binomial", data = pp)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.9900  -0.3543  -0.2135  -0.1675   2.9052

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)    -7.967e+00  1.562e+00  -5.099 3.41e-07 ***
SexMale        -8.068e-02  3.532e-01  -0.228  0.8193
Age            1.487e-01  6.687e-02   2.224  0.0262 *
Age2          -1.094e-03  7.093e-04  -1.542  0.1230
Education_levelGraduate Degree -1.317e+01  1.417e+03  -0.009  0.9926
Education_levelHigh school     5.477e-01  6.447e-01   0.850  0.3956
Education_levelLiteracy certificate -1.463e+01  1.878e+03  -0.008  0.9938
Education_levelNone            1.105e+00  1.226e+00   0.901  0.3674
Education_levelPart of Primary school 1.165e+00  7.214e-01   1.615  0.1063
Education_levelPrimary school    1.543e+00  6.847e-01   2.254  0.0242 *
Education_levelSecondary school   1.535e+00  6.150e-01   2.496  0.0125 *
Education_locationElsewhere in Asia -1.477e+01  2.542e+03  -0.006  0.9954
Education_locationND            -1.430e+01  1.711e+03  -0.008  0.9933
Education_locationNone          1.065e+00  1.397e+00   0.762  0.4460
Education_locationOutside Asia  -1.321e+01  2.114e+03  -0.006  0.9950
KNOWLEDGE_LEVEL                2.527e-01  1.772e-01   1.427  0.1537
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 300.28  on 647  degrees of freedom
Residual deviance: 248.25  on 632  degrees of freedom
AIC: 280.25

```

**Figure 12:** A binomial generalized linear model of the Phnom Penh sample ( $n = 648$ ), where the dependent variable is “Use bear products” (0 = No, 1 = Yes), and the independent variables are sex, age, age-squared, education level, education location, and relative knowledge level. The small difference between the null and residual deviance values indicates that this is a good model.

The variables of significance in this model, as indicated by the p-values, are age, education level: primary school, and education level: secondary school. However, when age is turned into a quadratic to counteract possible linearity effects (i.e. an effect of use of bear bile dropping off at a certain point as an individual ages, or being higher at certain points in an individual’s life, which would not be captured in a linear model) there is no significance. This indicates that the linear term of age is accurate for this model, and that Khmer individuals will continue to use bear bile at a

probabilistically greater rate as they age, specifically each one-unit (i.e. one year) change in age will increase the log odds of using bear products by 0.05.

Additionally, having an education level of “primary school” will increase the log odds of using bear products by 1.59, and an education level of “secondary school” will increase the log odds an individual in Phnom Penh uses bear products by 1.64. Alternatively, the model indicates that individuals with a literacy certificate as their highest level of education have a *decrease* in the log odds of using bear products of 14.62, the highest decrease in the model. However, this is probably because only four individuals stated that they had a literacy certificate, and none of those four individuals directly admitted to having used any bear product. This effect is similar for individuals at the other end of the educational spectrum, with a decrease of 13.1 in the log odds of an individual who possessed a graduate degree using bear products. However, as with the literacy certificate, only seven individuals stated they had a graduate degree, and all seven stated they had not used bear products.

Individuals in the other study sites followed a dissimilar trend. In the Cardamom Mountains (**Figure 12**), the significant variables were sex: male and age, with no effect of education. As in the Phnom Penh model, use of bear bile and age does not follow a quadratic line. Instead, for age, each one year an individual obtains adds a log odds of 0.06. A male individual in the Cardamom Mountains has a 0.93 log odds probability of using bear products, compared to a female.

```
Call:
glm(formula = Use ~ Sex + Age + Age2 + Education_level + Education_location +
     KNOWLEDGE_LEVEL, family = "binomial", data = cm)
```

Deviance Residuals:

```
      Min       1Q   Median       3Q      Max
-1.7271 -0.7672 -0.5168  0.8347  2.3887
```

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	-3.9297092	1.3400238	-2.933	0.00336
SexMale	0.9349890	0.2052413	4.556	5.22e-06
Age	0.0924988	0.0438172	2.111	0.03477
Age2	-0.0003258	0.0004996	-0.652	0.51435
Education_levelHigh school	-1.0755737	1.1203382	-0.960	0.33703
Education_levelLiteracy certificate	-1.2492913	1.1054212	-1.130	0.25841
Education_levelNone	-1.0928107	1.3116319	-0.833	0.40475
Education_levelPart of Primary school	-0.2407929	0.9958895	-0.242	0.80895
Education_levelPrimary school	-0.3648292	1.0127412	-0.360	0.71867
Education_levelSecondary school	-0.0542961	1.0071972	-0.054	0.95701
Education_locationNone	0.8461379	0.9141347	0.926	0.35465
KNOWLEDGE_LEVEL	-0.0856998	0.1068685	-0.802	0.42260

```
(Intercept)          **
SexMale              ***
Age                  *
Age2
Education_levelHigh school
Education_levelLiteracy certificate
Education_levelNone
Education_levelPart of Primary school
Education_levelPrimary school
Education_levelSecondary school
Education_locationNone
KNOWLEDGE_LEVEL
```

---  
Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

```
Null deviance: 775.10 on 647 degrees of freedom
Residual deviance: 655.06 on 636 degrees of freedom
AIC: 679.06
```

**Figure 13:** A binomial generalized linear model of the Cardamom Mountains sample ( $n = 648$ ), where the dependent variable is “Use bear products” (0 = No, 1 = Yes), and the independent variables are sex, age, education level, education location, and relative knowledge level. The small difference between the null and residual deviance values indicates that this is a good model.

In Stung Treng, no variable was found to be significant in influencing whether an individual would use bear products (**Figure 13**).

```

Call:
glm(formula = Use ~ Sex + Age + Age2 + Education_level + Education_location +
     KNOWLEDGE_LEVEL, family = "binomial", data = st)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.2083  -0.6901  -0.5264  -0.4255   2.2929

Coefficients: (1 not defined because of singularities)
              Estimate Std. Error z value Pr(>|z|)
(Intercept)  -3.277e+00  1.156e+00  -2.835  0.00458 **
SexMale      2.661e-01  2.169e-01   1.227  0.21978
Age          2.827e-02  4.459e-02   0.634  0.52604
Age2         1.400e-04  5.104e-04   0.274  0.78390
Education_levelGraduate Degree  1.332e+00  1.620e+00   0.822  0.41095
Education_levelHigh school     2.215e-01  7.087e-01   0.313  0.75459
Education_levelLiteracy certificate 4.279e-01  8.581e-01   0.499  0.61797
Education_levelNone            -2.800e-01  8.510e-01  -0.329  0.74210
Education_levelPart of Primary school 6.063e-01  6.691e-01   0.906  0.36482
Education_levelPrimary school     2.780e-01  6.738e-01   0.413  0.67991
Education_levelSecondary school    4.074e-02  6.684e-01   0.061  0.95140
Education_locationNone           NA         NA         NA     NA
Education_locationOutside Asia    1.460e+01  5.354e+02   0.027  0.97824
KNOWLEDGE_LEVEL                  4.273e-02  9.836e-02   0.434  0.66397
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 624.64  on 616  degrees of freedom
Residual deviance: 577.66  on 604  degrees of freedom
AIC: 603.66

```

**Figure 14:** A binomial generalized linear model of the Stung Treng sample (n = 617), where the dependent variable is “Use bear products” (0 = No, 1 = Yes), and the independent variables are sex, age, education level, education location, and relative knowledge level. The small difference between the null and residual deviance values indicates that this is a good model.

In the model created with all of the Khmer data from the quantitative study (**Figure 14**), sex: male, education: literacy certificate, education: part of primary school, education: primary school, and education: secondary school were all significant. As before, the log odds show that if an individual is male, the log odds probability that he’ll have used bear products increase by 0.5, and that by each one-year increase in age an individual’s log odds increases by 0.05, with no quadratic curve. When considering education, an individual having a literacy certificate as their highest level of education has an increased log odds of 1.1. The highest increase in log odds is if an individual has completed part of primary school as their highest level of education (1.8), followed by education level: primary school (1.5) and education level: secondary school (1.4).

```
Call:
glm(formula = Use ~ Sex + Age + Age2 + Education_level + Education_location +
     KNOWLEDGE_LEVEL, family = "binomial", data = all)
```

Deviance Residuals:

```
      Min       1Q   Median       3Q      Max
-1.4672  -0.6502  -0.4230  -0.2370   2.7658
```

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )	
(Intercept)	-6.059e+00	6.563e-01	-9.232	< 2e-16	***
SexMale	5.188e-01	1.323e-01	3.922	8.79e-05	***
Age	8.963e-02	2.680e-02	3.345	0.000824	***
Age2	-4.432e-04	2.985e-04	-1.485	0.137563	
Education_levelGraduate Degree	7.207e-01	1.184e+00	0.609	0.542619	
Education_levelHigh School	6.147e-01	4.093e-01	1.502	0.133146	
Education_levelLiteracy certificate	1.114e+00	5.013e-01	2.223	0.026219	*
Education_levelNone	8.272e-01	7.499e-01	1.103	0.270014	
Education_levelPart of primary school	1.737e+00	3.660e-01	4.746	2.07e-06	***
Education_levelPrimary school	1.490e+00	3.786e-01	3.937	8.25e-05	***
Education_levelSecondary school	1.431e+00	3.712e-01	3.856	0.000115	***
Education_locationElsewhere in Asia	-1.273e+01	6.021e+02	-0.021	0.983138	
Education_locationND	-1.171e+01	3.796e+02	-0.031	0.975390	
Education_locationNone	7.834e-01	7.047e-01	1.112	0.266271	
Education_locationOutside Asia	1.225e+00	1.353e+00	0.905	0.365417	
KNOWLEDGE_LEVEL	8.998e-02	6.365e-02	1.414	0.157436	

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

```
Null deviance: 1823.6 on 1912 degrees of freedom
Residual deviance: 1557.2 on 1897 degrees of freedom
AIC: 1589.2
```

**Figure 15:** A binomial generalized linear model of the sample data for all of the sites ( $n = 1,913$ ), where the dependent variable is “Use bear products” (0 = No, 1 = Yes), and the independent variables are sex, age, education level, education location, and relative knowledge level. The small difference between the null and residual deviance values indicates that this is a good model.

Therefore, the ‘general’ consumer of bear products throughout Cambodia, according to these generalised linear model results, is an older male who has as his highest level of education “part of primary school”. In Stung Treng, the ‘general’ consumer is undefined, while in the Cardamom Mountains the ‘general’ consumer is an older male. Finally, in Phnom Penh the ‘general’ consumer is an older individual who has completed primary school or secondary school. However, these models are built on self-reported results and thus the full model, which indicates that the general Khmer consumer is an older and relatively uneducated male, may not capture the full extent of use by women in Cambodia, who may have been more reluctant to directly state their use (discussed more in **Chapter 6**).

#### 4.4.4 Demographics of use: qualitative research

To give context to the motivations for use, the comments about use, and the motivations for use stated within this section, the users and aspirational users of bear parts were isolated from the qualitative data and the associated demographic data is presented below.

Many of the individuals spoken to either did not know that bear gallbladder/bile was used in traditional medicine, or were opposed to use of bear parts in general. However, 18 of the respondents (13% of the sample) admitted to being interested in using bear parts (aspirational) and/or having used bear parts in the past (**Table 9**). The sample population of users ranged from the lower-status (market sellers, street food vendors) up to the higher status of microbiologists and property developers, indicating that use of bear parts transcends status (though status still has a substantial effect on *what* is used, as discussed within this chapter). Male users appeared to be slightly more predominant, but as this was self-stated use, women may have shielded their responses due to social desirability bias. In addition, these demographic results are likely skewed because one female data point from Kampong Speu encompassed multiple women, as will be discussed at greater length below.

**Table 11:** Demographics of the users/aspirational users of bear parts sampled in the qualitative study (n = 18).

#### ***DEMOGRAPHICS PHNOM PENH***

<b><u>Gender</u></b>	Male	78%	(n = 14)
	Female	22%	(n = 4)
<b><u>Age</u></b>	Range	18 - 72	
	Average	35	
	Median	35	
<b><u>Ethnicity</u></b>	Khmer	61%	(n = 11)
	Khmer-Chinese	39%	(n = 7)
<b><u>Religion</u></b>	Buddhist	94%	(n = 17)
	Christian	6%	(n = 1)

Users of bear parts mirrored all other members of the sample population in their placement of bears on a divine scale. Bears were placed on earth by the majority of the users, with one individual placing bears in hell, and one other placing them in heaven. This provides further evidence to the assertion that bears do not hold a sacred place in Khmer cosmology, and as such are likely not being used for perceived spiritual properties, but rather that users are being influenced for pragmatic medical reasons and/or are being influenced by their cultural, demographic, and/or status group. For instance, respective demographic group appears to be influential among women (discussed below).

Reasons for use were variously given as: being for medicine (general and post-partum); being for clothes and accessories; because it is rare ('fancy'); and for food. These will all be considered and discussed below.

#### 4.4.5 Use for medicine

##### *4.4.5.1 Stated use of bear bile/gallbladder among the qualitative sample*

My sister and aunty were given gallbladder after giving birth. People forced it on my sister. But Western [medicine] is better, don't have to take gross, disgusting things after birth. Just rest for a week and [then you are] up and walking.

- #57, 19-year-old Khmer-Chinese female, receptionist

One interesting and hitherto unknown trend seen within the data collected here and in subsequent data collection was that of bear gallbladder wine for post-partum weakness, as indicated in the above quote. This is certainly worth more detailed exploration, as it is well documented that gender can exert a powerful influence on individuals' actions (e.g. Mackie et al., 1996). Indeed, while interviewing one woman in a market for this study, the interview ended up becoming a large focus group-type discussion, with many other market women joining the discussion to advocate for bear gallbladder wine's efficacy in post-partum illness. Undoubtedly, every Khmer woman who was part of that discussion felt influenced by their peers, particularly when pregnant or giving birth. Across cultures, giving birth is fraught with anxiety over the danger and importance of the act, and there is significant evidence that women will actively seek out the methods they think will best enable them to survive the birthing process. This is also true of Cambodian women (Ir et al., 2015). For some women in Cambodia, the methods that they believe will assist with pregnancy and its effects appears to include bear bile wine.



It is uncertain how widespread use of bear bile after pregnancy is in Cambodia. The extensive survey performed in Phnom Penh by the Free the Bears and San Diego Zoo Global research team found only two women who admitted to having used bear bile wine after giving birth, out of 325 individuals (0.6%). Other women gave vague responses indicating that they had used bear parts when given it “by their mother”, but did not specify if those products had been intended to assist with birth. This could be for a variety of reasons: the usual concerns over admitting to something illegal, being embarrassed that it is perceived as ‘rural’, or being embarrassed about discussing pregnancy and associated matters with male interviewers, who comprised some of the survey team. It is especially worth noting that in the much smaller sample size (n = 68) of women in the semi-structured interviews (SSIs), six women discussed the use of bear bile in treating pregnancy, postpartum weakness, and uterine ailments. As mentioned above, these results may have been helped by my status as a woman, the interpreter’s status as a woman, and the fact that some interviews were out of Phnom Penh and in the surrounding, more rural areas, where this type of use may be more prevalent. Additionally, in the SSIs women were asked generally about use of bear bile, which may have encouraged more detailed responses about uterine ailments/issues, compared to the constrained quantitative question which asked only about bear bile used during/following a pregnancy.

Use of bear parts for medicine was not confined solely to women, but instead was advocated for by a variety of individuals, whether they had used it in the past or not. However, most individuals did not appear to know what it could be used for. Indeed, the only individuals that appeared to know about bear bile/gallbladder medical uses were the women. Respondents who said they would use bear parts for medicine said they would use them if they were prescribed, or if bear parts were the “only thing that could cure them”. However, most aspirational users stated rather paradoxically that they used only Western medicine. This contradiction of beliefs is well-illustrated in the following quotes from one individual:

I don’t use bear gallbladder right now because I’m not ill. However,  
if I got ill in the future I might use it.

I use Western medicine, because there is no need for traditional medicine.  
The hospital can see clearly what is wrong in the body.

- #110, 20-year-old Khmer-Chinese male, student (International Relations)

Although traditional medicine is dismissed, the use of bear gallbladder (and perhaps other animal parts) is still considered as a reasonable medical treatment, apparently outside the context of traditional medicine. This could be an effect of media reports (both Western and Asian) which have advocated for the efficacy of rare animal parts such as rhino horn for treating cancer (Viscardi, 2012). However, rhino horn in traditional Chinese medicine has historically been used to treat fever rather than illnesses such as cancer (Ellis, 2013). A notable research void is the evolution of Chinese and other endemic traditional medicines throughout Asia, as well as the distinguishing features of ‘traditional’ use of wildlife parts, versus modern uses of these parts within Asia. Therefore, it is difficult to isolate the influence of the Chinese as an important motivator in use of bear parts.

It is worth noting here, however, that some individuals stated that they had seen others use bear gallbladder for medicine, or had used it themselves, and felt it to be ineffective. The vignette isolated above, where one man talked about a government minister that he had known who had used bear gallbladder to treat an illness, ends with the government minister dying nonetheless. The gentleman who told that story also pointed out that if bear gallbladder were truly medically effective, it would be mass-marketed, indicating that he was unaware of the process of bile farming, which correlates with anecdotal information that bear bile farms are rare to non-existent in Cambodia.

In general, use of bear parts for medicine in Cambodia appears to be characterised, among men, by widespread lack of basic knowledge. Among women who have used bear parts or intend to use bear parts there is what one might term “folk knowledge”, i.e. “implicit and explicit goals which arise through meanings created via publicly shared conceptualisations” (Geertz 1973, quoted in Read and Behrens, 1989). Although bear gallbladder may not truly be effective for treating post-partum weakness, it is believed to be so, and may continue to be used for this purpose, due to these “publicly shared conceptualisations” of bear gallbladder effectiveness that is present in some Khmer communities. Additionally, post-partum traditional medicine tonics have been noted as being “subject to great ritual attention in Cambodia” (Ovesen and Trankell, 2010). Generally, it is well-known that across the world and certainly in Asia women and men alike embrace folk knowledge when considering parenthood and pregnancy (e.g. Cline, 2010, Hansen, 2012 and Qamar, 2016). This type of knowledge can be non-adaptive, as the folk knowledge can be to the detriment of women (Greenhalgh, 1994), and as such the effect of bear gallbladder/bile wine on pregnant and post-partum women should be explored in future studies. There is little research into

bear gallbladder wine's efficacy in treating post-partum illness, and it is possible that bear gallbladder wine does more harm than good. This is particularly true in rural areas, where the "bear gallbladder wine" may actually be pig gallbladder wine, and thus absent of the concentration of medically effective ursodeoxycholic acid (UDCA) found in bear bile. As discussed at greater length in the introduction, the efficacy of UDCA has been noted for ailments such as liver illnesses and other 'hot' ailments (Feng et al., 2009 and Ishizaki et al., 2005), and it is used widely to treat bruising in Laos (**Chapter 5** of this thesis) and Vietnam (Davis et al., 2019). However, no published studies exist regarding bear bile's efficacy in treating such ailments as "post-partum fatigue" or other uterine-related issues, and therefore it may be possible that even authentic bear gallbladder wine has no effect when used by Khmer women.

#### *4.4.5.2 Views on bear bile among the Phnom Penh quantitative sample*

Individuals in the Cambodian quantitative survey were asked the questions presented in **Table 10**, all related to the act of bear bile consumption and all concerned with investigating the sample's beliefs and attitudes. This is a core component of human dimensions of conservation research, which is the field that forms one of the dual foundations of this thesis. More specifically, "Attitudes are positive or negative evaluations of objects (e.g., bears), and are composed of affective/emotional components (e.g., feelings) and cognitive components (e.g., beliefs)" (Glikman et al., 2019). In turn, attitudes directly influence behaviour (Glikman et al., 2019), such as bear product consumption. Attitudes and beliefs are generally measured through Likert scales, a widely used tool in conservation social science, and which are "are an itemized rating scale used to measure the direction and intensity of an attitude toward a specific object" (Glikman et al., 2019), although they can also be used to measure other aspects of an individual's cognitive framework, such as values (e.g. Davis et al., 2016).

**Table 12:** Beliefs and attitudes about aspects of bear bile consumption, as held by the quantitative sample of Khmer-identifying individuals (Phnom Penh: n = 648; Stung Treng: n = 617; Cardamom Mountains: n = 648). These beliefs and attitudes are coded through a five-point Likert scale, where "Strongly agree" with the statement is a '5' and "Strongly disagree" with the statement is a '1'. Confidence intervals are presented, to indicate the degree of overlap between sites. The high amount of overlap between confidence intervals indicates that at a broad level the Khmer individuals have homogenous beliefs and attitudes about bear bile use. However, the large confidence intervals also indicate that there is a substantial amount of variation within the sample.

<i>Questions</i>	<i>Phnom Penh</i>	<i>Stung Treng</i>	<i>Cardamom Mountains</i>
<b>Bear bile has medicinal value</b>	3.43 (5.48 – 1.38)	3.90 (5.95 – 1.85)	3.95 (6.03 – 1.87)
<b>Bile from wild bears has stronger medicinal properties than bile from farmed bears</b>	4.06 (6.13 – 1.99)	4.33 (6.40 – 2.26)	4.28 (6.4 – 2.16)
<b>It is easy to find places to buy bear bile</b>	1.57 (3.67 - -0.53)	1.66 (3.74 - -0.42)	1.20 (3.36 - -0.96)
<b>There are good medicinal alternatives to bear bile/bear gallbladder</b>	4.11 (6.20 – 2.02)	3.97 (6.02 – 1.92)	4.15 (6.23 – 2.07)
<b>The use of bear bile is an important part of your culture</b>	2.86 (4.90 – 0.82)	2.51 (4.55 – 0.47)	2.28 (4.34 – 0.22)
<b>Using bile from wild bears will lead to the extinction of bears in the wild</b>	4.53 (6.62 – 2.44)	4.42 (6.48 – 2.36)	4.47 (6.55 – 2.39)
<b>It is acceptable to use bile from bears that are farmed</b>	3.18 (5.23 – 1.13)	3.09 (5.13 – 1.05)	3.52 (5.59 – 1.45)

Across all three sites, individuals agreed most strongly with the statement **“Using bile from wild bears will lead to the extinction of bears in the wild”** (Table 10). Individuals disagreed most with the statement **“It is easy to find places to buy bear bile”**. Both of these statements indicate that bear bile is not readily accessible within Cambodia, at least for the majority of the population. In addition, the high level of agreement with the statements **“There are good medicinal alternatives to bear bile/bear gallbladder”** and **“Using bile from wild bears will lead to the extinction of bears in the wild”** indicates that individuals who use bear bile may be more receptive to ending their use.

However, there is broadly held agreement in bear bile’s efficacy (**“Bear bile has medicinal value”**), as well as in the value of wild bear bile over farmed (**“Bile from wild bears has stronger medicinal properties than bile from farmed bears”**), which may encourage individuals to continue using bear bile, despite the known effect of bear bile consumption on bear populations. In addition, the agreement with the statement **“It is acceptable to use bile from bears that are farmed”** is potentially worrying in light of the bear bile commodity landscape. As farmed bear bile continues to be readily accessible in Vietnam (Crudge et al., 2018) and China (Dutton et al., 2011), two close regional neighbours of Cambodia, individuals in Cambodia theoretically have the option of choosing to obtain farmed bear bile, and currently do not appear to have a strong preference against doing so.

#### 4.4.5.3 *The use of bear parts for medicine in Cambodia: qualitative and quantitative results*

Ultimately, the use of bear bile/gallbladder for medicine is conceptually separate from traditional Khmer medicine (TKM). If one were to solely look at the pervasive use and acceptability of bear bile in Cambodia (**Chapter 6**) it may be tempting to declare that TKM is still well entrenched in Cambodia. Yet, TKM is documented as having waning influence (Meessen et al., 2011), despite its official governmental sanction, and this is supported by the results of the interviews, where Western medicine was stated to be the primary form of medical care used by respondents. This is further supported by the strong agreement the Khmer have with the statement “There are good medicinal alternatives to bear bile”, indicating that for many Khmer bear bile is not a necessity or even a fundamental component of their current medical beliefs; nonetheless, the widespread belief in bear bile’s efficacy means that the Khmer will not refuse bear bile if it is suggested to them.

Therefore, although medical pluralism is at play among the Khmer, it is not in an embrace of TKM and Western medicine, but rather it is an embrace of Western medicine and bear bile, as and when the opportunity arises and according to the influence of the social group. The social group is key in encouraging the spread of bear bile medicine, and use persists due to a lack of negative effects resulting from bear bile consumption. This same pattern has also been found in urban Vietnam, where individuals usually stated that they began taking bear bile according to a friend’s suggestion (Davis et al., 2019). Moreover, the consumption of bear bile in tandem with Western medicine means that individuals will never be entirely sure what cured them of whatever ailment they took bear bile for (as also found in Vietnam: Davis et al., 2019).

This effect is well-illustrated by the Khmer women in the market discussing their use of bear bile and their belief in its efficacy at treating post-partum illness. Those women took bear bile after pregnancy because other members of their social group did the same, and thus the consumption of bear bile will garner them social approval among their community. At the same time, the women will surely have taken Western medicine during and after their pregnancies, and they will not know whether the bear bile they took was effective in treating the illnesses they took it for.

Another aspect of bear bile medicinal use in Cambodia is the strong agreement with the statement that wild bear bile is more efficacious than farmed bear bile. Yet, although there may be agreement with this statement, the anecdotes of the Khmer women in the marketplace indicate that the average Khmer may not interrogate the bear bile product they purchase or are given to ensure that the bile truly is from wild bears. As will be discussed at greater length in **Chapter 7**, this is likely a reflection of the ‘true’ landscape in Cambodia, where no bear bile farms exist; therefore, the “most

accessible” bear bile source would be wild bears. Of course, as stated by one respondent, fakes certainly do exist, but concerns over fakes may not be high among the average Khmer, possibly due to a lack of knowledge about the prevalence of fakes and by extension, the certain lack of available bears in Cambodia.

Additionally, “bear bile tonics” are worth considering here. Bear bile tonics for general health maintenance are the most popular way to take bear bile in Ho Chi Minh City, Vietnam (Davis et al., 2019), and the consumption of bear bile health tonics has maintained popularity in Hanoi as well (Drury, 2011). Bear bile is by far the most popular bear product medicine in Cambodia, and was cited by those respondents who discussed bear bile as being taken with wine, a usual characteristic of tonics (e.g. Drury, 2011 and Davis et al., 2019). Moreover, bear bile was cited by TKM practitioners as being prescribed for use as a tonic (T. Lim, in prep.). However, the use of bear bile tonics for general maintenance was not a strong theme within the semi-structured interviews. Rather, respondents emphasised that bear bile would be used to treat an ailment, i.e. “if I got sick”, “to treat cancer”. Yet, it is possible that when women discussed use of bear bile after pregnancy, they were indicating its use as a tonic, e.g. to maintain the general health of a woman after her pregnancy. This is supported by the general statement of “post-partum fatigue”, which is not a specific ailment; however, this could possibly have been a matter of imprecise translation, with the specific illness communicated by the Khmer respondent, but translated in more vague terms according to the literal meaning of the words. Ultimately, the pervasiveness of bear bile tonics in Vietnam is not mirrored in Cambodia, and the consumption of bear bile in both places is spatially distinct, itself a possible reflection of the variable endemic medical systems of the two countries. Although bear bile may not be considered TKM, the consumption of it may follow the conceptual underpinnings of TKM, where tonics are not as foundational a component, compared to traditional Vietnamese medicine (Drury, 2009).

It is important to consider the above quantitative results in light of the qualitative data. The general lack of stated and observed enthusiasm for bear bile medicine among the higher status individuals sampled is positive in the context of social change, as the “general public” of Khmer individuals will be more likely to emulate more prestigious individuals. Thus, although the Khmer sample, when seen broadly, believe in the efficacy of bear bile, the stated disdain for bear bile/gallbladder medicine by the higher statuses in Phnom Penh may contribute, or already be contributing, to a general shift within the urban centre away from this practice. Indeed, although there is overlap in

response between all three sites, the agreement of the Phnom Penh sample with the statement “Bear bile has medicinal value” is lower compared to the other two sites.

In terms of conservation initiatives, it is hopeful that TKM is increasingly becoming cost-prohibitive within Cambodia (Ros et al., 2018). In addition, large quantitative surveys conducted throughout Cambodia in 2018 - 2019 have indicated that individuals tend to value ‘Western’ medicine practitioners over TKM practitioners (Davis et al., unpublished data). Moreover, it is not unreasonable to speculate that the rapid decline in animals (as well as plants) has made the use of wild products and hence traditional medicine significantly less accessible in Southeast Asia.

#### 4.4.6 Use for status

Bear part use for status purposes appears to be a relatively recent phenomenon among the Khmer. Although no one interviewed mentioned bear paw soup (a status-linked delicacy in China (Ma, 2015)), older men of apparent high-status stated that either they knew of shops in Phnom Penh that sold bear meat, or they had been asked by individuals out in rural areas whether they would be interested in purchasing bear meat. Additionally, some of the higher-status individuals spoken to said:

Would use because it is fancy.

- # 110, 20-year-old Khmer-Chinese female, student (International Relations)

I've seen some people use handbags of bear skin. It is very expensive. I don't value those people who use these high-priced products... [but I] may accidentally buy bear skin, if it looks beautiful.

- #107, 34-year-old Khmer female, NGO worker (Health)

#107’s response indicates that people were presumably telling her that their handbag was made of bearskin, as she admitted that she would not know the difference between leathers, and may indeed buy bearskin accidentally. Although she contrasts herself with individuals who seek out such products, she is also indicating status through revealing her high income, as a bear leather handbag can be several thousand dollars (Shangqite.com, 2017). (Note: As of 2018, the website has either been closed down or is not accessible for users with non-Chinese IPs.) This illustrates that bears’ rarity and accompanying price tag marks them as a status symbol regardless of any perceived physical attributes. However, Khmer individuals are also purposefully purchasing bear leather goods and highlighting their use of them to other Khmer, which indicates that there is

some significance to possessing a bear leather good specifically. Further research is needed into why bear leather in particular is considered to be worth highlighting by Khmer consumers. It is known that in China use of endangered and/or exotic animals is believed to be 'beautiful' (Zhang et al., 2008), and it is possible that this attitude is influencing Khmer attitudes towards products that are made of such animals.

An additional observation associated with individuals of higher status, or individuals who spent time with individuals of higher status, was that they were more likely to know about bear parts and their uses. Although they dismissed use of bear parts as "folk medicine" or "something ethnic people do" they were likely to know about its use, unlike people of lower-status, who often had no idea that bears were used for anything at all. It is worth exploring in future research whether high-status Khmer actively distinguish between bear parts used in a "Chinese way", e.g. use of a bear leather handbag, versus bear parts used in a "Khmer way", e.g. for medicine.

#### 4.4.7 Use for food

The final use identified was that of bears for food. Respondent #57, who spoke with some disgust about her sister's 'forced' use of bear gallbladder wine during pregnancy, also communicated her disgust at wildlife consumption, which she perceived to be a male act.

Some people would want to eat bear meat. Mostly men. Boys eat everything, even snake and dog... I hate my dad when he eats [wild] meat.

Her perception of wild meat consumption was somewhat supported in the sample, with several young men saying that when they thought about bear parts they thought about eating bear meat (rather than bear parts for status or medicine). One individual, a 29-year-old Khmer-Chinese male (#62), said that he knew of a restaurant in Phnom Penh that would cook bear parts to order for rich Chinese individuals. This consumption of bear meat in Phnom Penh has been confirmed (Fauna and Flora International, 2018). It is again tricky to piece out whether these attitudes are endemic and a product of culture and a history of eating wild animals, or whether these attitudes are more recent imports from Vietnam, where wild meat consumption is prevalent and lauded (Drury, 2011 and Shairp et al., 2016).

Additionally, the data collected from the quantitative interviews performed in the Cardamom Mountains showed greater consumption of bear meat there, compared to Phnom Penh, the most



urban site surveyed (Simone, 2008). This may be because bears are more accessible in the Cardamom Mountains, and thus hunters and others in the village will consume the meat of the bear before selling or consuming its parts. In effect, this greater frequency of bear meat consumption could be an indicator of greater amounts of bear poaching occurring in the Cardamom Mountains. Unquestionably, poaching of many animals is occurring in the Cardamom Mountains (Gray et al., 2018).

#### 4.4.8 Use for protective purposes

Spiritual significance placed on bears was by no means a dominant theme within this sample. However, one individual did discuss his nephews' business of obtaining bear teeth and selling those to Khmer and Chinese individuals, as protective talismans. The man interviewed, a 45-year-old Khmer-Chinese male (#124), said that he had also been shown a bear teeth necklace by a rich Khmer man who claimed that the teeth would protect him from bullets and poison. #124 said that he personally did not believe in the protective ability of the bear teeth, as to get the teeth the bears were killed. Therefore, their own teeth had not protected them. Beyond the statement of #124, no other Khmer individual mentioned any significant spiritual attribute associated with bear parts or bears.

#### 4.4.9 Reasons not to use bear parts

Respondents were also asked if they could think of any reasons not to use bear parts. Most users/aspirational users of bear parts mentioned the rarity of bears as being a hindrance to use, rather than welfare issues associated with the poaching of bears or farming their bile, use being illegal, and bear parts being expensive. It is possible that bear products don't appear to be expensive because there are sufficiently common 'fakes' in Cambodia. This can be illustrated by a discussion with an upper status property developer, who insisted that one 'true' bear gallbladder could be nearly \$1,000. The price quoted to him of 10,000 KHR (approximately \$2.50) for a small amount of bear gallbladder in a vial had been given to the interviewer (E.D.) by one of the market women who had advocated for using a little bit of gallbladder tonic to treat the after-effects of pregnancy. The property developer said that anything as cheap as \$2.50 would be a fake, likely pig gallbladder or some equivalent. However, most of the individuals spoken to did not appear to flag fakes as being particularly problematic, indicating that knowledge of fakes is either not widespread or not perceived to be much of a problem.

Nonetheless, one woman said:

Have used gallbladder, and would use (bear gallbladder) because it is effective, but would not use (anymore) because I cannot afford it and it is illegal.

- #135, 72-year-old Khmer female, kilo measurer

Her statement is unique because she states both that bear gallbladder is illegal and that she cannot afford 'true' gallbladder, indicating a greater amount of knowledge about bear gallbladder and its use in medicine than was exhibited by many of the other respondents. Furthermore, those respondents with more knowledge of bear gallbladder tended to be higher status than those who stated that they would be interested in trying it or would use it if there appeared to be no other alternatives; yet, this woman was not particularly high-status. It could be that her age and her gender had an influence on her knowledge. At 72 she is one of the oldest respondents, and although she did not explicitly state what she used gallbladder for it is possible that she was encouraged to use it for post-partum illness, and subsequently encouraged other women to do the same. She may have seen it grow increasingly more expensive, and may also have heard that it is illegal. Other respondents, being much younger, may simply have never encountered bear gallbladder or been told that hunting bears is illegal, particularly as many of those respondents had spent most of their lives in Phnom Penh, a city, versus the rural province #135 grew up in (Prey Vang). This was corroborated by an older Khmer woman who had spent most of her life in Kampong Speu, a semi-rural province:

If I could, I would use. Especially gallbladder. But they measure it like gold. Very expensive. Also afraid it could be fake.

- #75, 54-year-old Khmer-Chinese female, coffee seller

It is worth pointing out that when the quantitative study discussed in **Chapter 6** was performed no difference was found in use between rural areas and in urban areas. However, there appeared to be a significant effect of individuals in Phnom Penh shielding their responses from the interviewers. Hence, the research presented here may be skewed in that individuals from more rural areas were more comfortable discussing the mechanics of bear part use, versus individuals from Phnom Penh who may have been uncomfortable indicating that they had moderate to high knowledge of bear part use.

Although individuals with a graduate degree had a low probability of using bear products, according to the binomial GLMs presented in **Section 4.4.2**, the qualitative data indicates that

individuals who had higher education may be more likely to feel social desirability bias when it comes to admitting to use of bear products, with bear products perceived as something ‘traditional’. Thus, even though these individuals may comprise the group who used bear products more often due to their ability to purchase such relatively expensive products, they may be least willing to admit it. This seems especially apparent when considering individuals in the more rural areas of Cambodia, who directly admitted to using bear products at a much higher rate, compared to individuals in Phnom Penh (**Chapter 6**).

#### **4.5 Conclusion: The Khmer**

Use of animals for human purposes occurs for many reasons. In Cambodia, the mechanics of bear part use were previously completely unknown, other than basic knowledge that use occurred. Additionally, it was unknown which products are actually consumed and valued. Previous research has indicated that bear parts are used primarily for medical reasons in Asia, yet this use has been primarily focused on Vietnam and China. Throughout the rest of Asia, little is known about the realities of bear part use. Therefore, this study thoroughly explored use of bear parts by starting from a ground-level understanding of the place of bears in Cambodian cosmology. This was accomplished by asking respondents to place bears along a divine scale, and to discuss their reasons for placing bears where they did. Additionally, respondents were asked their emotions concerning bears, as well as any potentially revealing folktales about bears. Respondents generally indicated that bears are not considered to be divine in Cambodia, nor was any particular significance attached to the bear as a symbol in Khmer cosmology. However, perceptions of bears were mostly positive, particularly when contrasted with tigers, an oft-stated ‘cruel’ animal. Therefore, it can be theorised that bears are not considered threatening by the Khmer, and will not be the target of purposeful killing out of fear and hatred, as can often be the case with other large carnivores (Johansson et al., 2016).

Knowledge about the laws surrounding consumption of bear parts were found to be generally high across all three sites. Indeed, the Khmer were overwhelmingly aware that hunting bears is illegal in Cambodia. Most of the sample were aware that consumption is also illegal, although in some sites this level of knowledge was 20% lower than the knowledge about bear hunting illegality. However, knowledge about the process of bear bile farming was not high among the sample, which reflects the true landscape within Cambodia. Bear bile farms have not been recorded in the country; yet the other implication of these results is that the Khmer have not had much exposure to the sheer availability of farmed bear bile in Vietnam (Crudge et al., 2018a) and (one can assume)

China, despite both countries proximity. Therefore, in Cambodia and among the Khmer bear bile is a localised commodity, obtained from wild bears in the country, and as yet Khmer use is largely unconnected to the broader network of bear bile consumption and trade throughout Asia, i.e. Khmer individuals are not seeking out farmed bile, nor are they seeking out bears from surrounding countries.

Bear part use by the Khmer is identified here as being more spatially variable than has previously been uncovered in other bear part consumer countries. Most of the middle status individuals interviewed in Phnom Penh and the surrounding areas did not use bear parts and would often either not know what those parts were used for, and/or they would express their discomfort at use of parts. However, 13% of this sample did admit to using parts or admitted to being interested in using bear parts. Throughout the rest of Cambodia, broad quantitative analyses showed that individuals in demographically more rural areas (i.e. with low levels of human density) had a higher percentage of bear part use compared to the urban centre of Phnom Penh. This was not found to be a statistically significant difference, however, so some caution should be exercised, particularly when also considering the results of the specialised questioning techniques, which indicated deceit at play in admittance of bear part use in Phnom Penh (**Chapter 6**).

Bear part use also appeared to vary according to such demographic factors as gender, age, level of education, and status, as evidenced by the qualitative results and the generalised linear models (GLMs). Age was significant in the full GLM (all study sites), and in the Cardamom Mountains and Phnom Penh. This effect supports the prior research of Drury (2009), in Vietnam, that older individuals are more likely to consume bear bile. This also makes logical sense considering the context of the uses noted. Generally, use of medicine is probabilistically more likely to increase over an individual's life (Drury, 2009), as is the ability to purchase more expensive goods, such as bearskin handbags (Gunter, 2012). Of the bear products identified in both studies as being consumed, bear meat is possibly the only product untethered from an influence of age, although it is also possible that the consumption of bear meat is more often the provenance of older individuals. However, of interest is the lack of an effect of bear bile use and age in Stung Treng, the demographically most rural study site (Commune Database Online, 2010). Based on the anecdotal, and quantitative evidence gathered from the area, this is likely because there is more widespread acceptability and adoption of use, even if the prevalence of use is not significantly higher compared to the other two sites discussed within this chapter.

The effect of gender on influencing use of bear products was only found in the Cardamom Mountains, despite statistically significant disparities in direct admittance of bear products used between genders (**Chapter 6**). In the Cardamom Mountains men were probabilistically more likely to have consumed bear products, which again could tie in to the higher consumption of bear meat within the area. Men are generally the hunters within the community (T. Lim, pers. comm.) and as such they likely have priority when it comes to consuming the meat of the bear. In addition, within the qualitative interviews of this study young men were more likely to cite the meat of the bear as a product they would be interested in consuming. Other organisations in Cambodia have also found this gender effect in the context of general wild meat consumption, including of bears, in the urban capital of Phnom Penh (Flora and Fauna International, 2018), with women generally uninterested and/or excluded from the process of consumption. The research of Flora and Fauna International (2018) aligns with research into wild meat consumption in urban Vietnam, where men were also predominant consumers (Drury, 2011). However, this gender effect was not found in the multivariate analysis of consumer attributes in my urban quantitative data within Phnom Penh. Therefore, it is more likely that bear meat is consumed at the source, with the more lucrative products of gallbladder and skin traded out. In addition, my results provide further evidence for medicinal use of bear products being ubiquitous across genders within Cambodia.

Finally, education level was found to be significant in Phnom Penh, with less educated individuals probabilistically more likely to consume bear products, although an effect of education was not found anywhere else. The demographics of the quantitative survey showed that the surveyed individuals in Phnom Penh had a higher level of education compared to the two other study sites, which could indicate a generally more well-educated sample. Yet, although it might be tempting to interpret these results as indicative of 'lower-status' individuals being more likely to use bear products in Phnom Penh, such an interpretation is ultimately an unconsidered assumption. The models were built according to direct admittance of bear product use, which **Chapter 6** shows is a low estimate of actual use, particularly in Phnom Penh. Moreover, upper-status and/or more well-educated individuals are likely to be more aware of the laws surrounding the consumption of bear products. In addition, the hesitancy with which some upper-status subjects spoke about bear part use indicated that they perceived bear part consumption to be a sensitive behaviour, due to concerns over illegality, social undesirability, or both. Therefore, it is more probable that the level of education does not affect whether an individual consumes bear products; rather, it affects the admittance of such use and implies that some level of concealment may be occurring by more educated individuals.

One identified, novel use of bear parts found through the qualitative interviews is that of bear gallbladder wine for pregnant women and women suffering from unidentified post-partum ‘weakness’. This application may be significant, as maternal health continues to be a concern in Cambodia (Matsouka et al., 2010), despite ‘significant’ strides towards improvements (Van Lerberghe et al., 2014). It is possible that the folk knowledge of the women that bear gallbladder is effective in assisting them after pregnancy is based on true and accurate knowledge of bear bile’s efficacy. Nonetheless, synthetic, herbal, and Western alternatives all exist, and could be substituted for bear bile wine. As Western medicine is clearly preferred by Cambodians (this chapter and Ros et al., 2018), emphasising Western alternatives may be effective. However, there may be several challenges to this. First, the social group is clearly influential in encouraging the spread of bear bile for medicinal purposes. Second, reproductive issues, including post-partum fatigue/weakness may be embedded within the Khmer medical system as the realm of traditional medicine. Such aspects of female physiology are known to be medically dynamic across cultures. For example, in Taiwan, menstruation can be conceptualised as ‘polluting’, yet also as a symbol of “health and fertility”, according to TCM, Taiwanese culture, or the biomedical system, with accompanying means of treatment that can in turn be influenced by these multiple systems (Furth and Shu-yueh, 1992). In Taiwan, broad perceptions of reproductive/uterine ‘issues’ as inherently disadvantageous was intrinsic across the systems and cultures consulted; yet the women could embrace the dynamism of medical pluralism by affirming their ‘agency’ and choosing certain aspects of these systems that conferred greater power over their menstruating health practices (Furth and Shu-yueh, 1992). Thus, it is possible that for Khmer women in more rural areas the use of bear bile or a similar TKM treatment may also act to give them greater control over the process, versus consulting a Western medical doctor who may not afford attention to their concerns over fatigue/weakness.

Behaviour change campaigns intended to reduce this practice could emphasise the consultation of doctors and/or other medical professionals over one’s peers, using Khmer trust in Western medicine efficacy as leverage (Ros et al., 2018). Although accessing clinics and hospitals can be challenging in Cambodia (Idei and Kato, 2019), Cambodia has generally been noted to have made concerted efforts towards improving their ‘scientific’, i.e. Western, health care system (Van Lerberghe et al., 2014).

Use of bear parts for status was shown here to be tied to an individual’s status in that upper-status individuals were more likely to know what bear parts are used for, even if they had not used bear

products themselves. However, a dominant value held by higher status Khmer individuals was Western/scientific medicine over anything perceived to be traditional Khmer. This may be important information for conservation campaigns that aim to reduce demand for bear parts among higher status individuals, as value in ‘modern’ knowledge over traditional knowledge appears to be an acting force among Cambodian elites and could more easily encourage them to view bear products as part of the traditional Khmer medicine (TKM) sphere. At present, bear medicinal products are in a separate conceptual sphere to TKM, despite their stated inclusion as a treatment in the TKM Manual (Hieng et al., 2011). Although bear bile/gallbladder was termed “traditional medicine” by some respondents, other respondents who disparaged traditional medicine admitted to having used bear bile, or to being interested in using it. Thus, a rejection of TKM and a lack of belief in the system does not preclude the use of bear bile for medicine. As will be discussed at greater length below, the influence of the social group appears to be much more important in dictating who will use bear products, and why.

A significant concern for conservationists working in Asia has been the landscape of farmed and wild animal products and the potential for farmed products to increase demand for wild products (Drury, 2009). The explosion of bear farms arguably led to a subsequent increase in demand for wild bear products in countries such as Vietnam (Crudge et al., 2018), with a subsequent decline in wild bear populations (Crudge et al., 2016). Currently, users of bear bile in Vietnam do not appear to have a marked preference for the bile they consume being wild or farmed (Davis et al., 2019), which contrasts the Khmer interviewed and surveyed in this chapter. The Khmer have a strong preference for wild bear bile over farmed bear bile, but as discussed above this is likely a result of the market in Cambodia, where bear bile farms are non-existent. In those countries such as China and Vietnam, where farming bears is widespread, farmed bear bile is considered largely acceptable (Davis et al., 2016 and 2019). Yet, this does not mean that bile farms should be encouraged in Cambodia, to ‘relieve’ pressure off of the wild bear populations. As was seen in Vietnam, the sudden availability of bear bile led to a huge explosion in use (Crudge et al., 2018) and knock-on effects in surrounding countries (e.g. Laos: Livingstone and Shepherd, 2016). This practice is now relatively ingrained in Vietnam, despite a decline in demand for farmed bear bile (Crudge et al., 2018), with current estimates of use at over 40% in Hanoi, Vietnam’s urban capital (Davis et al., 2019). Although Cambodia is very different from Vietnam in many respects, the level of risk to Cambodia’s bear populations if the Khmer were to follow such a trend is such that introducing farmed bear bile should not be remotely considered.

One novel discovery in the context of bear commodities was that higher-status individuals are purchasing (or believe that they are purchasing) bear leather handbags, which indicates that prestige/social desirability and the associated conspicuous consumption may be at play among high-status Khmer, when it comes to non-medicine consumables. These desires and attitudes related to non-medicine consumables may be harder to shift, as has been seen with efforts to decrease demand for ivory, which is often associated with similar conspicuous consumption attitudes and actions (Brennan and Kalsi, 2015).

Most of the higher-status Khmer individuals spoke English, stated their desire of seeing Cambodia become more like a Western country, and continually emphasised ‘scientific’ medicine over traditional Khmer medicine. In addition, the terminology used to describe this medicine reflected an influence of Western social norms. In more rural areas of Cambodia, the accepted term for Western medicine is “*barang* medicine”, lit. “French medicine”, though used colloquially to indicate Western medicine. However, among the more upper status individuals sampled here, the term most often applied was “scientific medicine”. Linguistically, this marks Western medicine apart from traditional Khmer medicine, by implying that traditional Khmer medicine is not scientific. As detailed within this chapter, this use of language was supported by the stated perceptions of the more upper status individuals interviewed that traditional medicine is not ‘informed’ or ‘tested’.

The discovery that bears are thought of predominantly positively in Cambodia is important for bear conservation. Bears are seen as negative components of human landscapes in many parts of the world (e.g. Treves and Karanth, 2003), with “tragic consequences”, such as the sabotage of conservation initiatives (Redpath et al., 2017). It is therefore encouraging that the majority of the Khmer appear to like bears and value bears being in Cambodia, despite fear being dominant among a third of the individuals sampled. However, this should be considered in the context of the sample, which was primarily urban. Individuals in other parts of Cambodia may feel more or less negatively towards bears, compared to this sample.

More generally, the influence of the social group on an individual’s consumption of bear products may be one of the biggest challenges for addressing and minimising bear part consumption in Cambodia. When Khmer individuals were asked about their social group’s use and the possibility of their social group to influence them, they stated that use was widespread in their social group (although declining); moreover, a fifth of the Khmer individuals surveyed stated that those they trusted in their social group would be likely to encourage they use bear bile in the future. As



discussed throughout this chapter, the influence of the social group and the urge to win the approval of that group appears to be a powerful factor perpetuating use of bear bile for pregnancy and post-partum purposes. This effect may be particularly strong in the primarily medicinal context it exists in (bar the consumption of bear meat in the Cardamoms); if an individual offers bear bile medicine to another individual because they believe it is effective, the receiving individual usually: has no reason to disbelieve the assertion; will feel affection to the giver for caring about their health; and a level of obligation, due to bear bile's expense. Moreover, the widespread use by the Khmer across Cambodia suggests that consumption of bear bile is an accepted social norm, at least among their own peers (and if they have no illegality concerns). This pervasive acceptability has also been found recently in Vietnam (Davis et al., 2019), and later in this thesis, in Laos as well (**Chapter 5**). These are all powerful and challenging factors to overcome.

Based on the results of the data collected here, use of bear parts in Cambodia appears to be affected by a variety of factors, including gender, status, and geographic area. Moreover, what parts are used, by which groups, is flexible and varied. Individuals in more rural areas that are also closer to the forest are more likely to eat bear meat, for example, than an upper status woman in Phnom Penh. However, she may be more likely to drink bear bile wine to address a uterine-related ailment. Therefore, any attempt at a behaviour change conservation intervention in Cambodia will have to carefully consider the demographic variables at play within the target population, as potential messages may not resonate. In **Chapter 7**, recommendations for applying the findings of this chapter to behaviour change campaigns will be discussed at length.

#### **4.6 Up the Mekong to Laos**

Cambodia and Laos are often conflated together in current literature on the region (e.g. Baird, 2013), and indeed have been conflated together for the purposes of this thesis, since in both countries there is a dearth of knowledge about bear part use. However, as **Chapter 2** made clear, significant differences exist between the countries. Although both are part of Indochina and the Greater Mekong Region, both hold the legacy of being former French colonies, and both are “among the poorest states” in the region (Gainsborough, 2012), the countries are vastly different in state structure (one is reputedly democratic, the other communist), ethnic makeup, and topography. The evidence base is therefore very different between the countries, and this has a substantial influence on interpretations of the data obtained, particularly within the Pan-Asian context. **Chapter 5** shares a methodological underpinning with this chapter, yet due to the differences between the study sites a brief review of the Laotian context precedes the analysis.

Additionally, one of the specialised questioning technique (SQT) methods, nominative technique (NT), was tested for efficacy in qualitative, semi-structured interviews (SSIs) and in a smaller sample size. Therefore, that section of **Chapter 5** is not a qualitative interpretation, but instead is a quantitative analysis.

# CHAPTER 5: Bears and bear part use among the Laos cultural group

## 5.1 Introduction

Although there are some excellent resources that document Laos life and society from the seventh century BC, these sources are primarily occupied with the human political, societal, and religious landscape (Simms, 2013). What is clear from the historic and current record is that the diverse societal and religious structures and beliefs in Laos have been an integral part of Laos life for hundreds, if not thousands, of years (Batson, 1991, Fadiman, 1997, Simms, 2013). However, although the social record is well-documented, any information into historic beliefs about bears is, as in Cambodia, scant. For the purposes of this thesis, it is perhaps most relevant to turn to modern Laos and current beliefs and emotions associated with bears there. Scotson et al. (2014) write that crop-raiding by bears is a serious problem in northern Laos, with bears harming crops “more than all other animals combined”. However, they note that when household interviews were performed, bears were perceived overwhelmingly positively, even among farmers whose fields had been damaged. The farmers interviewed, as well as other villagers, also said that although crop-raiding was a serious problem, bears were not being killed primarily for this reason, but rather were being killed by opportunistic poachers to fuel the bear part trade (Scotson et al., 2014).

Poaching bears for parts appears to be relatively common in Laos, according to bear welfare and conservation organizations that work in the region (Free the Bears, pers. comm.). Moreover, bile farms run by Vietnamese and Chinese individuals are certainly present throughout Laos (Krishnasamy et al., 2018, Livingstone et al., 2018 and Livingstone and Shepherd, 2014), though they are less prevalent compared to neighbouring Vietnam (Crudge et al., 2018a). However, there is evidence that bear cubs are taken from Laos to stock bear farms in China and Vietnam (Scotson, 2012). Although habitat connectivity and habitat suitability appear to be optimal in Laos for bears (Scotson, 2010), bear specialists working in the region have estimated the number of bears in Laos to be less than 1000 due to these pressures from the illegal wildlife trade (Scotson, 2010). It is probable that the bear population in Laos is declining, although additional research is needed to confirm that this is true.

Research into the values, beliefs, attitudes, knowledge, and behaviours of individuals in northern Laos (specifically Luang Prabang), associated with bears and their use, is detailed in Davis et al.

(2016). In sum, Laos cultural group individuals in Luang Prabang were found to have low levels of knowledge about bears, though their values and attitudes associated with bears were high, indicating widespread positive feelings towards bears, paralleling the results seen in Scotson et al. (2014). However, a finding that was present in the data collected by Davis et al. (2016), but not explicated in the published document, was that use of bear parts appeared to exist separately from positive values and attitudes about bears. Essentially, values, attitudes, beliefs, and knowledge did not influence whether a Laos individual would use bear parts. Therefore, the research detailed within this chapter has focused on greater immersion into the Laos cultural group and the cosmology associated with bears, to understand why and how individuals in Laos are able to hold these superficially disparate behaviours and values, attitudes, beliefs, and knowledge. Methods used within the course of this chapter are detailed in **Chapter 3**. This study did not use the animal maps and freelisting used in **Chapter 4**. Instead, only the questionnaire presented in **Appendix V** was employed.

## 5.2 Demographics of the Laos cultural group

The ethnic diversity of Laos necessitates some understanding of the ethnic make-up of the sample obtained within this study. The sample varies slightly from the estimated national percentages of ethnic groups in Laos (The World Factbook, 2018). National ethnic percentages in Laos put the Lao Loum ethnic group at 53.2%, whereas the Lao Loum in this sample were predominant at 75.9% (**Table 9**). The ethnic groups of Hmong, Khmu, and Lue reflected the national percentages (The World Factbook, 2018). Tai Dam and Iu Mien were slightly lower and slightly higher, respectively, than the reported national averages for each group. The Khmu are slightly more predominant in Laos as a whole, and in other parts of Laos the Tai and Puthai are more predominant than in this sample, where they were not reflected at all. In general, the sample was not entirely reflective of the target population. However, the differences are minor and thus conclusions obtained from this sample may be considered broadly reflective of the greater trends of bear part use within northern Laos, if not the rest of the country.

**Table 13:** Demographics of the Laos cultural group sampled in this study (n = 79).

### *DEMOGRAPHICS LUANG PRABANG*

<b>Gender</b>	Male	51.9%	(n = 41)
	Female	48.1%	(n = 38)

<b><u>Age</u></b>	Range	18 - 87		
	Average	44		
	Median	43		
<b><u>Ethnicity</u></b>	Lao (Lao Loum)	75.9%	(n = 60)	
	Hmong	10.1%	(n = 8)	
	Khmu	8.9%	(n = 7)	
	Lue	2.5%	(n = 2)	
	Tai Dam	1.3%	(n = 1)	
	Iu Mien (Iewmien)	1.3%	(n = 1)	
	<b><u>Religion</u></b>	Buddhist	94.9%	(n = 75)
		Christian	3.8%	(n = 3)
DK		1.3%	(n = 1)	

### 5.3 Status in Luang Prabang, Laos

In Vietnam, status is known to be an influential factor in determining how wildlife products are used, and who uses those parts (Drury, 2011). As such, it was deemed appropriate to investigate status within this study. Questions about income can be perceived as sensitive, while other measures, such as household goods/possessions, vary depending on the cultural context. Therefore, this study used respondents as the measure by having them self-define their status. A scale of status was then created based on the parameters given by them (e.g. ability to travel), as well as by the way they defined themselves in relation to others.

Respondents in Luang Prabang struggled with self-defining status. Interviews began in Laos using the status guide that had been used in Cambodia. I assumed that as in Cambodia individuals would be able to conceptualise the categories without too much trouble, and as in Cambodia would have some clear distinctions based on the status categories they were in (e.g. upper status individuals favouring 'knowledge' as a definer of status). Yet, when interviews began, the interpreter had such a difficult time explaining status that five of the initial six respondents did not discuss status at all, the concept proving to be too difficult to translate. However, after several discussions between us, the interpreter was able to provide an appropriate definition for future interviews. The content of those discussions involved my examples of how people had defined status in Cambodia (**Chapter 4**), e.g. using such indicators as 'knowledge'. I also explained that often wealth is used as an

indicator of status. I also asked my interpreter why she thought that the concept of categorising other individuals was so difficult to grasp. She suggested that struggling with the definition of status was a result of the communist economic and political structure that has now been present in Laos for 40+ years. Researchers in Vietnam, another Asian communist country, have noted a “virtual recoiling” from the term “middle class” (Nguyen-Marshall et al., 2011); the implication is that all discussions of class and status are relatively taboo in a ‘socialist’ society. However, wealth has become hugely important in current Vietnamese society and has created new distinctions of status (Drury, 2009). Perhaps in less-developed Laos this effect is yet to occur, at least in the still under-developed town of Luang Prabang.

The five categories of status given to the respondents (see **Table 6** for the categories) were usually not kept distinct, with respondents often merging categories together. 12% of the respondents merged their own category with the category of “higher than own”, indicating that they believed that only the ‘truly’ highest status individuals (specifically, the obviously wealthy) were above them in status. These individuals were representative of the sample by being primarily market sellers, an occupation that to Western eyes appears to be middle-to-low status in Laos, in that some individuals depend on it for their livelihood, while other individuals (like the interpreter in this study) have a market stall to supplement their income, where they provide goods and services as and when they wish. The individuals that merged themselves into the “higher status” category separated those lower than themselves into two different categories, using morality as the defining factor. The lower category consisted of hard workers, and the lowest consisted of those who “do nothing” or are unemployed.

32% of the sample thought that the categories of “status higher than own” and “highest status” had the same attributes, while another 33% of the sample thought that the categories lower than themselves were the same. The usual attribute given to individuals of lower-status was of “working hard”. Some individuals (5%) placed themselves in the lowest status strata by merging the three categories together, though this was not necessarily because they believed that they had the lowest status in their societal group, with the accompanying difficult living situation such a categorisation implies. Rather, they said that people in Laos “live communally”, or that the majority of people work hard, with no distinctions within that group.

In general, the sample was marked by extraordinary consistency in defining the factors that marked categories. Although there was variability in the categories that the Laos cultural group individuals

believed Laos to be separated into, they were uniform when it came to defining those categories. Lower-status individuals were defined by their hard-working nature, while the higher status individuals were defined as having the freedom to travel and shop. However, individuals in the sample did not define the higher status individuals by wealth, although the necessary implication of being able to travel and shop is having the funds to do so. Another point to note is that of the sample, 12% were unable to define the highest status individuals. It may be that the individuals in this sample who struggled to define “higher status” were struggling with what it means to be “highest status” in a modern, capitalist-communist (or ‘socialist’ [Nguyen-Marshall et al., 2012]) society.

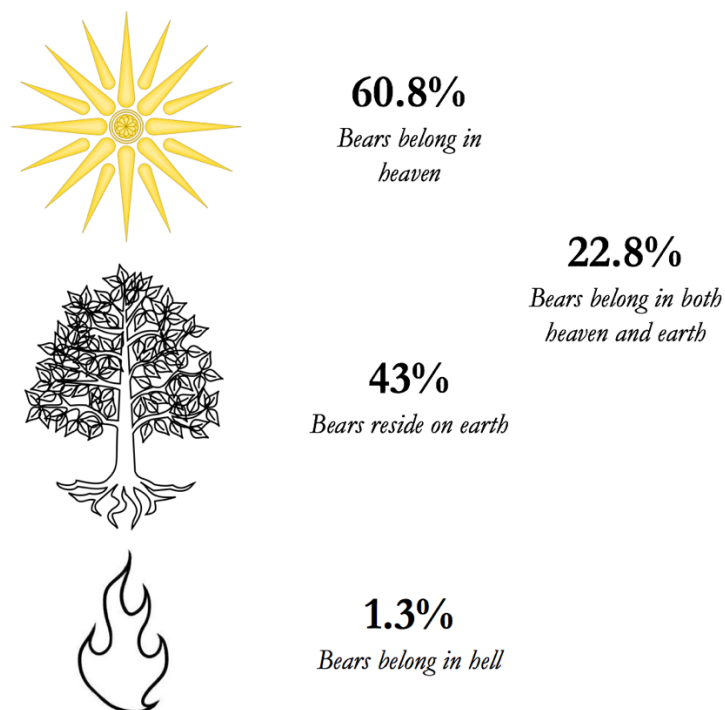
The overarching conceptualisation of status in current Laos is of Laos society being relatively egalitarian. This is striking when considering the ethnic plurality of Laos, and the potential for respondents to have stated, according to perceived inequality, “Lao Loum” as inherently possessing higher status. Yet, although ethnic divisions and ethnic tension certainly exist within Laos, as I have seen and heard through observations and conversations, status is not overtly conceptualised, or at least communicated, as a separator of the groups. In addition, status in current Laos has not diverged from Lao-Tai heritage of power and status radiating out from one centre (O’ Connor, 1995 and Stuart-Fox, 2005). This has likely been aided by the transition in Laos into a communist party state, which is also structured along a controlled centre (Almond, 1983). In monarchical Laos, high-status individuals would have been clustered around the court in Luang Prabang, as in modern Laos they are clustered around the *politburo* in Vientiane. In both of these systems, individuals are much less likely to attain status the more removed they are from the centre (Stuart-Fox, 2005). In addition, the centralised system ensures that tools for “the manufacturing of status”; i.e. favours, titles, and etc are kept firmly in the centre (O’Connor, 1995). Status in current Luang Prabang, then, has so far been kept stable through being removed from those with the power to change the societal structure.

This is in contrast to what has been shown to be the case in Cambodia, in particular Cambodia’s capital of Phnom Penh. Within Phnom Penh the accumulation of wealth by members of society has led to a rise in status distinctions by higher status individuals, as well as those on the lower tiers who perceive imbalance of power (Thye, 2000). In Luang Prabang, the accumulation of wealth and power has not yet affected the conceptions of individuals in the same significant manner that has been shown in Cambodia.

## 5.4 Modern Laos cultural group cosmology

### 5.4.1 Bears, divinity, and the Laos cultural group

As discussed previously in this thesis, use of animal products can be motivated by ingrained cultural beliefs in the product's significance. For example, the Inuits have been recorded as consuming the head of a polar bear, following a long ceremony where the head and skin are treated with reverence (Hallowell, 1926). This ceremony and subsequent consumption are manifestations of the cosmological significance of the polar bear in Inuit culture, as a powerful and semi-divine being (D'Anglure, 1988). By consuming the animal, it is hoped that some of the animal's power is transmuted into the human individual. Therefore, considering the significance of certain rites in influencing acts of consumption, the cosmological significance of bears in Laos was explored. This was done by having respondents place bears along a divine scale of "heaven", "earth", and "hell" (detailed in **Chapter 3**). Respondents were also asked to give examples of any bear folktales they knew of, as well as discuss the feelings they would have upon seeing a bear. These methods were all used to gain a general idea of the place of bears within the worldview of the individuals sampled. This worldview will subsequently inform inferences about motivations for bear part use.



**Figure 16:** Graphic representing the percentage of Laos cultural group individuals (n = 79) who believed in the cosmological concepts presented to them. All pictures are from Wikimedia Commons or ClipArt (all Creative Commons).



The majority of Laos cultural group respondents (60.8%) stated that they wanted bears to reside in heaven. However, this was not for reasons of perceived divinity, but rather because they wanted the bear to “have a long life”. This is a hugely important tenet of Buddhism (the religion practiced by the majority of the sample), as having a long life is believed to allow an individual more time to attain enlightenment (Birnbaum, 1985). Generally, this indicates positive feelings held by the Laos cultural group towards bears, as well as a belief in humanity within bears. This is entirely opposed to what might be termed the traditional view of animals in Theravada Buddhism, as beings far below the elevated state of humans, and as such unable to attain enlightenment (Goodman, 2014). Many individuals (22.8%) who placed bears into heaven would, upon reflection, follow up their statement with asking if bears could also be on earth, as they wanted bears to be able to be seen by humans, and to be part of human lives. This is positive for conservation, as it indicates a desire to maintain the presence of bears within the landscape around them, an attribute referred to in some Western, human dimensions of wildlife literature as ‘altruism’ or ‘bio-centricity’ (Whittaker et al., 2006). However, as Snodgrass et al. (2007) note in their study performed in India, in many communities the delineations between bio-centricity and anthro-centricity are non-existent, and as such, strong bio-centricity does not indicate a lack of anthro-centricity. Indeed, societies across the world exemplify this, as illustrated by the “meat paradox”, wherein individuals love animals and keep them as pets, while also loving the consumption of animal meat (Bratanova et al., 2011). Therefore, an individual from the Laos cultural group could both have bio-centricity towards bears, but also believe in the use of bears for human needs (anthro-centricity). This is true of the sample of the Laos cultural group population discussed here, as will be discussed in the below section.

In the sample, only one individual believed that bears should be in hell. The reason for this was given as being the dangerous nature of bears, exemplified in the following story, given by the same individual, a 28-year-old Lao Loum male (#55):

Near my hometown (Chompet District) a bear killed an entire family when they went to the rice field. The father tried to kill the bear, so the bear retaliated.

Although the individual who told this story believed that bears should be in hell, he also gave a logical reason for the bears’ attack. The bear may have killed an entire family, but it did so because it was attacked. This contrasts with tigers and snakes, who were nearly uniformly placed in hell in

the sample, although no anecdotes were given about snakes or tigers having killed anyone. It is known that among the Hmong cultural group, who are found in the Luang Prabang region, tigers are seen as wicked (Fadiman, 1997). This belief may have spread to other cultural groups in Luang Prabang, or could be endemic in those groups as well, although there are few records of this. There are also few records of belief in snake wickedness, although as venomous snakes are a consistent source of potential illness and/or death in Laos (e.g. Blessman et al., 2010), it may make sense that Laos cultural group individuals would like to see snakes banished to hell.

#### 5.4.2 Bear folktales

Of the sample, 58% (n = 46) did not know any folktales or stories associated with bears. One Lao Loum individual explained this as being because she was “from the city” (i.e. born and raised in Luang Prabang), as were her parents, who had never told her any bear folktales. However, some residents from a village (Ban Phan Luang) less than a ten-minute motorcycle ride from Luang Prabang town proper stated a ‘folktale’ that during the wet season the local pagoda, as well as village residents, used to feed bears that were walking through the town. These two very disparate statements from individuals who live within less than a mile radius from one another illustrates the diversity of views within an area such as Luang Prabang.

Of the individuals who did mention folktales or lore (n = 33), 61% (n = 20) did not know of folktales, but rather knew of gallbladder being used for medicine. Moreover, the stories told might be better classed as anecdotes, rather than what would usually be termed a folktale. One woman, a 43-year-old Lao Loum market seller (#8) said:

Teacher told me a story about bears stealing children from the [rice] fields.

The brief anecdote indicates a level of conflict that may be present between the cultural groups of Laos and bears. This conceptualisation of bears as dangers present around fields is supported by the story told above by #55, where an entire family was killed in their rice field, following a conflict.

Another anecdotal story was similar to the stories given in Cambodia (**Chapter 4**). The individual who told this story, #14, was a 59-year-old Lao Loum male, a fisherman and a worker at the pagoda:

Not sure, but someone used to talk about two men who went to the forest. One climbed a tree, and the other could not so he stayed on the ground. A bear came along, so the man

who wasn't in the tree played dead.

The implication of this anecdote is that the individuals survived the encounter when they were in the bear's space, i.e. the forest, rather than the rice fields, i.e. the domain of humans. The stories of the rice fields paint the bear as aggressive (though sometimes not without cause) and deadly, which is a significant contrast to this tale of bears in their domain, where every individual survives the encounter. As will be discussed at greater length in **Chapter 7**, this contrasts with arguably complementary literature from Cambodia that paints Cambodia as divided between the unsafe *prey* (the wild) and the safe *srok* (civilisation), i.e. between the domain of animals, where death and/or injury can occur, and the domain of people, where one is in theory free from animal-influenced death and/or injury.

#### 5.4.3 Individual versus social beliefs about bears

**Table 14:** Table of the stated emotions of the sample when confronted with a bear (n = 78, one non-response).

<i>EMOTION</i>	<i>PERCENT OF SAMPLE</i>
<b>Happy</b>	82.1%
<b>Happy/scared</b>	6.4%
<b>Scared</b>	5.1%
<b>DK</b>	2.6%
<b>Curious</b>	1.3%
<b>Wild bears are scary, captive I like</b>	1.3%

Overwhelmingly, individuals of the Laos cultural group felt positively about bears (**Table 11**). Moreover, few individuals in this sample thought the bear was scary. The sentiments where fear was expressed comprised less than 15% of the sample. Of those sentiments, over half were paired with the positive feeling of happiness. This could be because most individuals in Luang Prabang will have seen bears at the bear rescue centre within Tat Kuang Si Park, a popular picnic and leisure spot approximately 25 km from the town. Because of this, individuals in Luang Prabang are probably more familiar with bears than other groups throughout Laos, and that familiarity may encourage a feeling of safety and positivity. Increased positive connections towards wildlife have been seen to result from visits to zoos (Clayton et al., 2009), although it is uncertain how likely it is that this positivity translates into positive conservation beliefs or actions.

The sentiments here also corroborate the work of Scotson et al. (2014), who found in her interviews that villagers of the Laos cultural group were generally happy to see bears, despite bears' perceived status as crop-raiders. Additionally, the sentiments held by her sample appeared to be completely devoid of feelings of fear towards bears. This lack of fear is helpful for future conservation initiatives, as fear of an animal often encourages attempts to remove that animal from the natural landscape (e.g. Manganiello, 2009).

As discussed in **Chapter 4**, social beliefs are defined as being beliefs held “on condition of others [in one’s social group] holding that belief” (Greenwood, 2003). Additionally, social beliefs act to encourage individuals to categorise themselves with other individuals who share similar beliefs, attitudes, and values (Liviatan et al., 2008). According to these definitions, there is a prevailing social belief held by the Laos cultural group regarding bears. The individual beliefs found in **Table 12** correspond to the widely stated belief in the Laos cultural group of liking bears for their intrinsic value, specifically the pleasing aesthetic of seeing a bear (**Table 13**). Therefore, there is a prevailing social belief among the Laos cultural group of value of bears for their aesthetic value.

**Table 15:** Table of the beliefs towards bears that the Laos cultural group individuals believed their social group possessed (n = 79).

<i><b>EMOTION</b></i>	<i><b>PERCENT</b></i>
<b>The Laos cultural group likes to see the bear</b>	68.4%
<b>DK</b>	10.1%
<b>The Laos cultural group likes the bear for resource use</b>	6.3%
<b>The Laos cultural group likes the bear because Buddhist</b>	6.3%
<b>Depends on everyone</b>	3.8%
<b>The Laos cultural group likes the bear but think it is dangerous</b>	3.8%
<b>Maybe the Laos cultural group likes the bear</b>	2.5%

This positive social belief does not preclude use of bears for their resources, nor does a positive individual belief appear to decrease bear part use. It has been argued that in ‘modern’ Western societies an individual who respects/loves an animal will be less likely to harm it or use its parts, an effect conceptualised as mutualism (e.g. Manfredo et al., 2009). ‘Mutualism’ in modern societies is distinct, however, from the conception of mutualism argued to be held by individuals in ‘hunter-gatherer’ societies, who use animals yet perceive a “relationship of mutual responsibilities”

(Manfredo et al., 2009). This “relationship of mutual responsibilities” should not be considered as directly analogous to the “noble ecological savage” concept, however. Rather, mutualism in a hunter-gatherer society consists of respect towards animals, with no cognitive dissonance about using animal-based resources, even if such use harms the environment. Conversely, the mutualism effect seen in ‘modern’ societies is argued to be the result of a growing ‘egalitarian’ culture, wherein individuals believe that animals and humans hold the same rights, and that animal resources should not be utilised (Manfredo et al., 2009). This belief system is argued to be a result of post-materialism, which is a national state that Laos has not yet achieved (Lintner, 2008). Moreover, this effect of mutualism has not been fully explored in non-Western societies, and has indeed been argued by some to be incompatible in different economic and cultural contexts (Kaczensky, 2007).

A ‘modern’ mutualistic effect does not appear to be present in this sample, but “hunter-gatherer mutualism” does appear to be dominant. This difference in cultural interpretation of nature, and the actions surrounding ‘stewardship’ of nature, appears to be even more pronounced among the Laos cultural group than among the Khmer (**Chapter 4**). As will be discussed at greater length in **Chapter 7**, this could be due to the difference in the level of materialism, along with the influence of Western culture in both places. In Phnom Penh, where the majority of the interviews of Khmer in this study occurred, there is a high level of Western influence in both business and the non-profit sector (Khieng, 2014 and Paling, 2012), and the individuals interviewed were comparatively wealthy compared to the individuals interviewed in Laos. A lack of consumer items and significant Western influence in Luang Prabang may be maintaining the endemic, mutualistic belief system of nature as something to be both valued and utilised. This belief system is common among societies throughout the world (Armstrong Oma, 2010), particularly among traditional small-scale agricultural societies such as Laos (Jerardino, 2010 and Messerli et al., 2009). Therefore, considering the likely ingrained norms of animal use in Laos, it would be faulty to suggest that conservation of bears in Laos could happen through solely using the respect and positive feelings held by the Laos people as leverage.

## **5.5 Use of bears among the Laos cultural group**

### 5.5.1 What are bear parts used for among the Laos cultural group?

Understanding of the use of bears as a commodity appears to be prevalent among the Laos cultural group, unlike within the Khmer cultural group. The predominant use identified was for medicine. 69.6% of the sample mentioned use of bear parts for medicine, while 6.3% mentioned using bear parts for clothing (handbags, shoes, jacket). Although the majority of the respondents in the

sample stated bio-centric values and appeared to value bears enough that they desired that bears obtain enlightenment, those same individuals also practiced anthro-centric behaviours and held anthro-centric beliefs. For instance, one individual said:

In the future, so many people will want [bear] gallbladder that it will be sold openly at the market.

- #10, 42-year-old Lao Loum female, food seller

When asked her feelings about bears, she stated that it was a lovely animal, indicating positive feelings towards bears. However, when she was asked what she thought individuals in the Laos cultural group felt about bears, she stated that they like bears “because they like to use gallbladder”. She herself used bear bile for medicine. Therefore, her perception of bears was as lovely, yet valuable resources for human use. It is worthwhile to note that she believed that bear populations in Laos are increasing due to government restrictions on hunting bears. It is uncertain whether her attitudes towards using bear parts would change if she knew that bear populations in Laos are in all probability declining. #12, a 34-year-old female market seller, stated both that she thought that bear populations might be decreasing in Laos, and that bears are lovely animals, yet later said that she used gallbladder to “be healthy and live a long life.” It could be argued that she did not believe her own needs trump those of the environment. Rather, the overwhelming sentiment seemed to be one of ignorance. Indeed, those individuals who stated that they thought bear populations might be decreasing in Laos did not indicate that they thought any actions should be undertaken to protect bears. Lack of conservation value is supported by the study performed in 2014-2015 by Davis et al. (2016). In that study, the research team found that only 1.5% of the 887 Laos cultural group individuals sampled mentioned protection or conservation as a reason not to use bears for their parts (Davis, unpublished data).

In addition, as in Cambodia, most individuals within this Laos sample specified whether they had used bile or gallbladder; however, bile and gallbladder are often used interchangeably and usually (if not always) appear to be used to treat the same ailments. Therefore, they will be considered here to be similar and interchangeable.

### 5.5.2 Demographics of use

**Table 16:** The demographics of self-identified users of bear parts in the Laos cultural group sample (n = 13, total sample n = 79).

**DEMOGRAPHICS HAVE USED BEAR PARTS**

<b><u>Gender</u></b>	Male	53.8%	(n = 7)
	Female	46.2%	(n = 6)
<b><u>Age</u></b>	Range	34 - 69	
	Average	50	
	Median	46	
<b><u>Ethnicity</u></b>	Lao	92.3%	(n = 12)
	(Lao Loum)		
	Lue	7.7%	(n = 1)
<b><u>Religion</u></b>	Buddhist	100%	(n = 13)

The identified users of bear parts were predominantly Lao Loum (**Table 13**). The average and median ages appeared to be higher than the average ages of the entire sample, but this was not found to be a statistically significant difference ( $W = 550, p > 0.05$ ). Nonetheless, it is logical that users would appear slightly older, when considering the context of bear part use uncovered here; generally, parts appear to be used when a significant injury occurs, e.g. falling from a tree (discussed in greater length in **Section 5.5.6**). Therefore, older individuals will have a higher probability of having had such injuries occur.

In Cambodia it has been found that there exists a gender bias in reporting use of certain bear parts (**Chapter 6**), but this trend was not reflected in this sample. However, the stated use of bear parts found in this sample did not reflect the perceived use, with 44% of individuals sampled stating that they believed men used bear parts more than women, versus 33% of individuals who believed women used bear parts more than men. This could be a result of use among women being more hidden than use among men. Across societies, women have been found to underreport sensitive behaviours to a greater extent than men, although this research has often been centred around sexual behaviours. For example, de Jong et al. (2012) found that women were more likely to underreport sexual behaviour in all seventeen countries sampled, ranging from India, Singapore and Japan through to the United States, Estonia, and etc.

5.5.3 Use of nominative technique to understand prevalence of bear part use in Luang Prabang

As discussed at greater length in **Chapter 3**, direct questions about sensitive behaviours can sometimes lead to bias in sample responses. Individuals tend to give more deceitful answers if the behaviour being questioned is illegal and/or socially undesirable. Therefore, specialised questioning techniques (SQTs) have been developed to address these biases. Nominative technique (NT) is an example of an SQT, and has been used relatively successfully in Cambodia (discussed at greater length in **Chapter 6**). As it is fairly simple in execution and has the benefit of appearing innocuous, it was employed in the qualitative interviews performed in Luang Prabang, Laos.

The NT prevalence estimate of bear part use found was 16.5%, a remarkably similar result to the directly reported prevalence estimate of bear part use of 16.3%. Theoretically, NT will be more accurate among a larger sample, as larger samples generally decrease statistical error (particularly among large populations, e.g. (Bartlett et al., 2001)). Miller (1985) had a sample size of well over 1,000 in their benchmark NT study, although St. John et al. (2010) had a much lower sample size of approximately 200 in theirs. St. John et al. (2010) found that NT did not work well in their study, yet they theorised that the inefficacy of NT was due to the respondents in the study not being adequately aware of their friends' behaviour, rather than problems with the sample size. This is worth bearing in mind in this study. As discussed throughout this section, bear part use in this sample appears to be primarily tied to relatively major injuries (broken bones, severe bruising), and thus is not what might be considered a common behaviour. However, for that reason it is possible that respondents in this study actually *under*-estimated the true prevalence of use in their social group, being unaware of, for example, a friend's bear part use that occurred a decade prior.

However, high correlation was found between the calculated NT formula for each individual when compared to their direct question responses (Pearson's  $R = 0.70$ ,  $p < 0.05$ , CI: 0.56 – 0.79), indicating that individuals with a greater amount of acquaintances, family, and friends who used bear parts were by extension more likely to have used bear parts themselves, and to state this directly. The correlation analysis also further supports that deceit was unlikely to be acting within the sample. If deceit was acting within the sample, there would be greater inconsistency between individual's direct responses and their responses to the NT questions.

#### 5.5.4 Perceptions around positives and negatives of bear part use

Users of bear parts were consistent in their belief that bear parts were 'high-quality' and beneficial as medicine, and consistent in their belief that the only negative aspects of using bear parts was



that it has, according to the individuals sampled, become more difficult to find, and more expensive. Among bear part users, no other negative attributes, such as decline in bears, loss of native biodiversity, etc., were given.

Indeed, of non-bear part users, only 3% (n = 2) stated that they thought use of bear parts was bad in that use would negatively affect native bear populations. #1, a 58-year-old Lao Loum man, said that he wanted bears to stay in Laos, though he believed bear parts are medically effective. A man from a similar demographic, 59 and Lao Loum, corroborated that he wanted bears to stay in Laos, but stated further that he would have no reason to use it, implying that he did not believe it was medically beneficial or, at the very least, useful. All other non-bear part users, however, only gave the reasons not to use as the expense of bear parts. It is worth noting here that individuals were always asked whether they had additional concerns over use of bear parts. Some, upon reflection, would also mention the inaccessibility of bear parts as a barrier to use, but otherwise did not mention conservation concerns or animal-ethics-related concerns.

#### 5.5.5 Bear part use as tied to status and culture

Goods that are perceived by a group to be high-status are more likely to be desired by social groups that self-perceive as lower-status. Previous research performed in Vietnam has argued that certain wildlife products tend to be used by higher-status individuals (although, not bear bile) (Drury, 2011); while recent studies have supported the finding that bear part use in Vietnam may not be as tied to status as other wildlife products (Crudge et al., 2018a). However, it is unknown whether individuals of lower-status feel that bear part use will help with achieving greater status and prestige, so by extension it is unknown whether perception of bear parts as being status-connected will have an effect on greater use of parts. Yet, the potential for bear parts to act as status-increasers is certainly present and worth considering in light of how influential conspicuous status markers can be (Sivanathan and Pettit, 2010).

When members of the Laos cultural group were asked if bear parts are high-status, over half of the sample (61%) said they believed they were. 16% of the sample did not know whether bear parts were high-status or not, while 14% argued that bear parts were not high-status. 4% of the sample indicated that bear parts were only used by foreign people, regardless of their status.

Reasons given for bear parts being used by high-status individuals were remarkably consistent. Individuals who thought bear parts were high-status said that bear parts were too expensive for

poor people to buy, and thus unattainable. The individuals sampled did not give any other reasons for bear parts being high-status, e.g. bear part use being culturally tied to individuals of higher status. Individuals who did not think that use of bear parts was high-status stated that they believed use of bear parts to be separate from status. Individuals who gave this answer usually said that use of bear parts “depends on everyone”, i.e. it is the person’s choice whether they use or not, and this use is not mediated by status.

This perception seems more aligned with the actual results of the sample, versus the prevailing belief that bear part use is a high-status act. In this sample, 16% of the respondents admitted to having used bear bile. As these respondents were, like most members of the sample, middle to lower-status, the predominant belief in use of bear parts by higher status people should be read with nuance. It is possible that higher-status individuals also use bear parts, but bear part use clearly transcends status lines in Laos.

#10, a 42-year-old female, Lao Loum food seller, knew of two individuals besides herself who used bear parts: like her, one individual used bear bile wine (by extension for medicine), and one other woman owned a bearskin handbag. #10 also stated that she believed that individuals who used bear parts were perceived positively in Lao Loum culture. She indicated that her friend with the bearskin handbag was considered to be prestigious, as she had bought her handbag from China, though she did not indicate whether individuals such as herself, who used bear bile for medicine, were perceived as being prestigious. In this woman’s example of use, bear parts are considered to be culturally positive. This corresponds with the dominant perception of the sample of bear part use as a high-status act, when asked about use and status.

**Table 17:** Beliefs among the Laos cultural group sample (n = 79) for the question “Do you think that [use of] bear parts are a part of your culture?”

<i><b>BELIEF</b></i>	<i><b>PERCENT</b></i>
<b>Yes, it is part of my culture</b>	44.3%
<b>Not my culture</b>	27.8%
<b>In the future will be Lao culture as bear parts get more affordable</b>	11.4%
<b>DK</b>	11.4%
<b>No, just wealth-mediated</b>	3.8%

## Chinese culture

1.3%

Respondents were likely to think that use of bear parts was status-mediated and were also fairly likely to believe that use of bear parts was part of their culture (**Table 14**). This was true of some Khmu people surveyed, of Lao Loum, of Hmong, and of Lue. Respondents from all four cultures specifically stated that they believed use of bear parts was part of their culture. However, a substantial amount of the individuals sampled either were unsure or did not believe use of bear parts was currently part of their culture. Two individuals, #68 and #69, both tuk-tuk drivers and older Lao Loum males (both 60) said:

Don't think [it is part of Lao Loum culture], Lao people don't kill the bear because they love it.

Yet, this contrasts strongly with the response given by an individual who shares a similar demographic to #68 and #69:

Yes, part of Lao culture. So many people want to use if they have the money.

- #54, 53-year-old Lao Loum male, carrier of goods for women at the market

Several individuals believed that bear parts would eventually become part of their culture, stating their hope that bear farming practices would continue in Laos, with the accompanying lower price tag for bear bile in particular. It is clear that individuals were unaware that bear farming is technically illegal in Laos (Krishnasamy et al., 2018). Additionally, some individuals stated that they hoped bear handbags and coats would grow more affordable in the future. #62, a 38-year-old Lao Loum female and clothes seller at a market, said:

Bear is lovely to use, e.g. a bearskin coat is lovely and beautiful.

#63, a 33-year-old Hmong male from another market in Luang Prabang, said that he believed handbags would be part of Hmong culture in the future. At present, he said, the Hmong use gallbladder. It was unclear as to whether he thought bear handbags (and perhaps other bear accessories) would replace use of bear gallbladder, or complement that use. However, two young Hmong females, #19 and #20 (28 and 27 years old, respectively) were almost horrified at the suggestion that bear parts could be part of Hmong culture. They said:

[I would be] scared to wear, not part of Hmong culture.

This statement is interesting for several reasons. First, the young women assumed that the questions they were being asked were about bear accessories, e.g. clothing and bags, rather than bear medicine. Second, they were chosen to be interviewed because they had laid out a traditional medicine stall, with various animal parts, such as deer horns and boar teeth. However, the use of bear products by the Hmong was clearly not considered by the young Hmong women to be part of this traditional medicine sphere, considering their reactions. There was no cognitive connection between bear products and medicine, despite traditional medicine and bears both being at the forefront of their mind in the discussion.

Indeed, the women had in fact travelled up from Vientiane to sell their traditional medicine wares. My Lue interpreter at the time explained that this was because many Lao Loum and Lue (each Lao-Tai ethnic groups) believe that the Hmong have the ‘best’ traditional medicine of endemic Laos groups. Later, a Hmong colleague elaborated that the ‘dominant’ Lao-Tai ethnic groups believe that the Hmong have “held on to their culture” the most of all the ethnic groups. Another colleague of the Lue ethnic group opined that the Hmong are “most likely” to be using traditional medicine of all the ethnic groups in the area, with the subsequent assumption that they would be most likely to be using bear products of all the groups. This assumption is not supported by the evidence presented in this chapter, where the Lao-Tai groups were the only groups to be identified as using bear products, but it indicates a widespread belief among Lao-Tai individuals (who are not *themselves* bear part users) that use of bear products is traditional medicine, and that those most likely to be consuming traditional medicine will be members of the local ‘indigenous’ group. Yet, my results indicate the reverse, and that Lao-Tai individuals may be more likely to use bear products medicinally than Hmong individuals. More generally, this indicates a widespread misperception among the majority Tai-Lao ethnic groups as to the cultural practices and patterns of ‘minority’ ethnic groups such as the Hmong.

From the results discussed above, it appears that use of bear parts is primarily socially-mediated; i.e. if your social group is using bear parts, you will be more likely to use bear parts. In this sample, it seems probable that those individuals who are part of social groups that use bear parts will believe that use is cultural. Similarly, those individuals who state that bear parts are used by higher-status individuals may not be in a social group that uses bear parts, and thus those individuals’ perceptions of bear parts are as something unattainable.

### 5.5.6 Use of bear parts for medicine

According to the individuals sampled in this study, bear parts are used in Laos primarily to treat bruises and bone breakages, although one individual (a 55-year-old Lao Loum male) stated that women use bear bile to treat post-partum weakness, a novel use that has been documented in Cambodia as well (**Chapter 4**). However, this use does not appear to be common in the region of Laos studied here, and further research will be needed to determine whether it is present to any greater extent elsewhere in Laos, and whether its presence has been influenced by Cambodian use.

Generally, it appears that individuals who use bear parts for medicine will take gallbladder and mix it with some kind of substance. The substance appears to be linked to one's hometown and/or home district and is according to a prevailing belief among that community. For example, #13, a 43-year-old Lao Loum male, said:

In my district they mix [gallbladder] with spring water (forest water), water that puddles, for instance in elephant footprint, and dew.

Others said that gallbladder mixed with wine was their preferred use, while some said only water needed to be used (unspecified as to what type of water), and still others suggested mixing gallbladder with Lao whiskey (a type of rice wine). However, #76, a Lao Loum traditional medicine (TM) seller, the son of a TM practitioner who practiced in a rural district across the river from Luang Prabang, stated that his father would take gallbladder and mix it with honey, a special plant, and hot water to create the medicine. Additionally, he said that the practice in his home village was to take a gallbladder (worth, he estimated, about \$2,178 [approximately 18 million kip]) and divide it among the families living in the village, so that each family only had to pay \$5 (approximately 41,000 kip) for the medicine. As an additional note, the young man said that he believed bear populations in Laos were going up because nobody was killing them, despite his stated evidence to the contrary.

Indeed, this widespread use of gallbladder in a village corroborates the statement of #4, a 42-year-old Lao Loum male:

Used to be every family had little bit of gallbladder for medicine. Now have hospital. Would go to the hospital first, then use gallbladder second.

This statement indicates several things. First, as in Cambodia, the presence of “Western” medicine does not necessarily preclude use of bear parts, and individuals’ choices are influenced by the diverse medical systems available to them, i.e. medical pluralism. Second, according to this individual, bear gallbladder used to be essentially a medicine cabinet staple. As known from #76, this practice certainly still occurs around Luang Prabang. It is perhaps significant that #76 stated that he was from Chompet District, an appreciably more rural district compared to the Luang Prabang area that #4 currently lives in. Therefore, his impression of gallbladder as being kept by every family in a village may reflect what were once the realities of rural life around Luang Prabang. Accessing the hospital in Luang Prabang from Chompet would have required a ferry trip across the Mekong, following slow and potentially dangerous travel over gravel and dirt roads. Therefore, some people in Chompet may have felt that TM was the better option. However, as a reflection of the increasing accessibility of Western (termed ‘*farlang*’) medicine in Laos, half of the individuals who came from Chompet (n = 6) or other rural districts across the river stated unequivocally that they would go to the hospital first before choosing to use gallbladder, while 33% (n = 2) stated that they would go to the drugstore in the village. Altogether, the preference for *farlang* medicine as the first option over TM may reflect a shift in the preferences of Laos individuals, as *farlang* medicine has grown increasingly accessible, increasingly cheap, and with perceived greater efficacy compared to traditional medicine in Laos (Davis et al., unpublished data). Yet, bear bile/gallbladder continues to be a ‘fallback’ and clearly has perceived efficacy. This could potentially be a self-reinforcing cycle, wherein individuals perceive efficacy of bear products because nearly 20% of their peers are using bear bile/gallbladder, thus encouraging their own use, and thereby perpetuating the cycle. As in Cambodia (this thesis), and in Vietnam (Davis et al., 2019) it is highly likely that bear bile use is maintained through social motivations, i.e. the recommendations of one’s peers, regardless of one’s own beliefs regarding TM efficacy. Another explanation may be to do with the actual efficacy of bear bile. In Laos, as in Cambodia, bear bile is cognitively distanced from TM yet is considered a complementary component of Western medicine, perhaps because it has been seen to be truly effective in a way that other TM treatments or tonics have not.

Finally, the majority of the individuals interviewed stated that they believed wild bear bile/gallbladder was more effective than farmed bear bile/gallbladder (80%, n = 63). The primary reason given for this perceived disparity in efficacy was that wild bears “eat so many things”, with the implication that the bears have imbued the positive qualities of a variety of medically effective flora. It is uncertain whether this belief has any medical basis. However, its prevalence within the

sample indicates that a level of demand exists specifically for wild bear products, with the following, logical conclusion that wild bear populations in northern Laos are at risk. This also supports previous, quantitative findings in the area of a marked preference for wild bear bile (Davis et al., 2016), indicating that this perception is widespread.

As in Cambodia, the marked preference for wild bear bile among the Laos individuals sampled here is less a reflection of individuals who would not take farmed bear bile if it was available, but rather a reflection of the ‘true’ market landscape in Luang Prabang. Although bear bile farms are present in northern Laos, these farms are primarily for the outside consumer markets of the Vietnamese and Chinese (Krishnasamy et al., 2018 and Livingstone et al., 2018). Yet, if bear farms in northern Laos began to market to Laos individuals, there is likely a willing and receptive market, as indicated by Laos individuals stating that accessibility was one of the only barriers to their use. Again, as was seen in Vietnam, wild bear bile may be stated as more preferential, yet farmed bear bile will be taken so long as there is a prevailing, general belief in the efficacy of bear bile (Davis et al., 2019), along with little cognitive barriers beyond expense and accessibility. Moreover, the correlation analysis indicates that users of bear bile are nested within a network of other users, with use of bear bile spreading according to one’s social connections and the influence of the peers. Thus, if one user of bear bile were to try farmed bear bile and find it effective, they would likely communicate this efficacy and urge their peers to try it. With the removal of the barriers of expense and accessibility and the maintenance of the strong motivator of social approval, a preference for wild bear bile would have very little importance. As before, this was arguably been seen in Vietnam, where farmed bear bile became a fad phenomenon (Crudge et al., 2018a), and to this day, use of bear bile in Vietnam spreads through the influence of the social group and overrides qualms about farmed bear bile’s possible lower efficacy (Davis et al., 2019). Thus, although there may be initial reservations about farmed bear bile, there is little reason to believe that greater accessibility of bile would lead to anything but the maintenance of/an increase in widespread acceptability and prevalence of use.

#### 5.5.7 Reasons not to use bear parts

Sometimes the reasons given by individuals not to perform a behaviour are more illuminating than the reasons to perform a behaviour. In an effort to understand what prohibitive forces were working in the individuals surveyed, individuals were asked whether they could think of any reasons not to use bear parts (**Table 15**).

**Table 18:** Reasons given to not use bear parts by Laos cultural group individuals (n = 79; 8 non-responses (10%)).

<i><b>REASON NOT TO USE</b></i>	<i><b>PERCENT</b></i>
<b>Expensive</b>	38%
<b>Expensive and inaccessible</b>	25%
<b>Inaccessible</b>	14%
<b>Don't know enough about it</b>	3%
<b>Think it is a scam</b>	3%
<b>Not currently sick</b>	3%
<b>Want to keep bears in Laos</b>	3%
<b>Have Western medicine now</b>	1%
<b>There is no reason not to use it</b>	1%

The majority of the responses in **Table 15** (77%) state that the reasons not to use bear parts are expense and/or accessibility. Only 3% (n = 2) of the individuals sampled cited bear conservation as a reason not to use bear parts. Individuals were usually prompted to discuss other reasons beyond expense and inaccessibility that they could think of not to use bear parts, yet individuals still could think only of these reasons as negatives of using bear parts. Moreover, expense and inaccessibility are more accurately barriers to using bear parts. Reasons not to use bear parts that were not “barriers” only accounted for 13% of the responses from the individuals sampled. Overwhelmingly, the individuals sampled could think of no compelling conservation or welfare-mediated reason not to use bear parts. This is in spite of the hugely popular waterfall park and bear sanctuary a short distance from Luang Prabang, Tat Kuang Si Park (TKS). At TKS the bear conservation organization Free the Bears have put up extensive signage (in Lao, English, and Chinese) highlighting the cruelty of bear bile extraction, use of snares in bear poaching, and the benefit of bears to the natural Laos landscape. Nonetheless, it appears such educational efforts have not made much of an impact on the knowledge of the Laos cultural group in the sample.

It has been noted that bear bile farms still persist in Laos (Krishnasamy et al., 2018 and Livingstone et al., 2018). Indeed, in the interviews performed here the concept of ‘farm’ was so pervasive that



respondents called the TKS bear sanctuary a ‘farm’. It is possible that the responses collected for reasons not to use bear parts, i.e. expense and inaccessibility, indicate some measure of success for the Laos government in their enforcement, as they shut down bear bile farms throughout Laos (Free the Bears, pers. comm.). Yet, it has been documented that many, if not all, of the bile farms within Laos are catering to foreign markets such as the Chinese and Vietnamese (Livingstone and Shepherd, 2014), and thus many Laos individuals may perceive bile as expensive and inaccessible because it is being marketed for the wealthier Chinese and Vietnamese. Equally, these responses of expense and inaccessibility could reflect the theorised decline in bear populations within Laos. Although the Laos borders are known to be “porous” for illegal wildlife trade into Laos (Livingstone et al., 2018), if bears within Laos are declining, bears from surrounding countries may still be difficult to acquire for the average Laos cultural group individual, due to the expense of obtaining a bear (estimated at approximately \$2,450 (Livingstone et al., 2018)). Therefore, the supply within and around Laos may simply be drying up, thus by necessity making the commodity of bear parts inaccessible and expensive.

## **5.6 Conclusion: Laos**

This sample reflected the ethnic diversity present in Luang Prabang. Six ethnic groups were identified, with the most predominant ethnic group being the Lao Loum, who are also the predominant ethnic group throughout Laos. The sample was also predominantly comprised of middle-status individuals, according to their self-conceptualisations of status. In general, status was defined in terms of how the groups used their time. The lower-statuses were defined as spending their time working hard, while the wealthy were defined as having the luxury to travel and shop.

Although little information exists about historic perceptions and uses of bears in Laos, it is plausible to guess that bears have historically been used on some level, although making inferences about historic perceptions towards bears is impossible with the current records available. However, this study has shown that in modern Laos the Laos cultural group has a generally positive perception of bears, and thus are unlikely to kill bears out of fear. These positive perceptions have also been found in other studies performed in Laos (Davis et al., 2016), and even when addressing such conflict issues as bears’ crop-raiding (Scotson et al., 2014). Additionally, unpublished analysis of some aspects of the study performed by Davis et al. (2016), corroborated the results here that the Laos cultural group in Luang Prabang exhibits some anthro-bio-centricity. Therefore, they do not feel cognitive disconnect when stating love of bears, along with a preference for using bear

gallbladder/bile for medicinal purposes. This could be because nearly half of the individuals sampled stated that they consider bear part use to be of their culture.

As has been found in this study, when bear parts are used in Laos, they are overwhelmingly used for medicinal purposes, although individuals did also discuss use of bear parts for handbags and clothes. Bear parts being used for medicinal purposes is in all probability the most likely use in Laos for economic reasons; a superficial internet search shows that bearskin shoes can cost well over \$1,000, which is nearly 5 times the reported monthly salary of the average Laos individual in the capital of Vientiane (it is possible that this average monthly salary may be even lower in a provincial town like Luang Prabang) (Check in Price, 2018). Additionally, social desirability bias, or a real bias of use, appears to be present, with men admitting using more readily than women.

The attitudes of the Laos cultural group do not appear to be any barrier to use of bear parts. Reasons for not using were overwhelmingly cited as being the expense of bear parts, as well as the perceived difficulty by some of accessing bear parts. The method of ensuring that gallbladder is accessible and cheap for everyone in the village reflects the common hope among most of the Laos cultural group individuals sampled that bear gallbladder/bile would be more accessible for people in the future. The individuals who expressed this sentiment qualified it by saying that bear bile is effective and good for health, and thus “good for everyone to use”. Thus, expense and inaccessibility are the only conceptual barriers to using bear parts. This is despite the educational work performed by Free the Bears in highlighting the importance of bear conservation and the cruelties of bear bile extraction. Although a study explicitly for this purpose has not been attempted, it seems apparent that the educational signage at the bear rescue centre in Luang Prabang has not had a significant effect on changing the attitudes and behaviours of the Laos individuals sampled here. It is recommended, therefore, that conservation organizations that work in Luang Prabang focus on alternative methods of bear part demand reduction, beyond awareness. Policy awareness may be lacking in Luang Prabang, as the openness with which the Laos individuals discussed their use of bear bile could also be because the individuals were unaware of any laws against use. However, the most effective means of reducing the practice of bear part use is likely behaviour change initiatives that emphasise Western medicine’s benefits of accessibility and price, over bear parts. The openness of Laos individuals in discussing bear bile use may in fact be beneficial for such initiatives, as sensitive and covert behaviours are challenging to shift, largely because it is difficult to obtain information about consumer motivations (Vu and Nielsen, 2018)

The extent of use and aspirations of use in this sample reveal how problematic this use is in light of the context of the country. Laos is a hub for illegal wildlife trading, including trade in bears and their parts (Krishnasamy et al., 2018 and Livingstone et al., 2018). Supply of whole bears and bear parts to other countries is a pressing problem for Laos bear populations, but these results arguably show that equally worrying is demand from the in-country population. The use of direct questioning and nominative technique (NT) within this study has shown that prevalence of bear part use in the Luang Prabang-based sample can be estimated at around 16%, and possibly even higher. If this number is accurate and applicable to the wider Luang Prabang population, this represents a fairly significant amount of use.

Addressing this demand may be challenging due to the social networks present in the area. The village practice of sharing gallbladder out among the community is a form of social capital, i.e. “relationship investment” (Lin, 1999). Although the villagers pay for the gallbladder, it is a relatively nominal amount compared to the effort and risk associated with poaching a bear. Therefore, it could be in the best interests of hunters to continue poaching bears. As Lin (1999) points out, generous gestures, such as the poaching of a bear for the community, at risk to oneself, can create social debt among the members who benefit. The poacher then benefits from the efforts of those in social debt to “even the score”. Consequently, the landscape of use in Luang Prabang Province could be considered as ‘patchworked’. Although the social group is undoubtedly still important in influencing use, within Luang Prabang town this influence may be less predominant compared to more rural areas around the town.

In addition, although Western health care in Laos is generally cited as being relatively easily accessible even in rural areas (Davis et al., unpublished data), the greater accessibility of bears may facilitate the coupling of Western medicine with bear bile in more rural areas around Luang Prabang, compared to in Luang Prabang town, where higher enforcement makes bear bile less accessible. Additionally, the high volume of available Western medicine health centres and hospitals in Luang Prabang and by extension high accessibility of Western medicine and treatment may further encourage individuals to choose Western medicine exclusively. Moreover, greater exposure to Western medicine doctrine may facilitate understanding that bruising and bone breakages heal over time and don’t necessitate the use of another product such as bear bile/gallbladder.

Nonetheless, as in Cambodia, knowledge of Western medicine, belief in the efficacy of Western medicine, and easy access to Western medicine may not preclude the use of bear parts. Arguably, the influence of friends and family is the strongest factor driving use of bear products. This is illustrated by the results of the nominative technique, where individuals who were users were themselves well-integrated into a network of other ‘users’. Even if an individual may not practice medical pluralism, in that they eschew traditional medicine in favour of Western, the suggestions of their friends and family may encourage them to take bear bile. As in Cambodia, this shows that bear bile is not conceptually considered to be traditional medicine. This could possibly be because of the true efficacy of bear bile in healing bruising. It is perhaps telling that bear bile is used for bruising in Cambodia, Laos, and Vietnam (Davis et al., 2019). Yet, even if bear bile is efficacious at reducing bruising, or indeed at healing bone breakages, this type of medicine is non-essential, and can theoretically be replaced with a firmer understanding of the natural healing process of bruises and broken bones, as well as cheaper Western alternatives.

For these reasons, attempts at halting use of bear parts in Luang Prabang should be carefully considered. Although it is a positive finding that the Laos individuals in this sample mostly feel happy about seeing bears, the impact of the social group, as in Cambodia, may hamper even well-informed and targeted behaviour change campaigns. However, it is possible that behaviour change campaigns that work to change the collective social norms surrounding the poaching of bears may be effective at a village level. It has been documented that social norms may be the most powerful factor affecting levels of poaching; if poaching is considered broadly unacceptable by the local community, then poaching can be more effectively halted, regardless of enforcement effort (Kahler and Gore, 2012).

### **5.7 The diversity of use between Cambodia and Laos**

Cambodia and Laos inhabit very different spaces within the Pan-Asian bear part use context. It is probable that these differences are a result of the dissimilar political and economic landscapes of the two countries. Cambodia was ‘created’ as a democratic country in 1993, while Laos has been communist since 1975. This history of communist ideals appears to have had an effect on influencing the societal landscape of Luang Prabang, in that Laos individuals, regardless of cultural background, struggled with the conception of a status in a manner that the Khmer did not. Although prestige certainly must have an influence within Luang Prabang, it does not seem to be as influential as it is in Cambodia, as reflected in the disparate ways bear parts are used between the countries.

Nonetheless, the countries share an influence of social norms and social group dynamics on bear part use. Within Cambodia, there is some indication of an identified, unique effect of female social groups influencing use of bear parts, specifically for uterine ailments. In Laos, there appears to be an effect of village social networks and general social norms, with the Laos individuals sampled speaking about practices of sharing bear gallbladder out in a village, along with statements reflecting their hopes that bear bile/gallbladder would be available “for everyone” (thus perpetuating the social norm of its use). Moreover, despite the ethnic diversity of Laos, which generally indicates a corresponding diversity of beliefs (e.g. Michaud and Forsyth, 2011), there was a predominant social belief in this sample of bears as positive figures. This diverse group cohesion may in fact be a result of widespread Laos individual beliefs in the positive value of diversity, which some researchers argue facilitates collective thinking (Van Knippenberg et al., 2007). It has also been posited that conflicting beliefs and values are more likely to arise for different social categorisations such as hierarchical position (i.e. status), than for diversity (Van Knippenberg et al., 2005). Thus, the greater influence of status and other differentiators within the Cambodian sample and in Cambodian society more broadly may have diminished cohesive social beliefs about bears. In addition to these group dynamics, the Laos sample was more likely to have experience seeing bears, as the local bear rescue centre is more easily accessible than the bear rescue centre in Cambodia, which may have contributed to maintaining the widespread belief in bears as positive components of the Laos landscape.

Superficially, Laos shares more similarities with Vietnam compared to Cambodia in the broader, Indochina bear part use context. Bile farms are present in Laos (Livingstone et al., 2018), as they are in Vietnam, despite laws against their existence (Crudge et al., 2018 and Krishnasamy et al., 2018). There is theoretically a bear bile market present in Laos, unlike Cambodia. However, this doesn't appear to be true from the evidence of Laos bile farms supplying bile exclusively to individuals from Vietnam and China (Livingstone and Shepherd 2014), nor does it appear to be true from the results of this sample, with individuals professing a desire to have bear bile more available. Thus, although Laos is superficially part of the bear bile market, the endemic use of bear parts is very different. Attempts at closing down bear bile farms in Laos will not halt the use of bear products within the country. Rather, in this respect Laos is analogous to Cambodia in that the use of bear parts is due primarily to social norms and availability, and will have to be addressed with socially-centred efforts, such as well-researched behaviour change campaigns (discussed at greater length in **Chapter 7**).

The qualitative samples of northern Laos (this chapter) and Cambodia (**Chapter 4**) have another key difference of relative urbanity. Small-scale agriculture is common around Luang Prabang (Newby et al., 2012), whereas in Phnom Penh and the surrounding provinces sampled here, there are alternative and arguably more common means of employment such as the many clothing factories that dot the countryside (Chhair and Ung, 2013). Therefore, despite the prominent influence of tourism, individuals in Luang Prabang appear to be more connected to the forest and the natural landscape. This is supported by the theme isolated in the Luang Prabang sample of mutualism/anthro-biocentricity, where the relationship between the individuals sampled and the natural world is positive and includes use of wildlife resources. This differs from the Cambodian sample, who appeared to be influenced by Western social norms to a greater extent than the Laos. A similar result has been found in other, society-focused studies conducted in Cambodia, where more educated and urban individuals tend towards what can be perceived as Western-oriented social norms (Karbaum, 2018). Additionally, the relatively large role tigers played in the Cambodian interviews indicates either an overall lack of experience with the natural Cambodian landscape, where tigers are non-existent, and/or deeply-rooted cultural fears and beliefs associated with tigers. As this trend was not found in the Laos sample, despite the presence of some ethnic groups with noted cultural distaste for tigers (e.g. the Hmong (Fadiman, 1997)), it may be additional support to the theory that individuals in Luang Prabang are more ‘connected’ to the wild, compared to the Cambodian sample.

However, despite these key differences, use of bear parts in Cambodia and Laos share the important similarity of the cited use being predominantly for medicine. This is variable by degrees in each country, with upper-status Cambodians more likely to cite prestige and bear parts for clothing as well; yet, this is probably a novel import from neighbouring China and/or Vietnam. Traditional medicine appears to be the origin of use of bear products in both countries. Another similarity that the countries share is the persistence of bear product use for medicine as a direct result of social norms and social networks, marking bear part medicine as ‘socially-constructed’ (Conrad and Barker, 2010). Changing social norms can be challenging (Schultz et al., 2007), but there is no dearth of successes in doing so, including within the two relevant fields of conservation and health (e.g. DeWan et al., 2013 and Wakefield et al., 2014). Therefore, it should be entirely possible to change bear part medicine use norms in both Cambodia and Laos.

Finally, a difference between the work performed within this chapter and **Chapter 4** is the inclusion of nominative technique (NT), a specialised questioning technique (SQT) similar to social network analysis in that the attributes of one's social group are studied (Scott, 1988). The methodological mechanics of this technique are described in greater detail in **Chapter 3**. This technique was piloted in the qualitative SSIs performed in Luang Prabang and, as shown in this chapter, found to be useful despite the small sample size. In the following chapter the use of NT, as well as three other SQTs, are tested for efficacy in Cambodia, within a larger, quantitative study.

# CHAPTER 6: Understanding the prevalence of bear part consumption in Cambodia: a comparison of specialised questioning techniques

## 6.1 Introduction

This study tests whether the specialised questioning methods (hereafter ‘SQTs’) of randomised response technique (RRT), unmatched count technique (UCT), nominative technique (NT) and false consensus bias (FCB) can be successfully employed in Cambodia for asking sensitive questions about illegal use of wildlife parts. This study is particularly relevant in Cambodia, where there are no published instances of any of these methods being successfully used to date. A full discussion of all four methods can be found within **Chapter 3**.

As the mechanics affecting social desirability vary widely between demographic and cultural groups (Johnson and van de Vivjer, 2002), it is expected that techniques designed to overstep this problem, i.e. SQTs, will have variable success in varying demographic and cultural contexts. Therefore, the success/failure of some of these methods in other contexts (e.g. in Wales: St. John et al., 2010), may not indicate parallel success/failure of these methods in Cambodia. For example, lack of a sufficiently communicative social network could potentially affect nominative technique (NT) (St. John et al., 2010), and thus NT may be more effective in Southeast Asia where more homophilic social networks, e.g. the village, are abundant (McPherson et al., 2001). This may be particularly relevant in ethnically homogenous Cambodia (**Chapter 3**), although the influence of rural and urban context, as well as geographic location, could be equally influential in dictating NT’s efficacy.

As discussed in **Chapter 1**, in addition to legality concerns, illegal wildlife part use may be socially undesirable in certain contexts. For example, Khmer individuals in the urban capital of Cambodia, Phnom Penh, may not wish to divulge their use of illegal wildlife products to individuals from other cultural backgrounds, who they believe may criticise them for that use. This aspect makes the behaviour superficially analogous to such behaviours as illegal drug use, where individuals from other cultural and/or social backgrounds may criticise the behaviour (e.g. Miller, 1985). SQTs have been widely used in understanding the prevalence of illegal drug use among populations, and thus they have been argued to be applicable in understanding other sensitive conservation-negative behaviours, such as poaching (Nuno et al., 2013). While not commonly used in the illegal wildlife



trade literature, SQTs could provide the most accurate measure of wildlife part use prevalence. However, although these methods may have been successful in ‘Western contexts’, quantitative questions are well-known to be context-dependent, and questioning techniques that work in certain cultures and among certain demographics may not work in others (Newing, 2010). For example, a study performed in Cambodia that utilised unmatched count technique (UCT) to understand the prevalence of illegal bird hunting and egg collection was not successful, perhaps due to the low behaviour prevalence, but contextual challenges, such as active deceit in responding, cannot be ruled out (Ibbett et al., 2017). RRT has also been performed in a Southeast Asian context, yet has only been attempted once thus far (St. John et al., 2018). However, NT, and false consensus bias (FCB) are currently untested in Southeast Asia. A review of the SQTs used in conservation prior to 2015 can be found in Nuno and St. John (2015), with particular reference to Table 1 within that document. At the time of their publication, the authors could only find six instances of SQT use within conservation. Since the publication of their 2015 paper there has been an explosion of SQT use within conservation (e.g. Hinsley et al., 2017, Ibbett et al., 2017, and St. John et al., 2018), to the extent that it would now necessitate a systematic review. However, despite this proliferation, no study has to my knowledge attempted to compare all four methods discussed within this chapter.

This study seeks to address this gap, by assessing the efficacy of the four methods in a Southeast Asian country, as well as testing them for soliciting truthful answers in the use of illegal wildlife parts. Furthermore, this study provides the first quantitative measure of the extent of bear part use in Cambodia, as well as the levels of deceit involved when individuals in Cambodia discuss this illegal behaviour, with the objective of gathering information that can be directly beneficial to conservationists working within Cambodia. Comparing the estimates obtained through these specialised techniques to the direct responses provides an indication of the true prevalence of bear part consumption throughout Cambodia. This baseline measurement can inform where future demand reduction campaigns within Cambodia should be implemented, as well as the potential, projected impacts of behaviour change.

A discussion of the sampling strategy and the methods of analysing the SQTs can be found within **Chapter 3**. An additional method used was a non-parametric Wilcoxon t-test for comparison of the direct question responses between males and females. Null hypothesis significance testing (NHST) was not used to compare between the prevalence estimates obtained in each method and site, due to the substantial and variable data transformation involved in calculating prevalence.

Moreover, p-values and conventional significance tests are increasingly recognised as being problematic (Wasserstein and Lazar, 2016). Additionally, confidence intervals have been cited as allowing for “better interpretations [of results] if NHST is not invoked” (Coulson et al., 2010).

## 6.2 Results

### 6.2.1 Respondent characteristics

The total number of respondents and their demographics are summarized in **Table 16**. The sample population appears to mirror the overall demographics of Cambodia. Cambodia’s gender ratio is roughly 50:50 (National Institute of Statistics, 2008). The average age of Cambodia is lower than that obtained here, but that reflects the sampling protocol, in which only adults above the age of 18 were sampled. Buddhism is the dominant religion in Cambodia, and this was reflected in the three sampling sites.

**Table 19:** The demographics of Stung Treng, the Cardamom Mountains, and Phnom Penh (total n = 1,934).

<i>Demographics</i>		<i>Stung Treng</i>			<i>Cardamom Mountains</i>			<i>Phnom Penh</i>		
<b>Gender</b>	<b>Male</b>	48.8%	(n = 312)	48%	(n = 311)	50%	(n = 325)			
	<b>Female</b>	51.2%	(n = 324)	52%	(n = 338)	50%	(n = 324)			
<b>Age</b>	<b>Range</b>	18 - 75			18-80			18-86		
	<b>Average</b>	37			37			31		
	<b>Median</b>	35			34			26		
<b>Education</b>	<b>Common</b>	Secondary	27.3%	(n = 175)	Primary	44.1%	(n = 286)	University	33%	(n = 212)
	<b>Highest Level</b>	school			school			(Bachelor’s)		
<b>Religion</b>		Buddhist	82.5%	(n = 529)	Buddhist	75.5%	(n = 529)	Buddhist	92%	(n = 598)

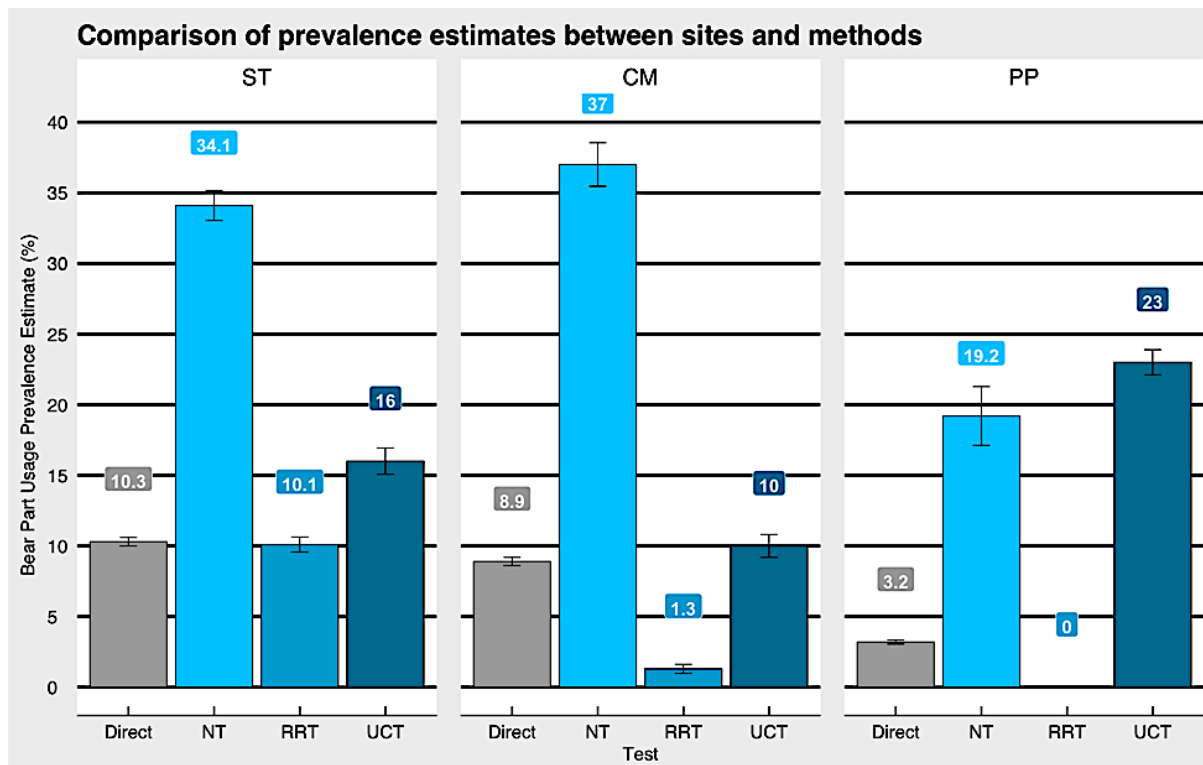
As seen in **Table 16**, all three sites varied in what was the most common, highest level of education. Phnom Penh respondents spent more time in formal education compared to the other two samples. This is to be expected since Phnom Penh is the most urban of the three sites, and the interview locations in the Cardamom Mountains were the most rural, with decreased educational access.

No measure of income was included, due to the recognized problems of deceit and discomfort that can occur when asking individuals about their income (Galobardes and Demarest, 2003). In addition, during survey design, local experts indicated that asking about income level could be more sensitive than asking about bear bile. Therefore, education and ‘urban’ and ‘rural’ were used as rough proxies of socio-economic status.

### 6.2.2 Prevalence estimates by specific location

The prevalence estimates for bear part use for each specific location are represented in **Figure 12**. In Stung Treng, direct questioning and RRT showed similar estimates of the prevalence of bear part use, while UCT and NT were both higher. For NT, the prevalence estimate was also higher in the Cardamom Mountains, with every other technique yielding a much lower estimate. In Phnom Penh, the highest estimate was obtained using UCT, but it was not significantly higher than NT, when the CIs were calculated.

There was no difference between the results gained from direct questioning and RRT in Stung Treng. In the Cardamom Mountains and Phnom Penh, the prevalence estimate obtained using RRT was lower than direct questioning, indicating distrust and/or misunderstanding of the method.

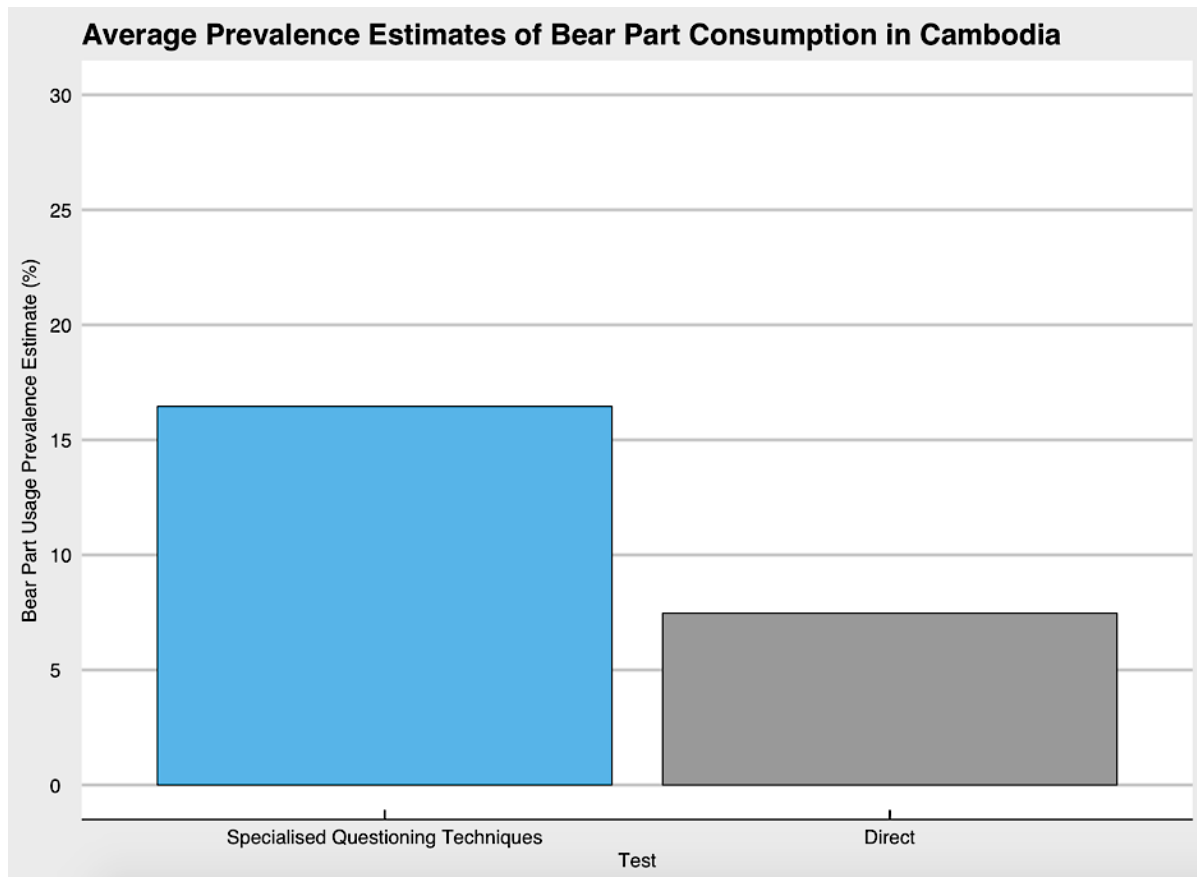


**Figure 1:** Prevalence estimates of bear part use obtained through specialised questioning techniques (SQTs) and direct questioning for all three field sites (Stung Treng (ST): n = 641; Cardamom Mountains (CM): n = 638; Phnom Penh (PP): n = 649.

In addition, the type of parts used between sites was investigated. Differences were found in part use in each site. The less valuable and more perishable parts, such as bear meat, were consumed closer to the source (Cardamoms).

### 6.2.3 Prevalence estimates for the country of Cambodia

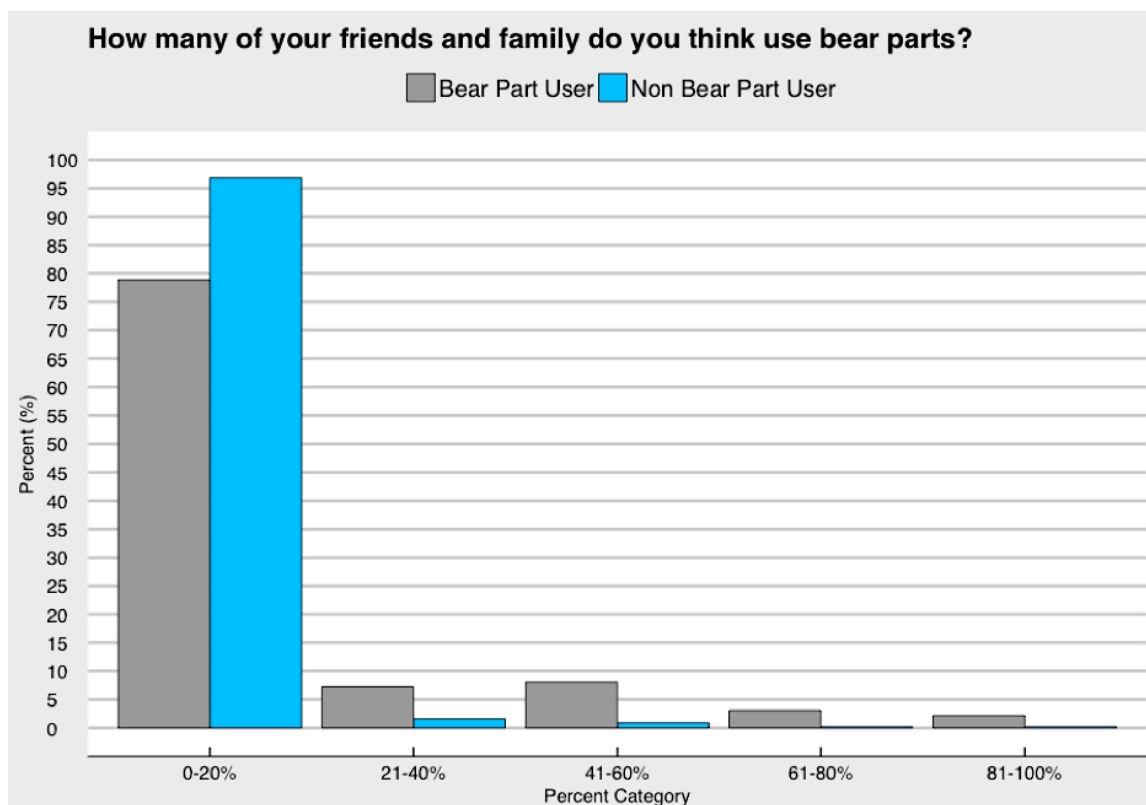
The estimates of bear part use occurrence and average of the prevalence estimates obtained for the entirety of Cambodia are represented in **Figure 13**. The prevalence estimates obtained for all three methods for all samples in Cambodia (n = 1,928) were 7.3% for the direct estimate (SE: 0.6%, CI: 6.16 – 8.48%) , 2.3% for the RRT prevalence estimate (SE: 0.89%, CI: 0.02 – 5.23%), 15.2% for the UCT estimate (SE: 0.35%, CI: 14.5 – 15.9%), and 27.8% for the NT estimate (SE: 2.9%, CI: 22.1 – 33.6%). The RRT prevalence estimate obtained is much lower than the other methods, which is consistent with the results found between sites (**Figure 12**). The SQTs average indicates that over 15% of the population uses or has used bear parts, compared to the direct statements of respondents, which gives a prevalence estimate of roughly 7.5%.



**Figure 18:** The average of the SQTs and direct questioning prevalence estimates, calculated from the prevalence estimates obtained at all three sites (n = 1,929).

#### 6.2.4 False consensus bias

To estimate false consensus bias (FCB), individuals were asked to estimate the percentage of their social group who they believed used bear parts (Figure 14).



**Figure 19:** False consensus estimates for all respondents. Use of bear parts was calculated as being any individual who directly admitted to having ever used any bear part. There was substantial difference between bear part users and non-bear part users in belief of their social group’s use of bear parts (n = 1,934).

Respondents were classified as either bear part users or non-bear part user according to their self-reported use of any bear part. A chi-squared test on the false consensus estimates found statistically significant differences between the observed and expected values of each group, users and non-users (df = 4, p = 0.0039). Bear part users were more likely to believe that more of their social group had used bear parts than did non-bear part users (**Figure 14**). However, both groups were still more likely to believe that of their social group, only 0-20% of the individuals used bear parts. This aligns with the prevalence estimates found for direct questioning, UCT, and RRT. NT was found to be slightly higher in both Stung Treng and the Cardamom Mountains than the FCB estimate, although the NT estimate from Phnom Penh was supported by the FCB result of individuals believing that 0-20% of their social group uses bear parts.

6.2.5 Gender variation in reporting

A gender bias was found for seven out of the eight direct questions asked within the survey (**Table 17**). Males were significantly more likely to directly state that they had used a variety of bear products than females were.

**Table 20:** Table of the means by gender and p-values for each statistically significant direct question (n = 1,929). ‘No’ responses were denoted as ‘0’, and ‘Yes’ responses were denoted as ‘1’.

Question	Male Mean	Female Mean	p-value
I have consumed bear paw soup.	0.05	0.02	0.001
I have consumed bear bile wine.	0.06	0.04	0.026
I have consumed bear gallbladder.	0.08	0.06	0.046*
I have consumed bear fat.	0.04	0.02	0.017
I have consumed bear blood.	0.07	0.03	3.726e-05
I have consumed bear bone.	0.04	0.02	0.001
I have consumed bear meat.	0.14	0.07	1.136e-07

The direct question where no significance was found between gender response was **“Have you ever consumed bear bile?”**. Although the direct question **“I have consumed bear gallbladder”** was found to be significantly different, it approached insignificance and thus may not constitute a ‘true’ disparity in gender difference. Additionally, no statistically significant gender bias was found between any of the SQTs.

### 6.3 Discussion

The primary objective of this SQTs study was to understand whether SQTs such as randomised response technique (RRT), unmatched count technique (UCT), nominative technique (NT), and false consensus bias (FCB) could be useful in a Southeast Asian setting, and for a conservation issue like illegal wildlife consumption. It was found that individuals in the sample were being influenced by FCB. The effect of FCB has been found in preferences (e.g. individuals who prefer white bread estimating a higher percentage of other individuals who also like white bread) and behaviours (e.g. what name is chosen for a child) (Mullen et al., 1985), and is considered to be a strong effect acting within populations and groups (Ross et al., 1977). This effect was found in this study, with users of bear parts statistically significantly more likely to believe that their social group had a higher prevalence of bear part use, compared to the beliefs held by non-bear-part users. Although the responses did differ between the two groups, the majority of both users and non-users of bear parts believed that the prevalence of use was somewhere between 0-20% of their social circle. However, as shown in **Figure 13**, this belief correlates with the average prevalence estimates found both in direct questioning and for the other three SQTs. The confirmation of the existence of this effect signifies that FCB could potentially be used as an additional measure of an individual’s use of bear products, and the subsequent prevalence of this behaviour within the population (St. John et al., 2012). In general, FCB seemed to work well in the population, but future studies would benefit from greater differentiation in the answer categories. As predicted, non-bear-part users estimated that a lower proportion of their family/friends use bear parts. However, from the data it is impossible to know the precise proportion of family/friends that respondents estimated use bear parts. Based on the results it is apparent that a finer scale is required, particularly between 0 and 20%.

In contrast to the low RRT results seen in **Figure 12**, the prevalence estimate of UCT was higher than direct questioning in all locations, despite respondents’ stated distrust of the test. However, there are two problems with UCT as used in this study which suggest that the UCT results may not be precise. One is the sample size. Nuno et al. (2013) sampled over 1000 individuals, yet still

found significant statistical error in their results. As it was not possible to sample over 1000 individuals in each specific location, the 15.2% bear part usage rate obtained for the entire country ( $n = 1,934$ ) may be the most robust estimate. This combined result also serves to smooth out some of the variability found in the responses between each sample site.

Results from NT were significantly higher overall than any of the other results in two out of the three locations (**Figure 12**). However, the questions used for NT were less specific than other questions. All other questions asked only about bear bile and bear gallbladder, whereas NT asked about all bear parts used for all purposes. Therefore, it is sensible that NT is much higher than the other results. Those communities that are more likely to use other parts of the bear, such as bear meat, would naturally have higher behaviour prevalence. This is supported by an additional finding of this study of 22.5% of the sample in the Cardamom Mountains who had consumed bear meat, versus 1.7% in Phnom Penh and 6.9% in Stung Treng. At the same time, the particularly high NT prevalence in Stung Treng could be explained by the disparate time frame, as the NT question also asked about bear part use over life-time, rather than over the last 12 months, as the other questions did.

As will be discussed at greater length in the next section, it is clear that deceit was a factor when responding to the SQTs. Nonetheless, individuals still admitted using bear bile and gallbladder at a significantly higher rate than they did when asked directly about their use. Furthermore, the results indicate that in Cambodia bear bile/gallbladder usage is not confined to rural areas, but is also present in urban centres, although the reliability of RRT in particular was very low in the urban context. This may indicate greater social desirability bias, a hypothesis supported by the direct estimate for Phnom Penh. Phnom Penh usage as measured by SQTs was found to be just as prevalent as bear part usage in rural locations, but direct admittance of that use was significantly lower than in rural locations. This result could also have been influenced by the dynamics of illegal wildlife consumption within Phnom Penh. If wildlife consumption in the urban centre of Cambodia is correlated to social status, then the lower prevalence estimates may reflect under-sampling of the elites, due to the constraints of the sampling strategy. Additionally, the majority of bear part users from Phnom Penh who directly admitted to use were likely to have consumed and/or obtained bear parts in Phnom Penh City. However, some cited rural provinces as the places either they obtained or consumed bear parts.



Although there was significant variability between all three techniques, the results indicate that RRT is a non-effective method in Cambodia. It is expected that SQTs obtain a prevalence estimate higher or equal to the direct questions (St. John et al., 2010), although it has been noted that this is a significant assumption that may be affected by the level of sensitivity an issue has, as well as the context in which the question is asked (Barnett, 1998). Nonetheless, the results from the three other methods indicate that the issue of bear part use is sufficiently sensitive, and the context sufficiently unproblematic for ensuring accuracy of response.

By comparison, generally trustworthy results were found for UCT in two of the study sites, Stung Treng and Phnom Penh. However, the high amount of '0' responses in the Cardamom Mountains for UCT may indicate significant distrust with the method. One possible explanation is that UCT may be ineffective in rural areas in Cambodia, particularly considering the problems Ibbett et al. (2017) found in their study. Although UCT performed well in Stung Treng, the least densely populated province in Cambodia, the interviews themselves were performed around the provincial town centre, an area of relatively moderate urbanity. Additionally, it is suspected that UCT may be ineffective in areas that have been exposed to frequent surveys. As a biodiversity hotspot, the Cardamom Mountains are a popular site for research in Cambodia, and subject to greater wildlife law enforcement and habitat protection (Nicholas et al., 2016). This may have an effect by causing individuals in those areas to be wary about researchers, whose research has potentially led, or are perceived to have led, to greater restrictions on resources. Another explanation for UCT's apparent inefficacy in the Cardamom Mountains is the findings of Tsuchiya et al. (2007), who argued that error within UCT occurs when a behaviour is relatively rare in a population. However, this seems to be an inadequate explanation for the effect seen, as UCT appeared to work well in Phnom Penh and Stung Treng, where the behaviour was at a similar prevalence, according to the other methods used. However, the technique that appeared to be most reliable across sites was NT. Because it was not specifically highlighted as being separate from the other questions in the survey, it may be that most individuals were comfortable in answering those questions. Additionally, despite the variability in question format, use of bear parts appears to be much higher than was previously thought, based on the UCT and NT results, when taken together.

Finally, the potential influence of gender bias was explored. Statistically significant differences in admittance were found between every direct question (DQ) except for the DQ asking about bear bile use. No statistically significant differences were found between genders for the SQTs. However, although these results do indicate that a gender bias exists, one interpretation may be

that the gender bias is related to how bear parts are used, rather than social desirability bias. As discussed in **Chapter 4**, and according to personal communications from Flora and Fauna International Cambodia, men are stated to be more likely to consume bear meat, for example, in comparison to women. Therefore, the significant difference in admittance may be a reflection of ‘true’ use, particularly as the SQTs of RRT and UCT, which only asked about bear bile/gallbladder use, also did not differ significantly between genders.

The alternative interpretation of the DQ significance results being a result of social desirability bias is supported by the SQTs of NT and FCB, which asked about bear part use generally. However, these SQTs asked about bear part use generally in the population, to obtain a broad, sample-level estimate of the prevalence. As the questions were not designed to measure the individual’s personal use of parts, they cannot be used as strong evidence to support the social desirability hypothesis. At present, it seems that use of bear parts differs between genders, and both genders feel equal social desirability bias when it comes to admittance of their use.

#### **6.4 Limitations and their theoretical implications**

Question design was noted to have been a major limitation with obtaining ‘truly’ accurate results. For FCB, two key readjustments of the category of 0-20% are proposed. First, the category of “0%” should be separated into its own category, so as to reflect those individuals who exist (or believe they exist) within a social group that does not use bear parts at all. Secondly, the perceived percentages of use (i.e. 1% and up) should be divided into smaller categories. Both of these adjustments will assist in aligning with the ‘true’ prevalence of use in Cambodia, which could be as high as 20% in some locations.

Question design was also important with the creation of the questions. The questions were created with variable time frames (e.g. “at any time” for NT, and “12 months” for RRT), and asked about variable parts (e.g. “any part” for NT, and “bile/gallbladder” for RRT). These were two major sources of variability that can and should be removed in future studies that utilise and compare these techniques. The location of the questions within the questionnaire was also important. For example, the RRT results may have been affected by the placement of RRT after the DQs. Specifically, as the method was used last in the interviews, respondents may have wanted to maintain consistency by giving the same answer they gave when directly asked about bear part use, whether that answer was true or not. Thus, if an individual deceitfully stated that they had not used bear parts, when directly asked, they would have wanted to maintain that answer, regardless of the

roll of the die in RRT. Therefore, future studies should ask the SQTs prior to the DQs, to remove this potential source of bias.

In this study RRT was significantly lower than all other methods in 2/3 sites. Although individuals overwhelmingly indicated trust in RRT over UCT, the 0% prevalence estimate found in the Cardamom Mountains, and the generally low estimates found at both other sites, indicates that it is not effective in the Cambodian setting. Respondents clearly answered deceitfully for RRT (**Figure 12**), indicating that trust in the method may have led to respondents trusting the method enough to lie, or to not-comply with the ‘forced’ response. Other potential explanations are that respondents may have felt uncomfortable admitting to something they hadn't done when the role of the die required a ‘yes’ response. It is also possible that the respondents’ desire to maintain face (Gellman, 2010) may have played a role in that respondents may not have felt comfortable admitting that they did not understand the instructions for RRT when first explained.

In UCT the expected distribution of responses is to have the majority of responses grouped around 2-3 behaviours (Hinsley et al., 2017). In this study, individuals in Stung Treng responded most similarly to the expected UCT distribution. However, in the Cardamom Mountains and Phnom Penh, respondents in both the control and treatment groups answered with much higher instances of ‘0’ than would be expected to occur, indicating deceit in response. Although this result could simply be because individuals did not wish to discuss their use, it could also have been the result of research saturation, wherein individuals in the Cardamom Mountains were fatigued and/or irritated by performing surveys and questionnaires, as research is extensively conducted within the Cardamom Mountains.

Another important limitation of the UCT method performed here is that the UCT questions did not undergo extensive pre-testing, which may have affected applicability of the responses to the sample. Finally, UCT purportedly requires sample sizes that are larger than  $n = 1000$ ; thus, the lower samples of  $n \sim 600$  at the three separate sites may have introduced extra variability into the results.

Some important conclusions can be drawn from the limitations discussed here. RRT does not appear to be effective for asking research questions in a Cambodian context, and it is not recommended that its use be continued in the region. Additionally, individuals are evidently shielding their behaviour when asked, as at least three (RRT, UCT, and NT) of the four methods

appeared to be affected by deceit. As it was found that knowledge regarding the illegality of bear part use is fairly high in the population, this deceit in answering direct questions could be due primarily to worries over illegality, rather than concerns over social undesirability. Nonetheless, it is important that researchers note this potentiality when interpreting SQT results that may be gathered in a Cambodian (and potentially other Southeast Asian countries) context.

### **6.5 Conservation implications of illegal bear part consumption in Cambodia**

There is great potential for specialised questioning techniques to provide more accurate understanding of sensitive behaviours and therefore to inform robust policy decisions and evaluate conservation interventions such as demand reduction and behaviour change efforts (St. John et al., 2010, 2011). As a result, studies such as this are essential for informing subsequent conservation research in myriad geographical contexts. However, as these results show, there are significant challenges associated with using these techniques, which should be carefully considered by researchers. For instance, although SQTs are invaluable for overstepping potential sources of bias, including deceit, they are not entirely free from deceit's effects. Deceit can be found to be acting in nearly all, if not all, of the methods used. Importantly, this indicates that use of bear parts is sensitive in Cambodia, and indicates that researchers using these methods should thoroughly question the results obtained.

Despite the limitations, including deceit, the results of this study are a significant step forward in determining future bear conservation efforts in Cambodia. These results provide accurate baseline data about the “true” prevalence of use of bear parts in Cambodia, and serve to elucidate the level of deceit involved in this use. Additionally, this study indicates the level of variability in bear part use present within the country, which will require spatially specific policies and conservation initiatives.

Cambodia's protected landscapes harbour regionally significant populations of bears (Gray et al., 2017b). If the ‘true’ prevalence estimate is assumed to be somewhere between the average of the SQTs for all three sites and the average for direct questions between all three sites, then there is considerable demand for bear parts within Cambodia, which represents a serious threat to the ongoing survival of potentially regionally important bear populations.

## CHAPTER 7: Conclusions and Recommendations

### 7.1 Key Findings

This research has made several key contributions to bear conservation research in Southeast Asia. It is the first study to reveal the extent of the internal demand for bear parts within Cambodia, as well as the heterogeneity of use across status strata. These results have already begun to directly inform behaviour change campaigns in Stung Treng, northeast Cambodia, which it is hoped will have a direct and verifiable impact on reducing the consumption of bear bile (**Section 7.7**). This thesis has advanced greater understanding of the in-country consumer market of Laos, by showing the widespread acceptability of use of bear products, the high prevalence of use, the common ailments bear bile is used for, and the social mechanisms perpetuating use (**Chapter 4**). These results are important for conservation practitioners in both countries, not only for informing targeted demand reduction efforts for bear products, but for other wildlife products as well, by testing and reporting on the efficacy of methodological strategies for consumer research studies, which in conservation are generally designed with the goal of implementing behaviour change campaigns (**Chapter 3 [Methodology], Chapters 4, 5, and 6 [Results]**).

This research has also challenged some assumptions in illegal wildlife trade research in Southeast Asia. One assumption expressed by conservation practitioners in Southeast Asia is of the Chinese being influential in determining how and what products are used, yet this thesis has shown that although the Chinese may be significant in the economic and political landscape of Southeast Asia, their influence is minimal in the realm of bear part use. Another challenged assumption within this thesis is that of positive feelings towards bears precluding use of their products. This assumption is generally expressed by Western conservationists who have found the link of positive feelings equating to positive conservation actions to hold true in a Western social context, and indeed this trend has generally been shown to be true in such contexts (for example Glikman et al., 2019). However, as this thesis shows, in Cambodia and Laos individuals who used bear products also had positive feelings towards bears. Thus, positive feelings towards bears did not equate to positive conservation action within either country. Moreover, the use of bear bile in particular is not strongly driven by belief in traditional medicine efficacy or the influence of traditional medicine practitioners; instead, an individual's social group is more likely to drive use of bear bile and other bear products. This motivation of social approval and integration within the social group will be extremely challenging to shift through behaviour change campaigns; however, conservation marketing methods may be useful through strategies such as implementing a shift in social norms. In the conservation marketing-informed, behaviour change campaign that will be implemented in

Stung Treng using the direct results of this thesis, this effect of the social group is being considered through a strategy to target ‘influencers’ within these groups and change these influencers behaviour towards the use of Western medicine rather than bear bile (**Appendix VI**).

This thesis established that use of bear parts is spatially, socially, and demographically heterogenous, within broader commonalities, such as use of bear bile for medicine. Moreover, an individual’s social group appears to be the most persuasive driver of demand. Additionally, the use of specialised questioning techniques (SQTs) has been shown through the results of this thesis to be a more effective means of accurately assessing prevalence of a sensitive behaviour in a population. By extension, this thesis has also provided greater clarity around the scope of bear part use in Cambodia, and has strikingly shown that the use of bear parts is ubiquitous across the country. Finally, this study has illuminated the benefits of an impartial, holistic, and multi-disciplinary approach. By approaching the problem of bear part demand from a human-oriented perspective, rather than a biodiversity preservation perspective, honest results could be obtained. The research presented within this thesis is truly novel and reflective of the real landscape of bear product consumption within Cambodia and Laos. Due to the novelty and accuracy of these results, they have already supported, and will continue to support, the creation of well-researched and well-evaluated conservation initiatives, which will undoubtedly advance bear conservation within the Southeast Asia region.

## **7.2 Challenged assumptions**

### 7.2.1 Chinese influence

Chinese demand for bear products is usually blamed for the decline in bear populations throughout Southeast Asia (e.g. Krishnasamy et al., 2018 and Livingstone and Shepherd, 2014). A prevailing perception is that in both places use is not historic, and is instead a modern product of Chinese influence on consumption. Although the Chinese market is clearly present in Laos (Krishnasamy et al., 2018), less is known about its presence in Cambodia. However, this has never been adequately explored in these countries. This thesis shows that the Chinese, although hugely important in the political and economic landscape of Cambodia and northern Laos (**Chapter 1 & 2**), are not influential in determining the use/non-use of bear bile/gallbladder by Khmer and Laos nationals in either area. In the context of bear parts, the Chinese market appears to have at best a negligible effect, although as with other aspects of use, this influence appears to vary according to the country context. In Cambodia, identification as partly Chinese is common, and in the upper status strata Chinese influence can be seen in how bear parts are used. Bear parts are used in a

“Chinese way” if they are conspicuously consumed, for example through the purchase of a bearskin handbag. A “Khmer way” would be use of bear bile wine for medicine, a traditional Khmer behaviour generally spoken of negatively by the Chinese-influenced upper status individuals. However, one form of use- consumption of bear meat- uniquely straddles both spheres of the Chinese way and the Khmer way. Bear meat served at business dinners and other prestige-oriented events is acceptable by the Khmer/Khmer-Chinese upper status in Phnom Penh (e.g. Fauna and Flora International, 2018), yet the act contrasts sharply with the consumption of bear meat by poachers around the Cardamom Mountains. The act of bear meat consumption in Phnom Penh harkens to the consumptive practices and connotations associated with, for example, bear paw soup, a delicacy favoured by upper-status Chinese individuals (Sharma, 2005). The act of eating bear meat near the forest, however, is increasingly being viewed as, and becoming, an act associated with the poorer individuals within Cambodian society (e.g. Lee et al., 2014).

The dichotomy between bear meat consumption in Cambodia also mirrors noted discrepancies found across the world concerning wild meat consumption between urban and rural populations (e.g. Jenkins et al., 2011). Allebone-Webb et al. (2011), for example, found that in their study site in Equatorial Guinea certain animals such as primates were consumed within the village rather than being traded out to urban consumers, due to low monetary return compared to transportation costs. Thus, an understanding of the urban market alone would fail to adequately capture the ‘true’ hunting pressure on rural primate populations. This is the case within Cambodia as well (**Chapter 4**). Certainly, other parts of the bear are much more lucrative and thus the meat is not as likely to be traded out from where it is poached, considering the costs associated that do not make the transportation out worthwhile. This is supported indirectly by Fauna and Flora International’s (2018) preliminary study of wild meat consumption in Phnom Penh, where sun bear was mentioned by respondents as being consumed, but was by no means identified as a popularly consumed wild meat product. Further, although bear meat may be consumed in rural areas in Cambodia, it is unlikely that it is a major form of sustenance, which distinguishes it from wild meat as “food security” that is seen in many other rural parts of the world (e.g. Allebone-Webb, 2008).

Whether urban consumers are the major drivers of the wild meat trade has been the subject of debate in wild meat research (**Chapter 1**). Allebone-Webb et al. (2011) state that studies of urban consumers alone will always be ‘inconclusive’ for providing only a superficial picture of trade in, and consumption of, wild meat. Certainly, urban consumers are important in certain contexts, but just as significant is the consumption of meat in rural locales (e.g. Brashares et al., 2011 and

Harrison et al., 2016). For both groups, the reasons for consuming meat are drastically different, with prestige (including the prestige of showing off one's wealth and one's commitment to culture and 'tradition') influencing urban wild meat consumers across the world (e.g. Drury, 2011, Shairp et al., 2016 and Wilkie et al., 2016), and basic sustenance determining the consumption of the rural poor (e.g. Brashares et al., 2011). Indeed, in Laos, the consumption of wild meat is a part of "everyday life" for rural villagers, with this argument then used by elites in the capital of Vientiane to justify their own urban consumption of wildlife (Singh, 2008). In Laos, as in certain parts of Africa (e.g. Wilkie et al., 2016), prestige gained through the consumption of wild meat is through indicating an individual's adherence to the perceived cultural norms of their social group, an example of social approval acting as prestige (Barkow et al., 1975). This appears to be true within Cambodia as well, with wild meat consumption normalised even when 'freed' from the bounds of countryside consumption; indeed, "bushmeat consumption in Cambodia is embedded in the country's culture" (Fauna and Flora International, 2018).

The further implication, then, is that the explicitly hierarchical and wealth-mediated conspicuous consumption of wild meat found in Vietnam (Drury, 2011) and China (e.g. Fabinyi, 2011) is potentially less of a determinant within Cambodia (or Laos) wild meat consumption, compared to the more subtle and 'simple' motivator of social approval. Thus, although the act of wild meat, and specifically bear meat, consumption in Phnom Penh shares its 'conspicuous' form with Vietnamese and Chinese wild meat consumption, the driver of this consumption may be formed predominantly of a desire to connect with the 'everyday' Khmer experience. However, it is likely that this consumption does share conceptual underpinnings with Chinese and Vietnamese beliefs in wild meat as 'precious', healthy, and 'unpolluted' (Drury, 2011 and Fabinyi, 2011). Considering the effort involved in obtaining and consuming bear meat in Phnom Penh, both of the drivers and influencers discussed here are likely involved, i.e. the influence among Khmer elites of Chinese culture and associated conspicuous consumption, coupled with desire to garner social approval among other Khmer, which concurrently indicates a commitment to Khmer culture. When wild meat consumption in Phnom Penh is looked at broadly, it seems an apt reflection of modern-day Cambodia's struggle to retain Khmer identity in the face of ever-encroaching Chinese interests (Touch, 2018).

Luang Prabang, Laos, also has little Chinese influence on the consumption of bear products, despite being heavily influenced by Chinese tourism. This is in direct opposition to what has been anecdotally theorised about use in Laos. The prevailing trend of Laos bears supplying bear bile to



the Chinese market (e.g. Krishnasamy et al., 2018) has led some to believe that Laos individuals will begin to use farmed bear bile, as the Chinese do. However, the research here shows that the Chinese appear to have no influence on the average individual in Luang Prabang. Use of bear parts by the average individual in Luang Prabang is endemic and distinct from use of bear parts by Chinese individuals.

A recurring theme around the use of bear products in both countries is that existing conservation policies and efforts designed to reduce this issue largely do not exist. As such, there are no conservation efforts focused on reducing perceived Chinese influence on the process of using bear products, and this thesis confirms that initiatives should not be implemented around this assumption. Crucially, it is incorrect to assert that poaching to supplement Chinese and Vietnamese markets is primarily to blame for the decline in bear populations in Cambodia and Laos. Rather, use of bear products in both countries is distinct, and conservation efforts will have the most impact by targeting the specific use of bear products by Khmer individuals and Laos nationals.

### 7.2.2 Influence of traditional medicine

Individuals in both Cambodia and Laos did not state that they had used bear bile because a traditional medicine practitioner (TMP) prescribed it to them, nor did they state strong belief in traditional medicine. Traditional medicine is not an important motivator of use of bear products, compared to the more powerful motivator of social influences, across countries (**Chapter 4 & 5**), and in Cambodia, one's status (**Chapter 4**).

It is well-known that where multiple medical systems exist, individuals may adopt multiple and varied aspects of these systems (i.e. medical pluralism). This field has been well-researched and debated within anthropology (e.g. Kleinman, 1997, Leslie, 1980, and Singer and Erickson, 2015). In the context of traditional medicine, certain ailments can be associated with traditional medicine over Western/scientific, and/or individuals will prefer to use traditional medicine in a certain context over Western/scientific (e.g. when something is 'untreatable'). Additionally, individuals may not ascribe to medical pluralism at all and may use only one medical system, such as only traditional medicine. Understanding bear bile's place, therefore, in this context of multiple medical systems and individuals' medical pluralism is important in the context of behaviour change, as belief in bear bile as medicine can be a powerful motivator for maintaining use. In Cambodia, individuals across statuses were more likely to dismiss bear bile's medicinal efficacy than to

advocate for it. This was true even of individuals who had used bear bile, providing further support for use of bear bile as primarily socially mediated, with obligation involved in the consumption of bear bile when given by a peer or family member. In Laos, individuals did not directly discuss bear bile's efficacy or non-efficacy, rather it was implied that it was effective and useful by the lack of dialogue around use, i.e. individuals stated what it was used for and that they would like to use it. As this study was designed to look broadly at cultural motivators for bear product use, from a foundational point of values towards bears, medical pluralism was consequently not explored in great depth in Laos. This is a valuable research avenue that should be explored in the future.

Nonetheless, in Cambodia one can see an interplay of medical systems reflected in the different ways bear bile is consumed medically. In Cambodia upper status individuals dismissed bear bile for medicine as 'untested' and 'traditional', yet also they had used it. Thus, they were not using it *because* it is traditional medicine, and by extension for medically pluralistic rationales such as belief in bear bile as the best available treatment for a certain ailment. Instead, they were using it due to the influence of their social group. For middle to lower status Khmer women using it for post-partum issues (**Section 4.4.5**), it can be both influenced by the social group but could also be influenced by the factors that encourage medical pluralism. Bear bile can act as a figurative rebuff of the dominant Western medical system, and can give Khmer women agency over the reproductive process, particularly in the context of the cited ailment of post-partum fatigue, a nebulous illness that may be dismissed by Western medicine doctors.

### 7.2.3 Influence of prestige

Prestige as gained through conspicuous consumption is one motivation for the continued use of bear parts in both Cambodia and Laos (**Chapter 4 & 5**), although it is primarily associated with specific bear products such as bearskin handbags (Drury, 2009 and Stirnemann et al., 2018). More generally, in both countries use of bear parts is considered to be prestigious by over half of the sample, which will facilitate the continued use of bear parts. Nonetheless, prestige was not perceived to be a dominant acting factor in use of bear parts in either country, although the 'simple' prestige of social approval (Barkow et al., 1975) appears to be significant. This was particularly exemplified in Cambodia, where prestige associated with bear products is dynamic, and determines the types of products consumed/that individuals aspire to consume. This 'simple' strategy to gain prestige is acting within both 'channels' in Cambodia, of upper status and observably more wealthy individuals striving to attain expensive bear products such as handbags, and among the lower statuses as they strive to attain bear bile/gallbladder. Thus, even though the consumed products

may be very different, the values driving this consumption share important similarities (**Chapter 4**). The intrinsic properties of the bear product have an effect on purchase, e.g. why it is purchased, and by whom. Overlaying this effect is that of social norms, approval, and the economic ability to purchase a bear product at all.

The findings of this thesis, although specific to Cambodia and Laos, support Drury's (2009) findings in Vietnam that bear bile is a generally accepted product, with its "capacity to communicate prestige reduced". Davis et al.'s (2019) research in Vietnam, nearly a decade later, supports Drury's (2011) assertion in that individuals did not specifically mention 'rarity', 'preciousness' or expense as predominant factors motivating them to consume bear bile (all indicators, arguably, of a prestige item (Drury, 2009)). However, as found in this thesis and in Davis et al. (2019), social approval facilitates the use of bear bile, in particular, in Laos, Cambodia, and Vietnam. Unlike other wildlife products such as wild meat and rhino horn (Vu and Nielsen, 2018), bear bile is a ubiquitous and common product unattached to conspicuous status markers. Indeed, within Laos many individuals stated that use of bear products was "for everyone" (**Chapter 5**).

To date, no conservation policies or efforts in either Cambodia or Laos have touched on the influence of the social group in the consumption of bear products. Educational signage at the bear rescue centres in Cambodia and Laos have been directed at the medicinal aspects of use, specifically, stating that non-animal-based alternatives to bear bile exist. However, as this thesis has shown, individuals are generally aware of alternatives but are compelled primarily through this social influence to consume bear products. Therefore, future conservation efforts must recognise and address this effect, possibly through shifting the overall social norms of the group. This can potentially be accomplished through encouraging influential individuals in the community to suggest alternatives over bear bile and other bear products.

Because bear bile use is known to be a component of traditional medicine in Cambodia and Laos, and to have validated efficacy in treating certain ailments (**Chapter 1**), conservation organisations in these countries have avoided demand reduction messaging centred around traditional medicine. This thesis has shown that belief in traditional medicine is not a primary motivator for consuming bear bile in either country; however, demand reduction campaigns should continue to take care around this issue, as individuals in both countries do practice medical pluralism (**Chapters 4 & 5**). Instead, future campaigns should focus on targeting the socially-mediated motivation(s) for

consuming bear bile, by finding and changing the behaviour of key, influential individuals who are likely to perpetuate the practice.

#### 7.2.4 Influence of emotion and cosmology

The primary emotion held by individual Khmer towards bears is that of fear; however, this fear was a result of ignorance about bears and their level of threat to a human, rather than inherent belief in bears as wicked creatures (**Chapter 4**). Positive feelings, articulated as ‘love’, were felt by approximately a third of the sample. The social beliefs of the Khmer reflect the plurality of responses given by individuals, with no dominant social belief about bears (**Chapter 4**). In Laos, however, positive feelings are predominant, with individuals wishing for bears to have a “long life”, and ‘happy’ feelings when thinking about bears, as well as a consistent social belief of ‘love’ towards bears.

Yet, this thesis shows that the positive feelings and beliefs of the Laos sample towards bears are not a barrier to the use of bear products by those individuals (**Chapter 5**). It has been argued that individuals in Western societies who feel positively towards an animal will practice positive conservation behaviours related to that animal (Glikman et al., 2019); however, in different cultural contexts this effect may not be seen (Snodgrass et al., 2007). This thesis, therefore, shows that anthro-bio-centricity exists in Laos (**Chapter 5**), and refutes assumptions that positive feelings, beliefs, and values will lead to positive conservation behaviours. In some cultural contexts and situations this may be true, but as the results of this thesis show, such assumptions are not applicable universally.

Feelings towards bears are not significant in influencing use in either Cambodia or Laos; similarly, consumption of bear products is not occurring for any cosmologically significant purpose. In Cambodia and Laos there are different perceptions of the perceived ‘divinity’ of bears, with Laos individuals placing bears into heaven because they wished bears could have a “long life” (**Chapter 5**), and bears being largely forgotten in Cambodia when respondents were asked to categorise animals by heaven, earth, and hell (**Chapter 4**). Importantly, individuals across sites did not cite their religion as a barrier to using bear products (**Chapter 4 & 5**). Although Buddhist doctrine is opposed to the consumption of wild animals, the results of this thesis have shown that individuals in both Cambodia and Laos are able to cognitively disconnect from this stricture (**Chapters 4 & 5**).

Understanding the potential of Buddhist beliefs to influence behaviour has previously been non-existent in Laos and Cambodia, although conservationists have anecdotally hypothesised that Buddhism could act as a possible motivator to discourage the consumption of wildlife products. These findings, however, provide a counter-argument to what has previously been advocated for by conservationists working in Buddhist countries (Brooks, 2010). For instance, Buddhism has been argued to be a ‘necessary’ leverage point (Tilson and Nyhus, 2009) in the conservation of the tiger across Southeast Asia. Yet, Buddhism is clearly ineffectual in halting the behaviours of consumers of bear products in Cambodia and Laos, as shown by this thesis. I would assert that Buddhism does not strongly impact conservation behaviours generally in either country.

At present, Buddhism has not been utilised as a leverage point in bear conservation campaigns in the region, and this norm should continue. In consideration of the limited funds and time available to conservationists, these should not be wasted on integrating Buddhism into bear conservation initiatives. Motivations for using bear products in Cambodia or Laos are not tied to intrinsic beliefs in intangible properties specific to the bear. Positive values and feelings associated with bears, and/or a Buddhist ethos of not harming animals will not deter use of bear products.

### **7.3 Use of bear products in Cambodia and Laos**

#### 7.3.1 Heterogeneity of use

Heterogeneity is intrinsic between the countries. As an example discussed previously, although prestige can be thought of as broadly significant in influencing people’s purchase of bear products throughout Cambodia and Laos, it may be more significant in Cambodia compared to Laos. This may tie in with the noted struggles of the Laos sample in conceptualising status distinctions (**Chapter 5**). Status is of course important even within societies that identify as ‘communist’, yet what is important is that status is not necessarily influenced by prestige within these societies (Matěju and Kriedl, 2001). One can attain high-status within a communist society by fervent adherence to the party ideals (Matěju and Kriedl, 2001), rather than an impressive skill set (a feature of prestigious individuals in non-communist societies (Cheng et al., 2013)). Hence, the country context is such that although bear parts were cited as being instruments for prestige generation within Laos, this does not have the same significance as in Cambodia. Instead, the simple and ‘powerful’ prestige of social approval (Barkow et al., 1975) is predominant within Laos, with individuals who had consumed bear products likely to be nested within a social group with a higher predominance of users (**Chapter 5**).

In both Cambodia and Laos increasing economic growth has a certain effect on the rural-urban nexus, and a subsequent impact on how wildlife is consumed, traded, and used. When considering use of bear products between the countries, it is important to consider that Cambodia and Laos are not equal in the scale or nature of rural-urban change. Laos has stayed fairly resistant, by virtue of the historic landscape of low human density and scattered populations embedded within lush jungle (**Chapter 2**). Although Laos is the subject of focus for its blatant and Chinese-dominated cross-border trade in illegal wildlife products (e.g. EIA, 2015), the reality of the illegal wildlife landscape is arguably more endemic and localised than these few examples would suggest. As shown in this study (**Chapter 5**), bear parts are used by Laos individuals, and are accessible to individuals in semi-rural areas. However, the research conducted within this thesis did not touch on Laos' capital of Vientiane, and it is possible that research conducted there would, when compared with the research of this study, reveal a landscape that is more similar to what this study found in Cambodia of distinctions in motivations for use and products preferred between urban and rural individuals. Moreover, in Cambodia there is reason to believe that the rural-urban distinction will become more pronounced, as Cambodia struggles with rapid depletion of resources and large Chinese investments with uncertain benefits and costs to rural communities. As found by Drury (2009) with wild meat in Vietnam, this could have a yet more profound effect on the use of bear products, if urban individuals place value such as 'rarity' or 'preciousness' on the now more inaccessible, forest-and-therefore-rural-linked commodity of bear products.

Ethnic-specific beliefs and values can also influence how and why a wildlife product is used (Davis et al., 2016), and this thesis acknowledged and investigated such effects. Although pervasive differences in use were found between Laos and Cambodia, these differences were motivated by demographics, rather than inherent cultural differences in use. Within the ethnically diverse Luang Prabang sample no cultural explanations for use were given, and there appeared to be no distinction in motivations for use between individuals within the sample, regardless of stated ethnic identity.

The purchase of a bear handbag, though articulated more often by the upper status Khmer sample than the Laos sample, is motivated by greater disposable income, rather than Khmer-specific cultural markers attached to bearskin handbags. An exception is the finding of Khmer women using bear bile/gallbladder for post-partum/uterine ailments, with Laos women not found to use bear bile/gallbladder for this purpose. Yet, although this is a clear difference in use between ethnic groups, Khmer women did not explain their consumption of bear bile/gallbladder for these

purposes as being a Khmer-specific practice. Instead, this use is predominantly motivated by the localised social group.

#### *7.3.1.1 Variations in the social desirability and acceptability of using bear parts*

Negative conservation behaviours, such as use of illegal wildlife parts, can often be sensitive for illegality or social desirability concerns (Nuno and St. John, 2015). Humans generally tend to try to depict themselves in a positive light (Fisher, 1993); if an individual is interviewed by another individual whose perceived social norms appear to be in opposition to a behaviour such as bear part use, the interviewed individual will then conform their answers to the perceived social norm of the interviewer. This is termed “social desirability bias”. The results of this thesis show that the perceived social desirability of bear part use varies between the two countries studied here. In Luang Prabang, Laos, individuals appeared happy to discuss their use of bear parts, and did not seem to believe that use was either illegal or opposed to the social norms of the interviewer (**Chapter 5**). However, individuals in Cambodia appeared to be slightly more affected by social desirability bias. Although there were plenty of individuals who were frank and open when discussing use, there were several upper status individuals who gave vague responses, or preferred to say that they had “known someone” who used bear parts. Openness did seem to correlate with rural versus urban and status dynamics. Although a few upper status individuals in Cambodia did directly state that they had used bear parts, they insisted that they had not enjoyed the experience and found no value in it, unlike the less educated individuals interviewed who advocated for its efficacy (**Chapter 4**). This correlated the results of the specialised questioning techniques (SQTs), where it was found that the urban individuals sampled in Phnom Penh were much less likely to directly admit to bear part use compared to the two other, more rural locations, although individuals in Phnom Penh used bear parts at approximately the same rate, when asked about their use via SQTs (**Chapter 6**).

In addition, further analysis of the results of the quantitative data from Cambodia indicated that there was a gender bias. Women were less likely to directly admit using of bear meat, blood, bone, skin, and gallbladder, although they did admit to using bile at the same rate as men. Generally, women are less likely to admit to sensitive behaviours (Durant et al., 2002), and these results indicate that this effect is likely applicable in the context of bear part use, if not all illegal wildlife part use. However, further research will be needed to understand why a gender bias was not present when directly admitting to use of bear bile. It may be that use of bear bile transcends gender biases by being considered more broadly acceptable in Cambodia, based on the widespread

acceptability of bear bile use in neighbouring Vietnam (Davis et al., 2019), and, as this thesis has shown, in neighbouring Laos (**Chapter 5**).

The dichotomy in admittance of use between the individuals interviewed in Phnom Penh, Cambodia, and Luang Prabang, Laos may be due to the influence of Western culture on the individuals sampled here. Although Luang Prabang is a popular tourist town for Westerners, the level of interaction between most Westerners and the average Laos cultural group individual living in the town is minimal. By comparison, Phnom Penh attracts a substantial amount of business and hosts a large number of Western-based non-governmental organisations (NGOs). The individuals who appeared to use bear parts the most in Phnom Penh were the upper-status individuals. These individuals were often NGO workers themselves, and probably more likely to interact with Western individuals for this reason and/or for their ability to speak English; thus, these individuals were more likely to believe that use of bear parts would be considered socially undesirable by Western individuals. Although they were generally more knowledgeable about bear products and more likely to admit to having used them, compared to a middle status Khmer individual, the upper-status Khmer certainly exhibited more general reluctance to discussing the practice.

As has already previously been stated in this thesis and in this conclusion, no conservation policies or efforts are in place around the use of bear bile and other products in either Cambodia or Laos. In addition, no conservation efforts or policies exist that are specific to ethnic groups in either Cambodia or Laos. This thesis has shown that motivations are not driven by ethnic heterogeneity, and thus moving forward any conservation effort such as a behaviour change campaign does not need to be targeted to a specific ethnic group. This is particularly important information for ethnically diverse Laos.

As this thesis has shown dichotomy in use and variability in motivations by gender and external factors such as Western interaction, generalised behaviour change campaigns around use of bear products will not be as effective as those designed around these identified variabilities. Therefore, the results of this thesis should be applied to future conservation initiatives to ensure optimum efficacy, and indeed have already directly informed a targeted demand reduction initiative (**Appendix VI**).

Another important consideration is that as use of bear bile is currently discussed so openly in Luang Prabang, Laos, conservation organisations that work to implement demand reduction



campaigns should be wary of pushing the behaviour underground and making the prevalence of the behaviour harder to assess, as has been seen to occur following campaigns designed to stop the practice of female genital cutting (FGC) (Camilotti, 2015). If this occurs, future evaluation of behaviour change campaign efficacy in the area will be impacted.

### 7.3.2 Extent of bear part use and primary part(s) used

Although the extent of bear part use varies across areas in Cambodia, use of bear parts can be as high as 15% of the population. In Laos, use is approximately 16%. This has serious implications for in-country bear populations, particularly in Laos, where a majority of the individuals sampled were hopeful that bear farming would increase and thus lead to increased accessibility of bear bile/gallbladder. Indeed, the prevalence of use found in this study for Luang Prabang, Laos is double what was previously found (approximately 8% in Davis et al. (2016)).

This study is the first of its kind to provide substantiated evidence for bear parts as a widely consumed product within Cambodia. Moreover, the level of use was consistent in the sites sampled in Cambodia. Although the direct estimates of use obtained from Phnom Penh were significantly lower than direct estimates from the rural areas of the Cardamom Mountains and Stung Treng, this is more likely an effect of greater awareness of bear part use illegality among the more educated individuals within Cambodia's urban centre, as well as potential social undesirability bias. This is illustrated by the specialised questioning techniques (SQTs), wherein prevalence estimates showed higher use in Phnom Penh than was directly reported, with relatively similar levels of use across the sites (**Chapter 6**).

The overlooked in-country markets for bear parts are significant in Southeast Asia, and demand from these markets is an important driver of the continued decline of bears in the region. Additionally, the economic and social context of the countries, and the divergent social influences, motivations, and preferences, all illuminate a picture of bear products as spatially and demographically distinct. Nonetheless, one important generalisation is that bear bile/gallbladder is by far the most popular bear product used in both Cambodia and Laos. Indeed, the sheer prevalence of use across a range of demographics and areas provides compelling evidence for bear bile/gallbladder as the most widely used medicinal illegal wildlife product in Southeast Asia (this thesis and Davis et al. (2019) and Drury (2009) in Vietnam).

However, despite bear bile's ubiquity, this thesis has shown that the way that bear bile/gallbladder is used varies across countries. In northern Laos, it is described as both an ingested tonic and a topical treatment, e.g. an ointment applied to bruised skin, while individuals in Phnom Penh, Cambodia describe it exclusively as an ingested tonic. This also reflects minor trends in differences in what these products are used for. In Luang Prabang it was primarily stated to be used to treat bruising, usually from motorcycle accidents. In the more urban areas of Cambodia researched here, it is used to treat illnesses, including cancer.

#### 7.3.4 Barriers to using bear parts

Concerns over decline in bear populations is not a significant factor stopping individuals in either Laos or Cambodia from purchasing bear parts. Across countries, there is a consistent lack of knowledge about bear population status. However, even if individuals were educated about declining bear populations, it is unlikely that this knowledge would have a significant effect on decreasing use of bear parts. Educated, upper-status individuals in Cambodia did mention conservation of bears as a potential barrier, indicating greater knowledge about bear population status; however, these individuals still admitted to having used bear parts or being willing to purchase bear accessories. Instead, in both Cambodia and Laos use of bear parts appears to be hindered by two primary factors: price, and accessibility. Most individuals cited 'expense' as a reason not to use bear parts, while others stated that they would not know where to get it.

This supports arguments that the expansion of bear bile farms acts to increase the market for bear parts, and increase poaching of wild bears, by lowering the price of bear bile and increasing the available supply. This effect has been seen in Vietnam (Crudge et al., 2018a). In addition, despite the prevalence of legal bile farming in China (Dutton et al., 2011), Chinese demand is still so strong that it is spilling into surrounding countries, as evidenced by the bear bile farms along the northern border of Laos that clearly are intended to supply the Chinese market (Krishnasamy et al., 2018 and Livingstone et al., 2018), as well as by Chinese consumers who have bear bile shipped to them from bile farms in Vietnam (Davis, pers. obs.).

The widespread acceptability of bear bile use in Laos and to a lesser extent Cambodia, shown by the results of this thesis, fully support assertions that farming bears for their bile is not a tenable conservation option (Crudge et al., 2018). If bile farms were to spread in either country, the increased availability of the product, combined with desire and the established social norm of its use, may increase the market of consumers within the country. In Vietnam, bear bile became a

hugely popular and prevalent product in the mid 2000's, aided in part by the thriving bear farm industry (Crudge et al., 2018). Moreover, as Crudge et al. (2018) have noted, bear bile farms are not sustainable purely on a welfare level, with the health issues surrounding bile extraction (Bando et al., 2019) such that bears in bile farms usually are 'replaced' after approximately three years.

#### *7.3.4.1 Preferences for wild versus farmed bear medicine products*

In this thesis, both Cambodians and Laos nationals stated a greater preference for wild bear products over farmed, yet these results show that certainly in Laos and probably in Cambodia, middle to lower status individuals will take farmed bear bile if the option is readily presented to them. In Laos, approximately three quarters of the sample were hopeful that bear bile farms would increase in number, thus making bear bile cheaper and more accessible. In addition, the results of this thesis show that use may be harder to halt in villages that have an ingrained culture of social capital associated with use of bear bile/gallbladder (**Chapter 5**). As discussed in **Section 7.2**, in both countries studied here the role of the social group appears to be the strongest motivation for consuming bear bile/gallbladder.

The social group as a primary determinant of bear part use is arguably seen in Vietnam, where use of farmed bear bile has been maintained, as individuals readily use gifts of farmed bile from friends and family members (Davis et al., 2019). Moreover, as has been seen in Vietnam (Davis et al., 2019) (and arguably among Chinese individuals (Davis et al., 2016)), individuals will readily take farmed bear bile if the option is available to them, despite their stated preference for the wild product. As a result, this thesis supports prior arguments that the farming of bears will not work to satisfy demand (**Chapter 1**) and will instead maintain and perpetuate the practice. The accessibility and prevalence of bear bile within a country may maintain and even encourage continued use (Davis et al., 2019). Indeed, although throughout Asia wild animal products are generally stated as preferred in both medicinal contexts and in food consumption (Drury, 2009, Shairp et al., 2016, and Singh, 2008), this preference is not without nuance. In Vietnam, the pervasiveness of farmed bear bile has led to the acceptability and use of it as a product, despite mild reservations about farmed bear bile compared to wild (Davis et al., 2019). This acceptance has also been seen among Chinese nationals visiting Laos, who actually stated a greater preference for farmed bear bile over wild bear bile (Davis et al., 2016), unlike previous research indicating a preference for wild bear bile over farmed among Chinese individuals in China (Dutton et al., 2011).

If bear farming were to become more prevalent in both Cambodia and Laos, bear bile could become more ubiquitous. This would then potentially have the effect of ensuring that use of wild bear bile becomes the provenance of the higher statuses who can afford it, thus increasing the potential for wild bear bile to receive enhanced prestige markers and become celebrated for its rarity. This would have negative implications for bears across Southeast Asia, as it would increase their monetary value and subsequently the impetus for individuals to hunt them. In Laos, the current commitment of the government to close bile farms throughout the country (**Appendix I**) means that bear bile will become, in theory, less accessible and more expensive in the country. If this policy continues to be implemented, it will be an important conservation effort and as the results of this thesis show, such an effort should act to stabilise, if not diminish, demand for bear bile in Laos. As such, the government should be supported in continuing this action, through the policies and efforts of conservation organisations working within the country. In Cambodia, the government should similarly be supported in its continuing efforts to halt bear farms from being established within the country, as any establishment may act to maintain if not encourage demand. However, as the individuals sampled in this thesis already predominantly consume wild-sourced bile/gallbladder, this action is not going to be a significant conservation solution. Instead, a more effective action will be the implementation of thoughtful demand reduction campaigns tailored to the true landscape of consumption in both countries.

Ultimately, although there may be a stated emphasis on the ‘wild’ and the ‘natural’, there is little reason to believe that Cambodia and Laos would not follow the trends of their neighbours in ultimately accepting farmed bile if it was made readily accessible. As was seen in Vietnam with Vietnamese bear populations (Crudge et al., 2018), this would likely have devastating knock-on effects on the wild bear populations in Cambodia and Laos, if bear bile became a readily available product that could be easily given and utilised to garner social approval.

#### 7.3.4 Use of bear products for uterine ailments

In the bear bile consumption literature for Asia and Southeast Asia, the emphasis has generally been on bear bile as useful for general health maintenance (e.g. Drury, 2009), while this thesis has shown that users generally take bear part medicine products for specific ailments such as bruising; however, this research has identified for the first time that bear bile may also be used for post-partum/uterine ailments. This entirely novel finding was found in Cambodia, with bear bile wine cited for treating uterine-related ailments, primarily post-partum weakness (**Chapter 4**). This use

transcended status lines, although it seemed to be more prevalent among middle-to-lower-status individuals, or at least more acceptable to discuss.

This further supports the significant overall finding of this thesis that the use of bear products is spatially and demographically variable, with identified, unique consumption patterns. To date, there have been no conservation initiatives around this use, as this use was previously entirely unknown. As a result, this identified use has informed one of the key audiences, i.e. post-partum and pregnant women, to target in behaviour change campaigns conducted in Cambodia (**Appendix VI**)

### 7.3.5 Power dynamics of bear part use in Cambodia

The use of bear parts is enmeshed within a web of power dynamics in Cambodia, by virtue of the higher price that individuals must pay for an authentic product. Power dynamics and prestige often, if not predominantly, play a role in influencing the consumption of illegal wildlife products, with higher prices acting both to maintain elitism of the product and to confer status on those who can afford the product (e.g. Drury, 2011, Stirnemann et al., 2018 and Truong et al., 2015). However, poorer individuals may strive to use bear products despite, and in all probability because of, parts' relative inaccessibility; although the constraints of price are such that lower-status individuals are more likely to purchase counterfeit products (e.g. "bear bile" that is actually pig bile). Nonetheless, purchase of 'bear' products (counterfeit or otherwise) can be an action used by a lower-status Khmer individual to counterbalance perceived disempowerment. This perception of bear parts as being used by the higher statuses does not appear to be faulty, at least in Cambodia, as individuals of that status were the most likely to understand bear products, and to have used them. However, there is an amount of deception involved in this signalling process, as counterfeits appear to be on the market in Cambodia (although it is unclear what level of counterfeiting is occurring in Laos).

The behaviour of bear part use will persist within Cambodia so long as certain products holds attributes of prestige, status generation, and social approval. Behaviours associated with social approval can be difficult to shift; however, in the field of health there have been successes using social marketing, where an alternative behaviour is made more tenable (**Chapter 1**). Conservation marketing, as it is called when applied to conservation, should be used to address this trend, ideally by lessening the prestige and approval gained from using bear products (**Section 7.7**).

#### **7.4 The external country context of bear trade in Asia**

Although poaching for external markets is undoubtedly happening in Laos and Cambodia (Davis, unpublished data and M. Hunt, pers. comm.), the actual consumption of bear medicinal commodities by Khmer individuals and Laos nationals is from ‘accessible’ in-country sources. Thus, to access bear products likely requires inclusion in a localised network. From the evidence presented here of Khmer and Laos individuals often not knowing about farmed bear bile (arguably the most easily transported and by extension most common internationally traded bear product (Foley et al., 2011)), it’s unlikely that most individuals in Cambodia and Laos will be seeking bear products from ‘without’ country sources.

Yet, the picture is very different when considering bear handbags. Individuals in both Laos and Cambodia stated that these products were coming from China and Vietnam, rather than an in-country market. This in turn further adds prestige to the product of a bear handbag, as it comes from an outside source and necessitates either visiting another country (a sign of greater wealth and flexibility for individuals in Cambodia and Laos), or having the means to pay another individual to coordinate costs of transportation. Transportation costs appear to play in to consumption of bear meat as well, with bear meat consumed more often at the source in rural Cambodia, rather than being transported into the city. This consumption at the source would not be the case if there was sufficient demand and by extension monetary incentive for bear meat in urban capital(s).

When regarding networks of trade, some anthropologists have theorised that “peasant societies” are universally involved in “comprehensive trade networks” (Halpern and Brode, 1967). Peasant societies are here termed by Halpern and Brode (1967) as “[societies] identifiable by a complex of traits and values primarily associated with traditional agriculture”. This definition is resonant for Cambodia and Laos, although in slightly different iterations. In Cambodia, many individuals continue to practice small-scale farming, even while working other full-time (and often labour-intensive) jobs such as factory work (Davis, pers. obs.), while in northern Laos, the focal study area of this thesis, small-scale agriculture continues to be predominant (Newby et al., 2012). Trade networks of “peasant societies” further serve to indicate the global position of a community by elucidating the social connections beyond that community; and thus, a full understanding of such networks is notoriously complex (e.g. Berreman et al., 1978).

Within Southeast Asia, and among the societies of Cambodia and Laos, there is undoubtedly a complex and casual flow of goods along systemic trade networks, including illegal wildlife products (Nijman, 2010). As a commodity obtained from an animal that can be found throughout Asia, bear bile could potentially be a facilitator and integral component of a pluralistic trade network. Certainly, bear bile is traded internationally, as exemplified by the bear bile farms in Laos that cater to Chinese and Vietnamese nationals (Krishnasamy et al., 2018, Livingstone and Shepherd, 2016 and Livingstone et al., 2018), and the trade in bear gallbladder across the Myanmar-China border (Nijman et al., 2017).

Nonetheless, a picture of the bear product international trade network, and its role in dictating use within the small communities of Cambodia and Laos, is not fully illuminated by the results of this thesis. This was not one of the stated aims of the project, but this research does provide foundations for further exploration of the flow of supply and demand of bear products within Cambodia and Laos and between these countries and their neighbours.

### **7.5 The different markets for bear parts**

Although the goal of this thesis wasn't necessarily to understand the raw economic aspects of bear part use, some intriguing trends in the dynamics of price were found in both Cambodia and Laos. Market dynamics such as the availability of the products appeared to be at play within the landscape of bear part use in Laos and Cambodia. In Cambodia, disparate prices were given by disparate individuals. Market women in Kampong Speu, a semi-rural town on the highway leading from Phnom Penh into the Cardamom Mountains, asserted that a small vial of bear bile could be purchased for \$10. When this figure was later reported to an upper-status property developer, he asserted that such bile must be fake, and that 'true' bile would be upwards of \$1000. Together, these two statements reflect both the emphasis on wild-sourced animal products, and the fact that wild bear bile and gallbladder undoubtedly has a higher price tag than farmed bear bile. In Vietnam, where the majority of farmed bear bile available in Southeast Asia will likely be sourced from, farmed bile can cost as little as \$4/cm<sup>3</sup> (Willcox et al., 2016). However, the individuals spoken to in this thesis in both Cambodia and Laos have cited significantly higher prices for bear parts that are undoubtedly wild, e.g. sourced directly from poachers. In Laos, a price was given of \$2000 for an entire bear's gallbladder. Although individuals may only take a small sliver of this gallbladder (as in the example in **Chapter 5** of gallbladder being divided out amongst a village), the price is still higher than farmed bear bile. For instance, if one gallbladder worth \$2000 is divided out amongst 40 families, the price of that piece of gallbladder will still be \$50. Indeed, this price is

much higher than the price cited for a whole gallbladder in Vietnam (approximately \$600 (Davis, pers. obs.)), and nearly double the price of \$1000 cited by a Khmer individual in this study. This may indicate that the supply of bears within Laos is lessening, thus driving prices for bear parts up, compared to the neighbouring countries. Additionally, illegality concerns could act to drive the prices for bear products up.

The markets for farmed bear bile and wild bear bile may be notably different by 2020. The increasing preference for wild bile over farmed bile is argued to have been a factor in the decline of the bear bile farm industry in Vietnam, with over 3000 farms closing since 2005 (Crudge et al., 2018). In addition, due to the threat of potential disbarment from CITES as a result of poor enforcement of international wildlife trade laws (Krishnasamy et al., 2018 and M. Hunt, pers. comm.), the Laos government has recently committed to shutting down bile farms operating within the country, which will further reduce the amount of farmed bear bile available in Southeast Asia, and in Laos in particular. Therefore, it is possible that wild bear gallbladder/bile will become the only accessible bear medicine product. Wild bear bile is more expensive and would likely grow yet more expensive due to the low supply, which theoretically would decline its use within Cambodia and Laos, as middle to lower status individuals are unable to purchase it. Yet, as the economies continue to grow in Cambodia and Laos (Ku, 2015 and Rungcharoenkitkul, 2012), individuals will gain increasing ability to purchase it. Use of bear bile will then continue to spread through social groups. This has serious implications for bear populations in Southeast Asia, if demand is not halted.

The market for bear parts appears to vary between income levels, and between the two countries of Laos and Cambodia. In Cambodia the higher status individuals both appear to be more likely to use bear parts, and more likely to use wild-sourced products. In Luang Prabang, Laos the effect of income level appears to be less pronounced, though wild-sourced is preferred (Davis et al., 2016) and appears to be most accessible. However, as discussed previously, the Laos cultural group individuals sampled were hopeful that farmed bear bile would become more accessible to them. Although farms do exist in Laos, they are primarily distributing out to foreign markets (Krishnasamy et al., 2018 and Livingstone et al., 2018). Furthermore, if the Laos government continues with their goal of shutting down the farms operating in Laos, it will be even more difficult for Laos individuals to access farmed bile. Reducing the supply will be beneficial, although it will mean that bear bile increasingly becomes a luxury item, accessible only by the very wealthy.



In Cambodia, this effect may already be in progress, although further research may be needed to elucidate this.

### **7.6 Are specialised questioning techniques useful for understanding bear part use?**

Specialised questioning techniques (SQTs) have been shown to be effective in understanding the prevalence of conservation-negative behaviours (e.g. Nuno et al., 2013). Yet, these techniques can fail if: cultural context is not taken into account, if the method is not adequately implemented, if the behaviour has a 'true' prevalence of 'low' in the population (Ibbett et al., 2017), and if the behaviour is not actually considered to be sensitive (Hinsley et al., 2017). The results of this thesis, and in particular the results of the SQTs, show that bear part use is a sufficiently prevalent behaviour that can be adequately detected in a population. Moreover, it is clearly considered to be a sensitive behaviour by some individuals who use it. RRT is not recommended here for understanding bear part use; however, it could possibly be effective in Cambodia or Laos for understanding other conservation-negative behaviours such as poaching (e.g. St. John et al., 2018).

The comparison of SQTs presented here shows that certain SQTs are more effective than others in Cambodia when considering a behaviour such as bear part use. According to the interview data and direct questioning data, the concern that the true prevalence of bear part use is too low to be detected seems to be unlikely to have an effect. Bear part use appears to be sufficiently widespread to be detected. Moreover, bear part use appears to be a sensitive behaviour in Cambodia, as evidenced by the disparity between the direct questioning estimates and the SQTs, as well as the interview data.

However, there were potential identified issues with implementation. One of the SQTs, randomised response technique (RRT), was found to give generally poor results, despite respondents indicating that they trusted that method over another, unmatched count technique (UCT). Several potential possibilities were identified for why this method may have been unsuccessful: individuals may have felt so comfortable using it that they felt comfortable with lying; they may have wished to maintain consistency and answer the same as they did for direct questioning, even if that answer was a lie; they generally may not have felt comfortable stating 'yes' to having used bear parts, even if forced into the response by the die; or they may not have understood the technique from the outset, and felt uncomfortable about admitting to not understanding the mechanics of it. Generally, RRT is not suggested for use in Cambodia.

UCT was also found to have high instances of deceit in one of the locations studied. This location is known to be ‘saturated’ with researchers performing surveys and interviews, as it is a priority conservation area and has previously been identified as a source site for illegal animal products (A. Hinsley, pers. comm. and Starr et al., 2010). Thus, it is possible that the individuals surveyed were either: tired of answering questions about wildlife; or knew poachers; or were poachers themselves, as poaching is still common in the area (e.g. Gray et al., 2017b). Nonetheless, the perceived efficacy of the method in the two other sites studied indicates that this method is effective for understanding bear part use in Cambodia, and in other countries such as Laos and Vietnam.

Nominative technique (NT) appears to have had the least issues with implementation, compared to the other two specific techniques of UCT and RRT. This is probably because most individuals did not know that the technique was being used, as it is embedded within the questionnaire itself, and the technique asks about the behaviours of friends and families, which should be relatively insensitive to discuss. However, it has been pointed out by others that NT can be problematic when one considers the social network foundation it has been built on. In general, it does not take into account the full social network of the individual. First, it is what could be termed an ‘egocentric’ network for only attempting to understand the relationships surrounding one ‘node’, i.e. individual (Marsden, 2002). These types of networks have been criticized for only elucidating an actor’s local network, rather than the larger, global network/community, and thus presenting an incomplete picture of social relationships (Bearman et al., 2004). Second, each individual’s estimated social group size is unknown. In theory, neither of these concerns should affect understanding of behaviour prevalence if the sample size is sufficiently large. However, it is possible that lack of understanding of both of these factors may contribute to skewed results. It seems evident that greater research needs to be performed into the applicability of NT in a conservation setting. This is particularly valid considering the disappointing results of St. John et al. (2010), the only other study to have applied NT in conservation.

The final specialised technique used within this study was that of false consensus bias (FCB). As with NT, individuals did not in theory notice the technique was being implemented, which it was hoped would circumvent any possible issues of distrust of the method. Although the method did work by indicating that a false consensus effect was indeed present within the samples, the index used to further estimate the level of bear part use within the samples was believed to be faulty; the categories used were too large to adequately capture an individual’s perceived level of bear part use within their social network. Moreover, although FCB appeared to work on a superficial level,

it has been routinely noted that FCB can also be prone to a complex litany of confounding mental mechanisms (Ross et al., 1977); for example, an individual who uses bear parts yet is cognisant that it is illegal or undesirable may in fact estimate a *lower* percentage of individuals using parts because s/he believe that they are an anomaly. It was not within the bounds of this study to explore these mechanisms to the degree that other studies have. Yet, it is worth noting that these myriad mechanisms exist, as they illustrate the convoluted nature of human behaviour and the difficulty in adequately measuring and describing such behaviour.

From these results, it is recommended that UCT, NT, and FCB continue to be used in conservation-focused, sociological studies in Southeast Asia, where these techniques may be particularly useful in investigating bear part use. However, there are important considerations to bear in mind when implementing these techniques. In brief, UCT necessitates a well-trained interviewer who is able to explain the method clearly and succinctly, and who can overcome potential deceit bias, if necessary. NT also requires a thoroughly trained interviewer who can encourage specificity of response for a fully accurate estimate. Finally, FCB requires fine categories for truly effective implementation. To advance these techniques, future studies should adopt these considerations.

### **7.7 Behaviour change campaigns**

A concerning result of this study is the level of aspiration among individuals in Luang Prabang, who are desirous of increasing access to bear bile/gallbladder for medicine. Another concerning finding is the acceptability of bear part use in both countries, although acceptability varies by status and commodity in Cambodia. The projected increase in affluence within Laos (World Bank, 2010) could increase accessibility in that individuals will be able to spend the money necessary to poach a bear from the wild, thus expanding the bear part consumer base. Therefore, behaviour change is necessary to reduce demand from consumers in Laos.

Although wildlife enforcement in Cambodia is argued to be the strongest of the Southeast Asian countries (Gray et al., 2017c), bear parts still appear to be easy to obtain (this thesis and T. Lim, pers. comm.). It has been well-documented that the existence of a consumer market can effectively render enforcement efforts useless (Challender and MacMillan, 2014); moreover, legal loopholes can be exploited in favour of poachers and animal part suppliers, as has been seen with bear bile farming in Vietnam (Crudge et al., 2018). It is therefore essential that the consumer market in

Cambodia is reduced, as without this reduction bears will continue to be poached despite enforcement efforts.

A recent review of behaviour change and illegal wildlife trade showed that behaviour change, when used effectively, can be a powerful tool to mitigate use of wildlife parts (Wallen and Daut, 2018). Critics of behaviour change point to costly campaigns that have been unsuccessful; yet, it is worth noting that such campaigns that fail usually do not take into account the ‘true’ motivations of the target audience, due to a lack of bottom-up investigation. For example, a campaign in Vietnam identified four aspects of rhino horn use that it was believed could be used to leverage against rhino horn use, through social marketing messages. However, the aspects of use were shown to be based on outdated notions of consumer behaviour, and misinterpreted conclusions from recent data collection (Vu and Nielsen, 2018). Thus, the marketing messages will likely be ineffective. Campaigns can also fail when they are mass-marketed, and thus not targeted to a particular audience segment (Veríssimo et al., 2018a). It has been noted that “particular segments within the audience are much more relevant than others” Kanagavel et al. (2014), yet identifying these “particular segments” is often not accomplished by conservation organisations running educational/demand reduction campaigns, as shown by Vu and Nielsen (2018). Yet, even if the relevant audience segment is fully identified and targeted through social marketing strategies, campaigns can still fail in their fundamental objective of preserving the biodiversity in the area (Veríssimo et al., 2018b), and/or due to other factors such as simple logistical and practical considerations (Veríssimo et al., 2018a). Finally, behaviour change campaigns can act to ‘push’ a behaviour underground, thus making it more difficult to detect the behaviour, while having no impact on the actual prevalence. Although there are currently no published examples of this from conservation, this effect has been noted in the case of female genital cutting (FGC) in Senegal (Camilotti, 2015). Awareness of laws and anti-cutting campaigns was high among the sample in Camilotti’s (2015) study, but this awareness acted only to increase the secrecy with which families conducted the practice, rather than acting to decrease the actual behaviour prevalence.

As behaviour change is complex and multi-faceted, campaigns that attempt to simply “raise awareness” and/or change the behaviour of broad swathes of individuals are often ineffective (e.g. Milner-Gulland et al., 2018 and Veríssimo, 2013). Davis et al. (2016) illustrated this complexity in their study of Laos nationals, Chinese tourists, and Western tourists, where the greatest differences in attitudes, wildlife value orientations, and behaviours existed between Chinese tourists and Laos nationals, rather than Western individuals and Laos nationals. Moreover, Davis et al. (2016) found

that efforts to raise awareness of the cruelty of snaring and bile extraction had not resonated among Laos nationals, and thus were unlikely to have initiated any positive behaviour change. However, large behaviour change campaigns still often attempt to rely on knowledge, and to generalise messages to large geographic regions. Many campaigns across Asia attempt to provide education about the cruelty involved in snare-trapping, bile farming, and etc., yet consumers in the region are usually well aware of the negative animal welfare aspects. In Laos and Vietnam, some consumers will actively seek out bear bile farms so that they may see the bile extraction process, specifically the process of the catheter insertion into the gallbladder and the drawing of the bile; thus, they are fully aware of the impact to the welfare of the animal and are clearly not influenced by this knowledge to change their behaviour (e.g. Crudge et al., 2018 and Livingstone and Shepherd, 2014). This thesis has supported these earlier findings, with concerns over animal welfare a low priority for individuals in either Laos or Cambodia (**Chapter 4 & 5**), and no hindrance to use of bear parts.

As discussed earlier in this conclusion, although in both countries bear welfare is not highly valued, general feelings, values, and associated attitudes and beliefs are mostly positive towards bears. This coupling results in bear parts being used with no apparent cognitive disconnect or stated uncertainty. Thus, in the Cambodia and Laos context changing bear part consumption behaviour will not be accomplished by reinforcing such positive values and attitudes.

Although significant work has been done towards understanding the segments of bear part consumers in Vietnam (e.g. Davis et al., 2019, Drury, 2011 and Vu, 2010), nothing has been done in Cambodia, and very little has been done in Laos (apart from Davis et al., 2016). This thesis is therefore a highly important contribution towards understanding bear product consumers, and will be crucial in informing behaviour change campaigns conducted on this issue. Indeed, the results of this thesis are currently informing the implementation of a behaviour change campaign intended to reduce bear bile use in Stung Treng, Cambodia. The specific results informing the campaign are: 1) the finding that Stung Treng has a high level of consumption compared to other areas within Cambodia (**Chapter 6**), which has informed the choice to begin implementation of a behaviour change campaign in this area; 2) the finding that there is a consistently strong belief in the medicinal value of bear bile in Stung Treng (**Chapter 4**); and 3) the finding that women who are pregnant or have given birth are “at risk” for using bear bile (**Chapter 4**) has informed the campaign’s messaging, part of which is directed at this key, potential consumer group (**Appendix VI**).

The objective of understanding the role that bears hold in the Khmer and Laos cultural group belief systems, how these beliefs compare and diverge, and how these beliefs may act to motivate or demotivate use of bear products, is essential for understanding consumer characteristics and consequently informing efforts to reduce demand of wildlife products (Vu and Nielsen, 2018). The found in-country beliefs about bears translates into the cultural significance of the bear, and the values placed on bears (**Chapter 4**). Values are a characteristic of all individuals, and consumers and potential consumers will hold certain values. Thus, understanding these underlying values is essential for comparing the values of known consumers. This research, therefore, is entirely novel for providing the first comprehensive picture of the belief system around bears in Cambodia and Laos. In Cambodia, this research has also provided information on the values underpinning these perceptions, while in Laos this research has given context to the positive values found previously (Davis et al., 2016). As values influence behaviour, this understanding of values will lead to increased understanding of the motivations for consuming bear products, which will increase the efficacy of demand reduction campaigns.

This is especially important in light of the lack of bear product demand reduction campaigns across Cambodia and Laos (**Chapter 1**). In addition, no consumer research had been conducted in Cambodia around bear product use, prior to this study. In Laos, research conducted in 2014 in Luang Prabang, Laos, found that individuals had positive feelings (i.e. values) towards bears (Davis et al., 2016). This thesis provides context to these results, by showing that Laos individuals not only feel positively towards the bear, but also that these feelings are consistent across individuals and broader Laos society. This challenges well-founded assumptions that Laos will be more variable than Cambodia in consumer characteristics, due to the high ethnic heterogeneity in Laos (**Chapter 2**). Conversely, this thesis shows that ethnic homogeneity, as in Cambodia, may not encourage a dominant social belief about an animal. In addition, even within a social group that has strong positive feelings towards bears, such as the Laos group, they may still practice behaviours that do not facilitate the conservation of bears. Therefore, demand reduction campaigns in either location, crafted around the message of bears as “lovely animals”, would not be suitable.

Behaviour change interventions conducted within Cambodia and Laos that are intended to diminish bear part use will be significantly more likely to succeed if they target messages to align with the heterogenous spatial, social, and demographic patterns presented within this thesis.

Campaigns that are not founded on dynamic, sociological research are less likely to succeed than those that are (Olmeda et al., 2017 and Vu and Nielsen, 2018). This fundamental, mixed-methods research has elucidated the complex cultural and demographic motivations behind conceptualisations of bears, and by extension individual and societal rationales for using bear parts. Altogether, this thesis is an invaluable first step towards the conservation goal of bear part use reduction within the Greater Mekong region countries of Cambodia and Laos.

As a final point, considering the challenges inherent in attempting behaviour change, campaigns informed by the data here should have a strong impact evaluation component, to ensure that the campaign is thoroughly assessed for efficacy. SQTs are vital for assessing the efficacy of campaigns (Verissimo et al., 2018a), and as this thesis proved that UCT, NT and FCB work generally well in assessing prevalence of this behaviour, and within a Southeast Asian context, they are recommended for use in impact evaluation efforts within Cambodia and other Southeast Asian countries where wildlife product behaviour change campaigns occur.

## **7.8 Limitations**

A limitation of both the qualitative and quantitative instruments was the exclusion of income as a demographic variable. Income is important when considering use of illegal animal products, including bear products (Crudge et al., 2018, Drury, 2011 and Dutton et al., 2011). As discussed within this thesis, questions about income were noted by Khmer individuals as more sensitive than asking about bear part use, and although the sensitivity of income was not discussed with Laos national colleagues working in Luang Prabang, it was believed that this sensitivity would apply there as well. Yet, it is possible that a question about income could have been asked in Laos, to gain deeper understanding of the accessibility of bear products in Luang Prabang. At present, it is unknown to what extent the bear bile farms in Laos are accessed by Laos individuals, so it would have been useful to gain understanding into whether this access is achievable within a 'typical' Laos individual's financial ability.

An income proxy could have potentially been used successfully in the quantitative survey performed in Cambodia (**Chapter 6**). For example, individuals could have selected consumer items from a given list, thus enabling the application of a principal component analysis (PCA) to compare against the directly stated purchase of bear bile, as well as the SQTs estimates (e.g. Kolenikov and Angeles 2009). However, this method likely wouldn't have been as useful within the qualitative interviews, due to the comparatively small sample size in both sites. Rather, within

the qualitative interviews another proxy could have been used, such as asking whether an individual owns a car (a relative luxury item in Southeast Asia (e.g. Hansen et al., 2016)).

In both countries the application of a choice experiment could have been a potential, fruitful research avenue that could work towards illuminating the role of income in bear product use, without necessitating specific questions about an individual's (or household's) income (e.g. Dutton et al., 2011, Harihar et al., 2015 and Moro et al., 2013). In Moro et al.'s (2013) study of bushmeat consumption in the Serengeti, individuals were asked about the attribute of their household's monthly income, using predefined categories equivalent to common occupations in the area. Individuals were then asked to think about that attribute in relation to time spent hunting per year, and asked to choose a particular combination of monthly household income and time spent hunting in a year. Thus, Moro et al. (2013) could gain an understanding of the influence of income on potential hunting; in their study, they found that households with higher monthly incomes were less likely to engage in hunting of bushmeat. Dutton et al. (2011) used a choice experiment in China to understand the willingness of consumers to pay higher prices for wild bear bile, and found that the individuals they sampled were willing to do so. However, as they did not investigate the individual's income within this choice experiment, it is difficult to unpick whether the perceived willingness to pay more for wild bear bile is only speculation, i.e. where individuals surveyed may not have had the ability to pay the prices they were asked about, thus making the choice unrealistic (although Dutton et al. (2011) note that their sample was more urban and educated than may be the norm, with the accompanying assumption that the sample had more disposable income).

Generally, to build effectively upon this research, future studies are encouraged to include a measure of income, bearing in mind the noted sensitivity of this issue. The use of choice experiments to understand bear product use in Cambodia and Laos may be a powerful means of avoiding this sensitivity, while also gaining a richer understanding of the role of income in influencing an individual's purchase of wild and/or farmed bear bile, as well as other bear products such as bear handbags.

In addition, there were some key limitations of the qualitative methods used here that bear some discussion. Generally, the smaller sample sizes that characterise semi-structured interviews (SSIs) constrain the applicability of the observed results to the broader population (e.g. Potgieter et al., 2017). This is true of the qualitative work presented in **Chapters 4 & 5** of this thesis, which



advance understanding but cannot be considered representative of each country as a whole. The quantitative work performed in Cambodia complements the qualitative data to provide a more comprehensive picture of use, but in Laos this data was not collected as part of this thesis. Therefore, the results from Laos are more one-dimensional than those from Cambodia, indicating a future research priority (discussed at greater length below).

The constrained nature of the research performed in Laos contributed to the sample being primarily focused on individuals who could be considered to be of middle (or ‘average’) status. Although this was important in contextualising what has been found in previous research (e.g. in Davis et al., 2016), and in advancing insight into the motivations of the majority of the populace in Laos, the sample missed those individuals who may be significant consumers, specifically upper-status individuals. Therefore, the plurality of bear product use across socio-economic strata within northern Laos (or indeed in Laos in general) is likely not captured within this study.

Another significant limitation of qualitative work is the inherent subjectivity that accompanies such research (e.g. Bernard, 2011). Although every effort has been made to present the results neutrally, my own culturally-dictated perceptions and perspectives will affect the conclusions I’ve come to. Additionally, my gender will have had an effect on the data I’ve gathered. Although this can be a beneficial effect, as has been discussed regarding honest discussion of bear bile for post-partum ailments, it may have also hampered interviews with the males interviewed, as they may have been reluctant to discuss ‘male’ activities such as drinking bear bile wine together (a behaviour seen in Vietnam (Drury, 2011)). Although this did not seem to be the case (with males usually appearing comfortable discussing all aspects of use), it is a potential confounding factor.

The terms used within the questionnaire may also have confounded the results. For example, Drury (2011) discovered that her use of ‘colleague’ as a category was distinct from ‘business contact’. Thus, she did not capture those important relationships in her data, which artificially skewed her data of the relationships perpetuating wildmeat consumption. The same issue may have occurred here. For instance, it was found after the Cambodian data collection that the terms ‘benefit’ and ‘cost’ of using bear products (**Appendix V**) confused individuals, and led individuals to believe that price was being discussed, rather than *any* cost or benefit, monetary or otherwise. Therefore, the results gathered from that particular point likely do not encompass the actual *social* costs or benefits of using bear products in Cambodian society.

As discussed at greater length in **Section 3.9.1**, the questionnaire itself was long and the questions were broad. This can hamper the accurate transcription of responses when such a large amount of information is provided. The need to have an interpreter for the majority of the interviews was a limitation in that the full context of the responses was not captured; however, this was also a benefit in that I was given time to fully record the responses I was given. Interviews were also not recorded, which could have limited the depth and breadth of information received; however, considering the sensitivity of the topic not recording interviews was believed to be the most necessary and appropriate option for encouraging respondents' comfort, and for ensuring complete anonymity and safeguarding from any potential governmental repercussions.

This thesis was limited in what could be accomplished and as a result market dynamics were not assessed for either country. This is an important research void, as very little is known about, for example, the impact of Vietnam's farmed bear bile market on the markets in Cambodia and Laos. As accessibility was cited as a limiting factor in both Laos and Cambodia, it would be useful to more comprehensively understand the level of perceived accessibility currently, compared to the past, in both countries. This would best be accomplished through accessing poachers and bear product traders, who represent a significant knowledge gap in understanding the bear product trade in Southeast Asia. However, such groups are challenging to gain access to.

There are also significant social research opportunities that were unexplored in this thesis. As this research showed, the social group is significant in perpetuating the practice of using bear gallbladder. Therefore, it would be beneficial for both qualitative and quantitative research to be conducted in to the role of social groups in perpetuating use of bear products. Use of bear products in truly rural areas has also not been explored through qualitative means, in either country. Although the research presented here has provided an indication of spatial heterogeneity, it has not fully elucidated the ways in which bear products are used in rural areas. This may be important, considering the noted difference in Cambodia of individuals in Phnom Penh and the surrounding areas having different motivations for using bear products, and using different bear products generally.

Finally, there were several limitations identified with the SQT quantitative data collection. One was the questionnaire design, which was found to be imprecise, thus obscuring the results of the FCB and confounding conclusions that could be made about, for example, bear bile use specifically. Additionally, although the techniques were all tested on pilot groups, they were not

extensively pre-tested, which was believed to be a potential source of error. Finally, deceit was clearly present when using at least two of the four SQTs. Every limitation identified for the quantitative methodologies are discussed more thoroughly in **Chapter 6**.

## 7.9 Summary

This thesis has illuminated the diverse and ubiquitous consumption of bear bile and other products in two major countries of Southeast Asia, Cambodia and Laos, and has added greatly to the concepts debated within the academic literature around this pressing conservation issue. Moreover, although changing behaviour from the use of any wildlife product is challenging, this thesis has already informed, and will continue to inform, the creation and implementation of evaluated behaviour change campaigns in both countries. By extension, this thesis will facilitate true conservation impact as an important tool used for the preservation of bear populations in Cambodia and Laos.

### Summary Points of this Dissertation

- This is the first study to reveal the extent of internal demand for bear parts within Cambodia, and it has advanced greater understanding of consumers in Laos
- This study has questioned the universality of assumptions. Specifically, this study has shown that (1) Chinese culture and values are not influencing use of bear products in Cambodia and Laos; (2) that Cambodians and Laos individuals holding positive attitudes and values about and towards bears will not halt use of bear products, and (3) that bear products for medicine are not used due to strong belief in traditional medicine.
- Use of bear parts is spatially, socially, and demographically heterogenous, within broader commonalities such as use of bear bile for medicine
- An individuals' social group is a powerful motivator driving demand for bear products

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## **APPENDICES**

### **Appendix I**

Lao's People Democratic Republic

Peace Independence Democracy Unity Prosperity

Prime Minister

05/PM

No.

Vientiane Capital, 8 May

2018

### **Order**

#### **On Strengthening Strictness of the Management and Inspection of Prohibited Wild Fauna and Flora**

To: Ministers, Heads of Ministry-Equivalent Organisations, Vientiane Capital Governor and Provincial Governors

- Pursuant to the Law on the Government no.04/NA, dated 8 November 2016

- Pursuant to the Law on Wildlife and Aquatic Animal no.07/NA, dated 24 December 2007
- Pursuant to the Law on the Criminal Procedure no.17/NA, dated 10 July 2012
- Pursuant to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) of which Lao PDR is signatory
- Pursuant to the proposal of the Ministry of Agriculture and Forestry no.32/DoF, dated 27 April 2018

In order to strengthen strictness of the management and inspection of endangered prohibited wild fauna and flora to bring them in line with the laws and regulations of the Government and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) of which Lao PDR is a signatory as well as to effectively prevent negative impact on restricted wild fauna and flora.

**The Prime Minister has issued the following order:**

1. Ministries, related sectors and local authorities to be mindful and strengthen strictness in following one's duty, and ensure rights and responsibilities to be in line with the laws and legislations on the management, inspection and prosecution of prohibited wild fauna and flora.
2. Stop the hunting of all wild animals listed in the prohibited list (Appendix I), stop the import, transit, export, trade of alive or lifeless wild fauna and flora. These include parts of the body and products from prohibited list (Appendix 1) stated in the Law on Wildlife and Aquatic Animals of the Lao PDR and CITES. Wildlife listed in the protected list (Appendix II) must also be strictly protected in accordance with the law of the Lao PDR and CITES.
3. Stop the establishment of prohibited wildlife farm (Appendix 1) for business purpose and promote the existing farms to transform into safari or zoo environment for the purpose of conservation, tourism and scientific purposes only. Establishment of prohibited wildlife list (Appendix II) and general wildlife list (Appendix III) farms must be approved by the Ministry of Agriculture and Forestry with the provision of the following documents: report on the extinction risk management plan, technical business feasibility study and social and environment impact assessment.
4. Strictly prohibit the trade, import and export of prohibited wild flora with no authorization from relevant sectors.
5. The Ministry of Agriculture and Forestry is to lead research into, and promotion of, endangered wild flora for extension, and manage plantations of endangered wild flora.
6. The Ministry of Agriculture and Forestry is to take lead and in cooperation with ministries, concerned sectors and local authorities, to:



- 6.1. Conduct a survey to register wildlife that is being bred, including parts and products such as elephant ivory, elephant bones and rhino horns that possessed by individual or institutions. Pirated products from ivory, bones and rhino horns that are sold publicly must be inspected, seized and destroyed.
  - 6.2. Continue to inspect, collect, register, seize hunting weapons, hunting equipment and destroy them; no individual and institution is allowed to produce, possess and sell any hunting weapons and equipment that lead to extinction.
  - 6.3. Strictly inspect and patrol along vulnerable border area, points of arrival and departure, special economic zones and other areas; if there is a case of violation and offense in terms of trading, transportation of wildlife, parts and products that are against the laws and CITES, offenders must be investigated in accordance with the law procedures to be prosecuted. In case of confiscation for prosecution, items must be handed over to the forestry investigation officials to investigate in accordance with Articles 53, 54 and 79 of the Criminal Law and Articles 59, 60 and 61 of the Wildlife and Aquatic Law. Evidence seized by the Government, if either wildlife that is alive or animal parts that can be conserved after the case is closed, should be handed over to the authorities of Agriculture and Forestry (CITES division) to be conserved (in accordance with Article 8 and Article 13 of the CITES); if the seized wildlife is dead or consists of animal parts that cannot be conserved (e.g. rotten), it should be destroyed.
  - 6.4. Strengthen the management, the inspection, prevention and interdiction of hunting, trading, transporting, importing, exporting, transit of wildlife and wild plants of the prohibited list (Appendix 1) and protected list (Appendix 2) both living and in parts, including organs, wildlife products, as per the laws and regulations that apply to wildlife and aquatic animals of the Lao PDR as well as CITES.
7. The Ministry of Agriculture and Forestry is to proceed with the inspection and listing of all businesses and entities trading in wildlife parts including: bones, skins, horns, ivory, rhino horns, gallbladders, teeth, claws and other parts, and products and souvenirs that are made from animal parts at the markets, hotels, special economic zones, tourist sites, airports, international checkpoints and other locations.
8. The Ministry of National Defense and Ministry of Public Security is to lead their line agencies to strengthen strictness in inspecting the import and export of wild fauna and flora in different international checkpoints and borders. Officials are strictly prohibited to allow or facilitate the import and export of wild fauna and flora as indicated in paragraph 3 of this Order. In case of breaching of the regulations, the offenders must be arrested and all evidence must be seized and

handed over to the investigation unit of forest authorities to strictly prosecute the case in accordance with relevant laws and regulations.

9. The Ministry of Finance is to lead customs officials to strictly inspect, prevent and interdict trade, transport, import, export, re-export, transit of wild fauna and flora in the prohibited list (Appendix 1) and protected list (Appendix 2) both alive and dead, including parts, organs, products made from wild animals that are indicated in the Wildlife and Aquatic Law of the Lao PDR and CITES. In case of breaching of the regulations, the offenders must be arrested and all evidence must be seized and handed over to the investigation unit of forest authorities to strictly prosecute the case in accordance with relevant laws and regulations.

10. The Ministry of Agriculture and Forestry, in combination with relevant sectors, together with all levels of local authorities, is to increase efforts to disseminate and increase awareness of relevant regulations, especially the Wildlife and Aquatic Law and other legislations related to CITES.

11. The Ministry of Science and Technology together with the Ministry of Agriculture and Forestry and local authorities, is to study the status of plants and animals species under CITES list, especially the species that have potential for trading, also to prepare a species extinction risk management plan to be used as information to report to Secretariat of CITES.

12. The Ministry of Agriculture and Forestry and Ministry of Science and Technology to improve the structure and human resources of the Management Authority (CITES MA) and Scientific Authority (CITES SA) in accordance with CITES, to strengthen capacity and collaboration among in order to increase efficiency in work implementation.

13. All Ministries, all concerned sectors and local authorities are to increase efforts to improve coordination in the inspection and monitoring of the implementation of CITES.

14. The Ministry of Agriculture and Forestry is to organize with other ministries, relevant sectors and local authorities, the implementation of this Order with transparency and strictness and report to the Government regularly so that Government recommendations are provided on time to address the situation.

15. The Ministers, Heads of Ministry-equivalent agencies, the Governor of Vientiane Capital, Provincials Governors are assigned to properly understand this Order, as well as to make this Order a thorough duty of work based on their responsibilities and effectively implement this Order. In case sectors or local authorities fail to comply with this Order, the head committee of that particular sector or authority will be held accountable for their actions to the Government based on relevant laws and regulations.

16. This order is effective from the date it is signed. Previous orders, decisions, notices and legislations, including those of local authorities, in conflict with this order are eliminated.

Prime Minister of Lao PDR  
Mr. Thongloun Sisoulith

## Appendix II

*Stung Treng*

<b>ETHNICITY</b>	<b>N = 641</b>	<b>PERCENT</b>
<b>KHMER</b>	457	71.3
<b>KOUY</b>	11	17.2
<b>KHMER-LAO</b>	57	8.9
<b>KHMER-KOUY</b>	47	7.3
<b>KHMER-CHINESE</b>	37	5.8
<b>KHMER-CHINESE-LAO</b>	6	0.9
<b>VIETNAMESE</b>	5	0.8
<b>KHMER-CHINESE-VIETNAMESE</b>	3	0.5
<b>KHMER-VIETNAMESE</b>	3	0.5
<b>CHAM</b>	2	0.3
<b>KHMER-CHAM</b>	2	0.3

<b>KREUNG</b>	2	0.3
<b>KHMER-CHINESE-LAO-VIETNAMESE</b>	1	0.2
<b>KHMER-LAO-KOUY</b>	1	0.2
<b>KHMER-LAO-VIETNAMESE</b>	1	0.2
<b>KHMER-LAO (MINORITY)</b>	1	0.2
<b>KHMER-CHARAY</b>	1	0.2
<b>KHMER-THAI-LAO</b>	1	0.2
<b>LAO</b>	1	0.2
<b>LAO-KOUY</b>	1	0.2
<b>LAO (MINORITY)</b>	1	0.2

*Cardamom Mountains*

<b>ETHNICITY</b>	<b>N =650</b>	<b>PERCENT</b>
<b>KHMER</b>	521	80.2
<b>KHMER-CHINESE</b>	105	16.2
<b>KHMER-SOUY</b>	8	1.2
<b>KHMER-CHINESE-SOUY</b>	3	0.5
<b>KHMER-CHINESE-VIETNAMESE</b>	2	0.3
<b>KHMER-OTHER</b>	2	0.3
<b>KHMER-CHAM</b>	1	0.2
<b>KHMER-BUNONG</b>	1	0.2
<b>KHMER-TUMPOR</b>	1	0.2
<b>KHMER-CHONG</b>	1	0.2
<b>KHMER-SAMREA</b>	1	0.2
<b>KHMER-THAI-OTHER</b>	1	0.2
<b>VIETNAMESE</b>	1	0.2

*Phnom Penh*

ETHNICITY	N = 650	PERCENT
KHMER	504	77.5
KHMER-CHINESE	131	20.2
KHMER-CHINESE-VIETNAMESE (KINH)	4	0.6
KHMER-CHAM	2	0.3
KHMER-OTHER	2	0.3
KHMER-THAI	2	0.3
KHMER-VIETNAMESE (KINH)	1	0.2
KHMER-CHINESE-LAO (LAO LOUM)	1	0.2
KHMER-CHINESE-THAI	1	0.2
KHMER-LAO (LAO LOUM)	1	0.2

### Appendix III

INTERVIEWER TO FILL IN:

Questionnaire ID: \_\_\_\_\_ Date: \_\_\_\_\_ Interviewer initials: \_\_\_\_\_

\_\_\_\_\_

Number of people asked before someone said yes \_\_\_\_\_

\_\_\_\_\_

Commune \_\_\_\_\_ District \_\_\_\_\_ Province \_\_\_\_\_

\_\_\_\_\_

Green (A)  or Red (B)

#### Wildlife Survey

*We would like to ask you for the following demographic information to help us make general conclusions. Your responses will remain completely secret, confidential and will be anonymised.*

**Please do not write respondent's name, address or contact details anywhere on the form**

1. Gender

Male

**Female**

2. What is your age? \_\_\_\_\_ years

3. Month of birth? \_\_\_\_\_ or **don't know**

4. a. What is the **highest** level of education you have completed? *Please tick one box*

**None**

**Literacy certificate**

**Part of Primary school**

**Primary school**

**Secondary school**

**High school**

**Bachelors**

**Graduate Degree (Masters, Law, PhD)**

b. Where did you receive your highest level of education? *Please tick one box*

**Cambodia**

**Elsewhere in Asia**

**Outside Asia**

5. What is your nationality? (tick one box)

**Cambodian**

**Other:** \_\_\_\_\_

6. What is your ethnicity? (*You may tick more than one box. Please tick all boxes that apply.*)

**Khmer**

**Cham**

**Chinese**

**Thai**

**Lao (Lao Loum)**

**Lao (other)** *Please state* \_\_\_\_\_

**Vietnamese (Kinh)**

**Vietnamese (other)** *Please state* \_\_\_\_\_

**Other:** *Please state* \_\_\_\_\_

7. What is your religion? (*You may tick more than one box. Please tick all boxes that apply.*)

**None**

**Ancestor spirits**

**Buddhist**

**Christian**

**Confucian**

**Jewish**

**Muslim**

**Taoist**

**Other:** *Please state* \_\_\_\_\_

8. a. Where did you grow up?

*(Where did you spend most of your childhood? This may be different from the place where you were if you moved and lived most of your childhood in a different place.)*

**Province/Municipality:** \_\_\_\_\_ **District/District:** \_\_\_\_\_

8. b. Where do you live now?

Province/Municipality: \_\_\_\_\_ District/District: \_\_\_\_\_

8. c. How long have you lived there? \_\_\_\_\_ years

(Round to the nearest year. For example, for someone who lived in a place for 1 year and 1-6 months, write "1". For someone who lived in a place for 1 year 7-11 months, write "2".)

9. Whose opinions do you value most in your life for advice on important matters?

Please rank the different groups from 1-5 (1 is highest ranked, 2 is second highest ranked and 3 is third highest ranked, etc.)

\_\_\_ Family (e.g. mother, father, sisters, brothers, husband/wife, grandparents, uncles, aunts, cousins)

\_\_\_ Friends (e.g. boyfriend, girlfriend, close friend)

\_\_\_ Workmates or bosses

\_\_\_ Medical experts (e.g. traditional healers, doctors, nurses)

\_\_\_ Monks and Religious leaders

10. Please indicate how much you value the work of the below listed people. <Please read the options, "Don't value at all" to "High Value" or "Don't know"> Please circle one box in each row  
Use printed table and a stone. Ask respondent to place stone in their choice for each question on the printed table. Remove stone between questions.

<b>a. Traditional healer</b> (Khmer, Chinese, Lao, etc.)	Don't value at all	Value little	a	Value moderately	Highly value	Don't know
<b>b. Western medical expert</b> (e.g. doctor, nurse, pharmacist)	Don't value at all	Value little	a	Value moderately	Highly value	Don't know
<b>c. Religious leader/Monk</b> (e.g. Christian leader, Muslim leader, Monk)	Don't value at all	Value little	a	Value moderately	Highly value	Don't know
<b>d. Cambodian Forestry Service</b> (e.g. government or protected area staff)	Don't value at all	Value little	a	Value moderately	Highly value	Don't know
<b>e. Conservation worker</b>	Don't value at all	Value little	a	Value moderately	Highly value	Don't know



f. **Traffic police**

Don't Value a Value Highly Don't  
value at all little moderately value know

**11.** Which of the following do most medical practitioners you know of use: (*Tick one box*)

- Western medicine**
- Traditional medicine**
- A combination of western and traditional medicine**
- Don't know**

**12. a.** In the past 12 months did you use Western medicine? (*Tick one box*)

- Yes**
- No**

**b.** In the past 12 months, did you use Traditional medicine? (*Tick one box*)

- Yes**
- No**

**c.** In the past 12 months, which did you use more? (*Tick one box*)

- Western medicine**
- Traditional medicine**
- Other:** \_\_\_\_\_
- Don't know**

**UCT Section**

UTC: Green (A) / Red (B)

*<I am going to use a game with cards to ask about activities that people do. The method ensures that your answers are completely anonymous. Each time I will show you a card, and you look at the list of things on it. I will then ask HOW MANY of these things you have done over the past 12 months. I don't want to know which ones, just how many.>*

13. *I will start with a question on animals to show you how the method works. Can you to tell me **how many** of these animals you have seen in real life (not on TV, facebook, computer or phone) over the past 12 months? Please do not tell me which ones you have seen.*

*Answer:*

14. *The next list is about transportation. In the past year, how many on this list have you done? Do not state which you have or have not done. Just how many.*

*Answer:*

15. *The next list is about medical treatments. In the past year, how many of the following have you done? Do not state which you have or have not done. Just how many.*

*Answer:*

**<OK that is the end of the card game>**

16. a. *Thinking of your closest family and friends, what percentage (between 0-100%) of them do you think use bear parts or products for medicine or other purposes?*

*Please circle one below – if you don't know, please guess.*

0-20%

21-40%

41-60%

61-80%

81-100%

**16 b.** How many of your close friends do you know for certain have used/consumed bear parts for medicine or other purposes?

**Answer:**\_\_\_\_\_ (if "0" write N/A and skip to 17. If "1", go to question 16 c. If more than one, ask the interviewee to write down their friends' initials on pieces of paper and then select one friend. Note: the pieces of paper will be disposed of. Then ask question 16 c in relation to that one person).

**16 c.** Other than you, how many other people do you believe know that the nominated friend has used bear parts or products for medicine or other purposes?

**Answer:**\_\_\_\_\_

17. For *each* of the following statements, please indicate whether you think they are true or false.

*(Please circle your response for each statement.)*

- |   |      |       |            |
|---|------|-------|------------|
| a. <b>The number of bears in the forest in Cambodia is increasing</b>   | True | False | Don't Know |
| b. <b>Hunting bears in Cambodia is legal</b>  | True | False | Don't Know |
| c. <b>It is possible to extract bile from a bear without killing the animal</b>                                 | True | False | Don't Know |
| d. <b>Most bears in farms were born in captivity</b>  | True | False | Don't Know |
| e. <b>Consuming bear products in Cambodia is legal</b>  | True | False | Don't Know |
| f. <b>Most people whose opinion you value...have used bear bile for medicine and other purposes in the past</b> | True | False | Don't Know |
| g. <b>Most people whose opinion you value...will use bear bile in the future</b>                                | True | False | Don't Know |
| h. <b>Most people whose opinion you value...believe you should use bear bile</b>                                | True | False | Don't Know |

18. We are interested in learning your views on bear bile.

*In this section 'wild bears' are bears that live in the wild; 'farmed bears' are bears that are kept in cages on a "bear bile farm" for bile extraction. Please indicate if you agree or disagree with the following statements. (Circle one response per row. Use printed table and a stone. Ask respondent to place stone in their choice for each question on the printed table. Remove stone between questions.)*

- |   |                   |          |                            |       |                |            |
|---|-------------------|----------|----------------------------|-------|----------------|------------|
| a. <b>Bear bile has medicinal value</b> | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly Agree | Don't know |
|---|-------------------|----------|----------------------------|-------|----------------|------------|

				disagree			
				e			
<b>b. Bile from wild bears has stronger medicinal properties than bile from farmed bears</b>	Strongly	Disagree	Neither	agree	Agree	Strongly	Don't know
	Disagree	ee		nor	e	Agree	
	e			disagree			
				e			
<b>c. It is easy to find places to buy bear bile</b>	Strongly	Disagree	Neither	agree	Agree	Strongly	Don't know
	Disagree	ee		nor	e	Agree	
	e			disagree			
				e			
<b>d. There are good medicinal alternatives to bear bile/bear gallbladder</b>	Strongly	Disagree	Neither	agree	Agree	Strongly	Don't know
	Disagree	ee		nor	e	Agree	
	e			disagree			
				e			
<b>e. The use of bear bile is an important part of your culture</b>	Strongly	Disagree	Neither	agree	Agree	Strongly	Don't know
	Disagree	ee		nor	e	Agree	
	e			disagree			
				e			
<b>f. Using bile from wild bears will lead to the extinction of bears in the wild</b>	Strongly	Disagree	Neither	agree	Agree	Strongly	Don't know
	Disagree	ee		nor	e	Agree	
	e			disagree			
				e			
<b>g. It is acceptable to use bile from bears that are farmed</b>	Strongly	Disagree	Neither	agree	Agree	Strongly	Don't know
	Disagree	ee		nor	e	Agree	
	e			disagree			
				e			

19. Have you ever consumed/used any of the following bear parts or products? *(Please circle one answer on each row)*

a. Bear paw soup	Yes	No	Don't know
b. Bear paw rice wine	Yes	No	Don't know
c. Bear bile	Yes	No	Don't know
d. Bear gallbladder	Yes	No	Don't know
e. Bear fat	Yes	No	Don't know
f. Bear blood	Yes	No	Don't know
g. Bear bone	Yes	No	Don't know
h. Bear meat	Yes	No	Don't know

20. When was the most recent time you used bear parts or products? *Please tick one box*

- Never
- Within the last year
- Between 1-5 years ago
- Between 6-10 years ago
- More than 10 years ago
- Don't know

21. How often have you consumed bear parts or products in your lifetime? *Please circle one below*

- Never
- 1-10 times
- 11-20 times
- 21-30 times
- more than 30 times
- Don't know

22. a. If you have consumed bear parts, who offered/recommended it to you the first time?

- n/a
- Relative
- Friend

- Acquaintance
- Medical expert
- Other: \_\_\_\_\_

b. Where were you?

- Village
- City
- Other: \_\_\_\_\_

23. If you had to buy and cost was not an issue, which product would you prefer to buy of the following pairs? *(Please tick **one** box in each pair. Synthetic bear bile is made from chemicals in a laboratory to act like the medicinal component in natural bear bile.)*

- |                  |                          |                     |                          |
|------------------|--------------------------|---------------------|--------------------------|
| Bear gallbladder | <input type="checkbox"/> | Bear paw            | <input type="checkbox"/> |
| Bear bile        | <input type="checkbox"/> | Bear gallbladder    | <input type="checkbox"/> |
| Wild bear bile   | <input type="checkbox"/> | Farmed bear bile    | <input type="checkbox"/> |
| Farmed bear bile | <input type="checkbox"/> | Synthetic bear bile | <input type="checkbox"/> |
| Wild bear bile   | <input type="checkbox"/> | Synthetic bear bile | <input type="checkbox"/> |
| Wild bear bile   | <input type="checkbox"/> | Herbal medicine     | <input type="checkbox"/> |
| Farmed bear bile | <input type="checkbox"/> | Herbal medicine     | <input type="checkbox"/> |
| Herbal medicine  | <input type="checkbox"/> | Western medicine    | <input type="checkbox"/> |
| Wild bear bile   | <input type="checkbox"/> | Western medicine    | <input type="checkbox"/> |
| Farmed bear bile | <input type="checkbox"/> | Western medicine    | <input type="checkbox"/> |

24. Were you or someone in your family ill with any of the following ailments in the past 12

25. For each ailment that, what treatments did you use?  
*(Please circle all treatments used for each ailment experienced in past 12 months. Then ask respondent if they used any of the other approaches.)*

months? (Please  
circle all that apply)

<b>Sores</b>	Yes	No	herbal medicine	western medicine	synthetic bear bile	farmed bear bile	wild bear bile	Other:
<b>Hemorrhoids</b>	Yes	No	herbal medicine	western medicine	synthetic bear bile	farmed bear bile	wild bear bile	Other:
<b>Sore throat</b>	Yes	No	herbal medicine	western medicine	synthetic bear bile	farmed bear bile	wild bear bile	Other:
<b>Sprains</b>	Yes	No	herbal medicine	western medicine	synthetic bear bile	farmed bear bile	wild bear bile	Other:
<b>Bruising</b>	Yes	No	herbal medicine	western medicine	synthetic bear bile	farmed bear bile	wild bear bile	Other:
<b>Muscle ailments</b>	Yes	No	herbal medicine	western medicine	synthetic bear bile	farmed bear bile	wild bear bile	Other:
<b>Epilepsy</b>	Yes	No	herbal medicine	western medicine	synthetic bear bile	farmed bear bile	wild bear bile	Other:
<b>Liver disease</b>	Yes	No	herbal medicine	western medicine	synthetic bear bile	farmed bear bile	wild bear bile	Other:

**RRT** <explain the rules of the RRT game, and try the practice questions>

***SHAKE THE DICE***

1. Have you **ever** used bear bile or gallbladder?

Yes

[1]



No

[2]

***SHAKE THE DICE***

2. Have you **ever** eaten or drank bear paw soup or wine?

Yes

[1]

No

[2]

***SHAKE THE DICE***

3. Have you used bear bile or gallbladder **in the last 12 months?**

Yes

[1]

No

[2]

***SHAKE THE DICE***

4. Have you eaten or drank bear paw soup or wine **in the last 12 months?**

Yes

[1]

No

[2]

26. Do you know what a saiga (animal) is? (*Circle one*)

Yes

No

27. Please choose and rank (mark 1, 2 and 3) the three wildlife products that people prefer to use to show high-status and class: (*1 is highest ranked, 2 is second highest ranked, 3 is third highest ranked*)

\_\_\_\_\_ Rhino horn

\_\_\_\_\_ Ivory

- \_\_\_\_\_ Tiger skin
- \_\_\_\_\_ Bear bile
- \_\_\_\_\_ Pangolin scales
- \_\_\_\_\_ Saiga horn
- \_\_\_\_\_ Tortoise shell

**THIS IS THE END OF THE QUESTIONNAIRE. ASK THE INTERVIEWEE FOR FEEDBACK.**

28. Which section did you find easier to understand?

UCT (the game with the cards)  or RRT (the game with the dice)

29. Which section did you trust protected your answers better?

UCT (the game with the cards)  or RRT (the game with the dice)

**THANK YOU FOR YOUR PARTICIPATION.**

Appendix IV

Treatment Group Questions

Q15.

A

បានធ្វើឱ្យខ្លួនឯងមកស៊ីមួយដោយចៃដន្យ

(Cut yourself by accident)



បានប្រើប្រាស់ថ្នាំបំបាត់ការឈឺចុកចាប់

(Take a painkiller)



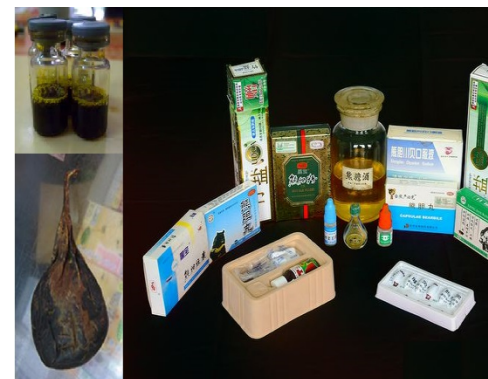
បានប្រើប្រាស់ឱសថពីរុក្ខជាតិ

(Use herbal medicine)



បានប្រើប្រាស់ទឹកប្រមាត់ខ្លាឃ្មុំជាឱសថ

(Take bear bile)



បានទៅមន្ទីរពេទ្យនៅសហរដ្ឋអាមេរិច

Cont. (Go to the hospital in USA)



Q15.

B

ធ្វើឱ្យខ្លួនឯងមុតអ្វីមួយដោយចៃដន្យ

(Cut yourself by accident)



បានប្រើប្រាស់ថ្នាំបំបាត់ការឈឺចាប់

(Take a painkiller)



ប្រើប្រាស់ឱសថពីរុក្ខជាតិ

(Use herbal medicine)



បានទៅមន្ទីរពេទ្យនៅសហរដ្ឋអាមេរិច

(Go to the hospital in USA)



## **Appendix V**

### *Semi-Structured Interviews: Cambodia*

1. What does it mean to you to be Khmer?
2. Do you identify with a religion? If so, do you believe that religion has influenced your views towards wildlife? Why or why not? How do hunters and fishermen figure in this?
3. How would you feel, if you encountered a bear?
4. Can you tell me any folk tales that you know of about bears, specific to Khmer culture?
5. How do you think bears are perceived in the culture you identify with?
6. Do you believe that your feelings about bears are different from the feelings your parents have/had?
7. Would you consider someone who used bear parts to be of high-status?
8. Why would you use bear parts? Why would you not use bear parts?
9. What do you perceive to be the cost of using bear parts? What do you perceive to be a benefit?
10. What medicine would you use if you got sick? (Western, traditional, or a combination?)

Oral Consent

I am \_\_, a researcher for the University of Bristol. I will be interviewing you today about wildlife and wildlife usage. Your answers will be completely anonymous and confidential. Do you agree to participate?

If YES move on to next consent:

If yes, please affirm that you understand the following:

- 1) This is a research project on wildlife and wildlife usage. This research is being conducted by the University of Bristol, and the results may be used by other research organizations.
- 2) Your participation in this interview is entirely voluntary, and if you wish to withdraw from the study you may do so at any time, without needing to give any explanation.
- 3) No personal identifiers will be collected or used by study investigators in reporting research results. Do you understand that all of the answers you will give will be kept confidential by the research team?
- 4) You can ask me a question at any time, and I will be happy to answer it. If you have questions after leaving here today, I'll give you my contact information.

Do you understand all of the above, and do you agree to participate?

If YES, proceed with interview.

Demographic Questions

- 1) Age [make sure they're over 18]

- 2) Gender
- 3) Ethnicit(ies) identify as
- 4) Occupation
- 5) Where were you born?
- 6) Where have you lived most of your life?
- 7) Where have you lived most recently?
- 8) What culture do you most identify with?

### Interview Questions

- 1) Do you identify with a religion? [State answer]. Do you believe that answer has influenced your views towards animals? If so, how? How do people such as hunters and fishermen figure?

2) How would you feel if you encountered a bear?

3) Can you tell me any folktales you know of about bears, that are distinct to your culture? If you don't know of any distinct to your culture, do you know of any distinct to *other cultures*?

4) How do you think bears are perceived in the culture you identify with?





9) [Have respondent choose one of the people whose initials they have written down. This is their nominated friend.] Other than you, how many other people do you believe know that the nominated friend has used bear parts or products for medicine or other purposes?

10) Do you think that bear parts are a part of your culture?

11) Do you think bear parts from wild bears are more effective than those from captive bears? Why?

12) How do you think people who use bear parts are perceived in your culture?  
[If they have a lot of close Chinese friends/family, then ask:] How do you think people who use bear parts are perceived in Chinese culture?

13) Have you ever consumed bear parts or other bear products?

14) Can you think of a reason why you might use bear parts?

15) Can you think of a reason why you might not use bear parts?

16) Who do you think is the typical person who uses bear parts?

17) Do you think women or men use bear parts more in your culture? Why?

18) What age groups do you think will be primarily using bear parts?

**18-35**

**36-65**

**65+**

19) If you were to get sick, what medicine would you use, and why?

### Media Questions

1) How often do you listen/watch the following forms of media:

**1.1 TV**

**1.2 Radio**

**1.3 Newspaper**

**1.4 Online Article**

**1.5 News via social media**

2) Thinking about the forms of media we mentioned above, which of the five do you think is most influential **to you**? Why?

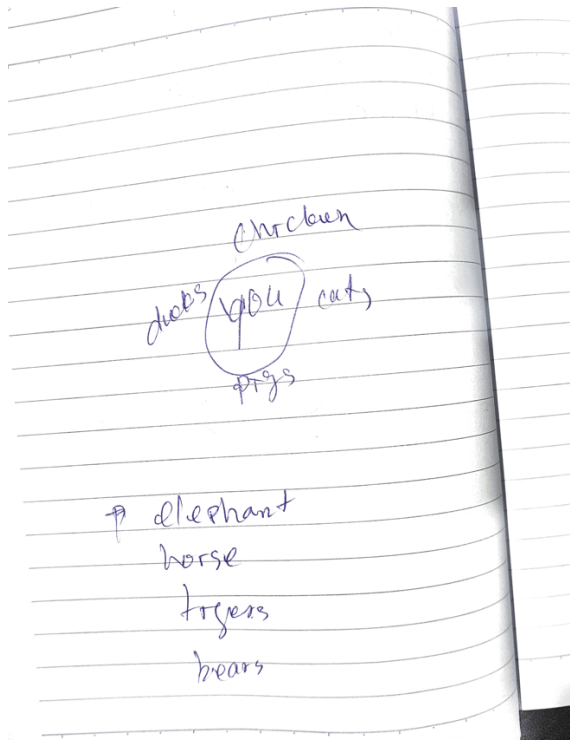
- 3) Do you ever listen to and/or watch Chinese media? Please explain whether it is **translated** or **untranslated** (i.e. in Chinese).

#### Free list

- 1) Forest/wilderness
- 2) Animal
- 3) Bear

#### Ranking Exercises

- 1) Have the interviewee pictorially place animals around them (**Figure 1**).



**Figure 1:** Ranking map of animals

REMEMBER to ask them to place a bear on their picture of animal closeness. Then ask them the following:

1a. Why did you place a bear where you did?

2) Divinity ranking [attached]

2a. Why did you put a bear where you did?

3) Wealth ranking [attached]

3a. What criteria did you use to place people into wealth categories? E.g. knowledge, wealth?

Social Network Analysis

1) How often do you regularly communicate with anyone who is Chinese?

**Never**

**Every few years, no more than three times a year**

**Every few months/Monthly**

**Weekly**

**Daily**

2) A. Do you talk about medicine with anyone who is Chinese?

**Yes**

**No**

B. If yes, please list the initials of up to five Chinese people that you have spoken about medicine with.

3) A. Do you talk about dining with anyone who is Chinese?

**Yes**

**No**

B. If yes, please list the initials of up to five Chinese people that you have spoken about dining with.

4) A. Do you talk about consumer items with anyone who is Chinese?

**Yes**

**No**







## Appendix VI

[MRA materials, next page]