

# WILD ANIMAL CONSUMPTION AND CONSERVATION AWARENESS IN MYANMAR

*by Sapai Min*





**G**lobal species loss during the present human-caused mass extinction far exceeds background rates and is detrimental to human existence (Duckworth *et al.*, 2012). Many Southeast Asian species will become extinct during the next human generation on current trends (Bennett, 2011). Many species are in demand, particularly for consumption, as “strengthening” food, tonics and medicines (Felbab-Brown, 2011; Nijman *et al.*, 2012). Few communities in Asia depend on wild meat for subsistence today, although it may be an important source of income for some rural families, albeit one that is usually illegal under national legislation and often short lived because animal populations quickly succumb to overhunting (Rao *et al.*, 2010). This is the reverse of the situation in many other tropical areas, where wild meat is an important protein source for the urban poor who cannot afford farmed meat (van Vliet *et al.*, 2012). To be successful in curbing poaching of threatened species and ultimately restoring wild animal populations across Southeast Asia, interventions must also target local consumption of wild meat, wildlife products, and wild animals as pets (Milner-Gulland *et al.*, 2003).

Myanmar is one of the most bio-diverse regions in Southeast Asia, home to many rare, threatened and endemic species (NBSAP, 2015–2020). The economy is largely based on agriculture with some 70% of the population residing in rural areas and dependent on forest resources for their livelihoods (Tint *et al.*, 2011, Forestry in Myanmar, 2020). With a rising human population of 50.2 million in the 2014 Myanmar Census and a growing economy, habitats have been degraded, which has resulted in a steady decline in some wildlife species and other natural resources (AIT Research, 2002).

Nowadays, wildlife is threatened with extinction in the wild due to many reasons such as habitat loss, pollution, human interventions, and commercial use of wildlife and its products. All human societies use wildlife directly and/or indirectly. Animals are caught from the wild for their skins, body parts, and derivatives as wildlife products or traditional medicines; live animals are also traded for pets. A lack of information about the extent of these uses is hampering efforts to conserve the rich biodiversity of Southeast Asia (Min, 2012).

Consumer spending is driving the development of Myanmar’s economy: demand for wildlife products has grown substantially and using wild animals as pets, medicine, health treatments and food has even become a fashionable lifestyle pursued by some people. This has created significant challenges for government agencies and conservation organisations working to combat illegal wildlife trade (Lee *et al.*, 2004). In addition, what limited data exist on wildlife trade are not efficiently shared and utilised between relevant protection and decision-making departments (Zhang *et al.*, 2008). This is the first survey on wild animal consumption attitudes in Myanmar. It is provided as a starting point for improved understanding of the attitudes driving illegal wildlife trade. Reducing

consumer demand for wild animals and the evolution of effective enforcement systems supported by local society and communities may take decades: societal change in beliefs and subsequent behaviour change are needed (Bennett, 2011). As a short-term aim, this study’s results can fulfil the information needs for a law enforcement strategy regarding illegal wild animal trade and document baseline attitudes so that future behavioural changes can be ascertained to understand and eventually stop the illegal wild animal trade in Myanmar.

## METHODS

The study was conducted over one year from July 2019 to July 2020 and used a structured questionnaire through face-to-face interviews with respondents in Yangon (16°51’N, 96°11’E), Mandalay (21°58’N, 96°5’E) and Tachileik (20°27’N, 99°53’E) (Map 1). Yangon is Myanmar’s most populous city and its most important commercial centre, for trade, industry, real estate, media, entertainment and tourism. Mandalay is the country’s second-largest city and is the major trading and communications centre for northern and central Myanmar. Much of the external trade from Myanmar to China and India goes through Mandalay. Tachileik is a border town in Shan State of eastern Myanmar and forms Myanmar’s main border crossing with northern Thailand from the Thai town of Mae Sai. All three cities have been linked to road networks facilitating illegal wildlife trade (Clements *et al.*, 2014).

Questionnaires were delivered between August 2019 and March 2020 until at least 70 successful responses were received from each city by local resident field assistants—three assistants each in Mandalay and Tachileik and one in Yangon—who identified themselves as researchers but not specifically with conservation or environmental interests.



**Map 1. Map of study sites; Yangon, Mandalay and Tachileik.**

## SAMPLING

Each visit to each city lasted a seven-day week, when a minimum of 10 questionnaires were undertaken. To obtain a general overview of public attitudes rather than one from specialists working in the field, interviewees were chosen to exclude anyone who worked or had worked for a wildlife law enforcement agency, a conservation group, a market research institute, a market research department of a corporation, or an advertisement design company.

## INTERVIEW METHOD

The study used a structured questionnaire, with 40 questions completed face-to-face with each respondent. Four types of recent consumer behaviour were recorded (1) using wild animals as food (16 questions), (2) using medicine or tonic products containing wild animal ingredients (6 questions), (3) wearing ornaments and garments made from wild animals (6 questions), and (4) keeping wild animals as pets (5 questions) were addressed in the questionnaire (Zhang, *et al.*, 2008). Observers' attitudes to wild animals were also collected through open ended questions (7 questions). The interviewers stressed that data would not be used for future sanctions. The questionnaire did not explicitly request the most recent 12-month period: single experiences could be several years in the past. As the frequency of the four types of wild animal consumption were not identical the questionnaire tried also to examine the motivations for consumption, venue, species, frequency, as well as the characteristics of consumer groups.

The survey adopted a multi-stage random sampling method to perform door-to-door interviews. Qualified interviewees were managed strictly according to a selection order of "city; district; community; neighbourhood committee; family; interviewee." Selected interviewees were at least 18 years old. For each interviewee basic information including name, ethnic identity, gender, age, religion and education level was collected. The total sample size was 210 individuals interviewed across Yangon (n=70), Mandalay (n=70) and Tachileik (n=70).

## RESULTS

### People's attitude to wild animal consumption

Overall some 72% (n=151) of the total 210 respondents preferred eating wild meat (mammals, birds, reptiles—defined as coming from non-captive populations) rather than domestic meat (cow, pig, goat, chicken), the remaining 28% (n=59) preferring domestic meat consumption. Of the 151 who preferred wild meat, 37 (25%) were in Yangon, 50 (33%) in Mandalay and 64 (42%) in Tachileik.

Overall, 59% (n=124) of respondents said they believed in using wild animals and their parts for health reasons. Some 41% (n=85) of respondents appeared to know what species were considered threatened and 39% (n=83) which species were protected. A third of all respondents (33.3% (n=70)), attributed value to wild

animals—within them 58 (83%) an intrinsic value and 14 (17%) an economic value.

Of the 210 total respondents 11% (n=22) hunted for recreation and 11% (n=22) hunted for subsistence uses. A small number also said they hunted for tradition (n=4) and trade (n=3) respectively. Overall 72% (n=152) considered the abundance of wild animals in forests had decreased over the last five years.

## CONSUMPTION CATEGORIES

Respondents were divided into five consumer types depending on their use to the four wild animal categories ((1) using wild animals as food, (2) using medicine or tonic products containing wild animal ingredients, (3) wearing ornaments and garments made from wild animals, and (4) keeping wild animals as pets). Those who used none of these were classified as Type 0 consumers, those who used one were classified Type 1 consumers up to Type 4 consumers who used wild animals in all four categories.

Based on this classification, 10% (n=21) were Type 0 consumers, 37% (n=77) Type 1, 45% (n=95) Type 2, 7% (n=14) Type 3 and only 1% (n=3) Type 4 consumers.

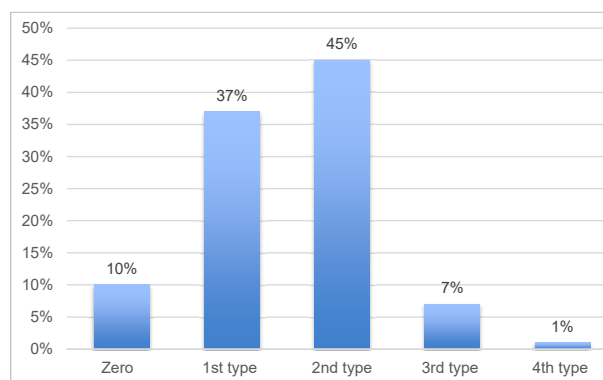


Fig. 1. Percentage of respondents engaged in different categories of wild animal consumption.

## WILD ANIMALS CONSUMED AS FOOD

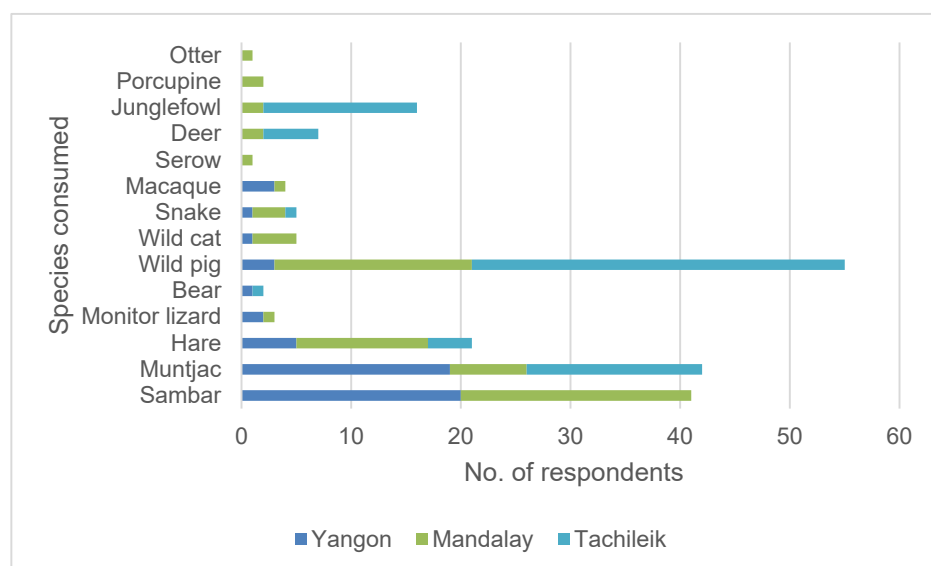
Among the 151 respondents who consumed wild meat, the different species consumed in order of frequency were: Wild Pig *Sus scrofa* (27% of respondents), followed by Muntjac *Muntiacus* spp. (21%), Sambar *Rusa unicolor* (20%), Burmese Hare *Lepus peguensis* (10%), Red Junglefowl *Gallus gallus* (8%), deer Cervidae spp. (3%), snake Serpentes spp. (2%), wild cat Felidae spp. (2%), macaque *Macaca* spp. (2%), monitor lizard *Varanus* spp. (1%), bear Ursidae spp. (1%), serow *Capricornis* spp. (1%), otter Lutrinae spp. (1%) and porcupine *Hystrix* spp. (1%) respectively.

A total of 14 wild animal species, ten of them included in the National Lists of Protected Wildlife Species under the Conservation of Biodiversity and Protected Areas Law were consumed for food in the three cities (Table. 1). There were marked differences in consumption of the different species between the three cities. Sambar was the most consumed in Yangon and Mandalay, while

**Table 1. Species interview respondents said they consumed as food, traditional medicine, ornaments or clothing, or kept as pets.**

| Consumed as food                          | Consumed/used as medicine  | Used for ornaments/clothing                                       | Kept as pets                              |
|---|--|---|---|
| Sambar ( <i>Rusa unicolor</i> ) P         | Serow oil/leg/tongue/hoove CP                                    | Tiger skin CP   | Parrot/Parakeet ( <i>Psittacula</i> spp.) |
| Muntjac ( <i>Muntiacus</i> spp.) SP       | Python gall bladder ( <i>Python</i> spp.) CP/P                   | Tiger canine bracelet CP  | Hill Myna ( <i>Gracula religiosa</i> ) CP |
| Burmese Hare ( <i>Lepus peguensis</i> ) P | Tiger canine/bone/oil ( <i>Panthera tigris</i> ) CP              | Ivory CP  | Hornbill ( <i>Bucerotidae</i> spp.) CP    |
| Monitor lizard ( <i>Varanus</i> spp.) P   | Porcupine stomach/intestine/liver                                | Ivory bracelet CP   | Pheasant ( <i>Phasianus</i> spp.) CP      |
| Bear ( <i>Ursidae</i> spp.) CP            | Eld's Deer liver/antler ( <i>Rucervus eldii</i> ) CP             | Ivory bead necklace CP  | Peafowl ( <i>Pavo</i> spp.) CP            |
| Wild Pig ( <i>Sus scrofa</i> )            | Macaque faeces/meat P  | Ivory pendent CP  | Burmese Hare P                            |
| Wild cat ( <i>Felidae</i> spp.) P         | Bear gall bladder CP   | Ivory ring CP   | Tiger CP                                  |
| Snake ( <i>Serpentes</i> spp.)            | Bear oil CP  | Elephant tail hair ring CP  | Leopard CP                                |
| Macaque ( <i>Macaca</i> spp.) CP/P        | Sambar antler/blood CP   | Leather coat made from muntjac skin SP                            | Macaque CP/P                              |
| Serow ( <i>Capricornis</i> spp.) P        | Viper meat/oil ( <i>Viperidae</i> spp.)                          | Leather bag made from crocodile skin CP                           |   |
| Deer ( <i>Cervidae</i> spp.) CP           | Hare bones/tongue/gall bladder P                                 | Leather bag made by from ray fish skin ( <i>Batoidea</i> spp.) CP |   |
| Red Junglefowl ( <i>Gallus gallus</i> )   | Elephant (skin, molar teeth, tusk) ( <i>Elephas maximus</i> ) CP | Leather shoes (wildlife skins)                                    |   |
| Porcupine ( <i>Hystrix</i> spp.)          | Pangolin ( <i>Manis</i> spp.) CP                                 | Leather wallet (wildlife skins)                                   |   |
| Otter ( <i>Lutrinae</i> spp.) P           | Wild cat P   | Eld's deer antler CP  |   |
|   | Dolphin oil ( <i>Odontoceti</i> spp.) CP                         | Buffalo horn  |   |
|   | Bird nests ( <i>Apodidae</i> spp.)                               | Leopard skin ( <i>Panthera pardus</i> ) CP                        |   |
|   | Honey  | Clouded Leopard skin ( <i>Neofelis nebulosa</i> ) CP              |   |
|   | Takin ( <i>Budorcas taxicolor</i> ) CP                           | Traditional hat band made from Wild Pig tusks                     |   |
|   | Junglefowl egg   |   |   |
|   | Otter oil  |   |   |

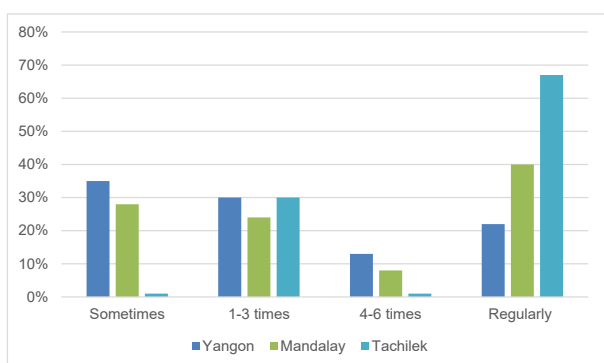
Note: CP: Completely Protected species; P: Protected species; SP: Seasonally Protected species under the Conservation of Biodiversity and Protected Areas Law 2018.



**Fig. 2. wild animal species consumed as food in Yangon, Mandalay and Tachileik.**

in Tachileik it was Wild Pig, possibly reflecting the local abundance of these species rather than consumer preference. (Fig. 2).

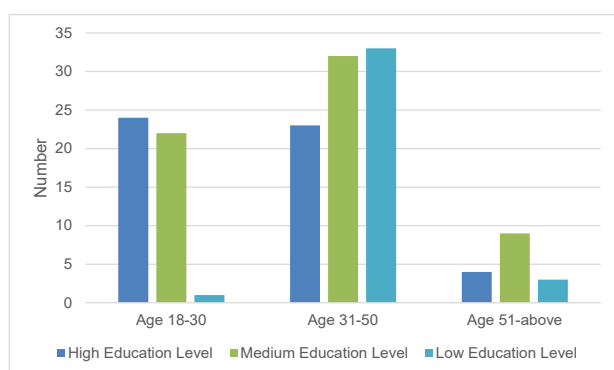
Of the 151 respondents who consumed wild meat 18% (n=28) had at some time, 28% (n=42) did so at least 1–3 times per year, 7% (n=10) did so 4–6 times per year, while 47% (n=71) did so regularly (>6 times in the past year) (Fig. 3). Wild meat was most frequently consumed in Tachileik—of the 64 respondents who ate wild meat there, 43 (67%) did so regularly (>6 times per year), compared to 20 out of 50 respondents (40%) in Mandalay and eight out of 37 (22%) in Yangon. In the 1–3 times per year category the breakdown was Tachileik 30%; Mandalay 24%; Yangon 30% and in the 4–6 times per year category they were Tachileik 1%; Mandalay 8%; Yangon 13%.



**Fig. 3. Frequency of wild meat consumption by respondents.**

Respondents said they ate wild meat for several reasons including better taste (49%), simple preference (36%) and for health (15%), while a further 1% said they did so because it was easy to obtain.

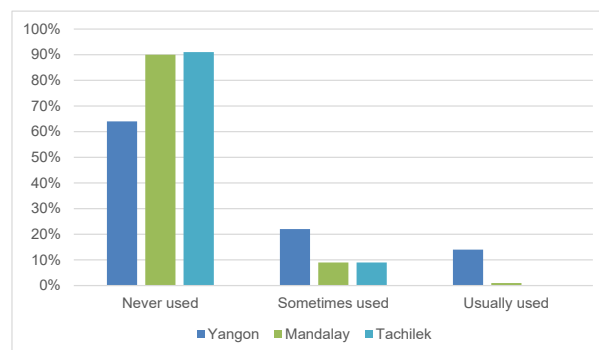
The majority (58%, n=88) of wild meat consumers (n=151) were aged between 31–50, those aged 18–30 (31%, n=47) and those aged 51 and above (11%, n=16). The level of education varied considerably between the different age groups: those in the youngest category were almost all medium or high level educated while those in the older categories were mainly low or medium level educated (Fig. 4).



**Fig. 4. Comparison of age range and education level of wild meat consumers.**

### Wild animals consumed as ingredients in traditional medicines

The overwhelming majority (172, 82%) of the 210 interviewees said they had never used wild animal products for medicine, 27 (13%) said they had sometimes while only 11 (5%) said they usually did so. Between cities, Tachileik had the greatest number of non-users (91%, n=64) and Yangon the least (64%, n=45). Yangon also had the highest number of regular users (14%, n=10) compared to Mandalay (1%, n=1) and Tachileik (0) (Fig. 5).



**Fig. 5. Users of wild animals for traditional medicine across the three cities city.**

A total of 20 wild animal species were said to be used as ingredients in traditional medicines (Table 1). Serows and their parts were the most frequently reported, used to treat joint pain, followed by python gall bladder used for strokes and tiger parts used as a tonic (Fig. 6).

The use of wild animals for medicinal purposes was highest in the low education level and fell as the level of education rose (Fig. 7), while the older the age group, the more regularly wild animals were used as medicine (Fig. 8).

### Wild animals used for ornaments or clothing

Some 59% (n=124) of all respondents (n=210) said they liked to wear ornaments or clothing made from wild animal parts. The majority of them (54%, n=67) were aged 31–50, only a third (34%, n=42) were in the 18–30 age range and the remainder (11%, n=14) were aged 51 or older. Those with a medium education level were the most frequent users (40%, n=50) followed by high education level (33%, n=41) and low education level (27%, n=33). Wearing wild animal parts was most popular in Tachileik—favoured by some 79% (n=55) of respondents (n=70 per city), slightly lower at 64% (n=45) in Mandalay and just 34% (n=24) in Yangon (34%). A total of 18 wildlife parts were reported as used for ornaments or clothing (Table 2). Surprisingly, a high percentage of respondents in Tachileik (84%, n=59) and Yangon (74%, n=52) were unable to answer the reason particular items were worn, but the figure was much lower in Mandalay (36%, n=25).

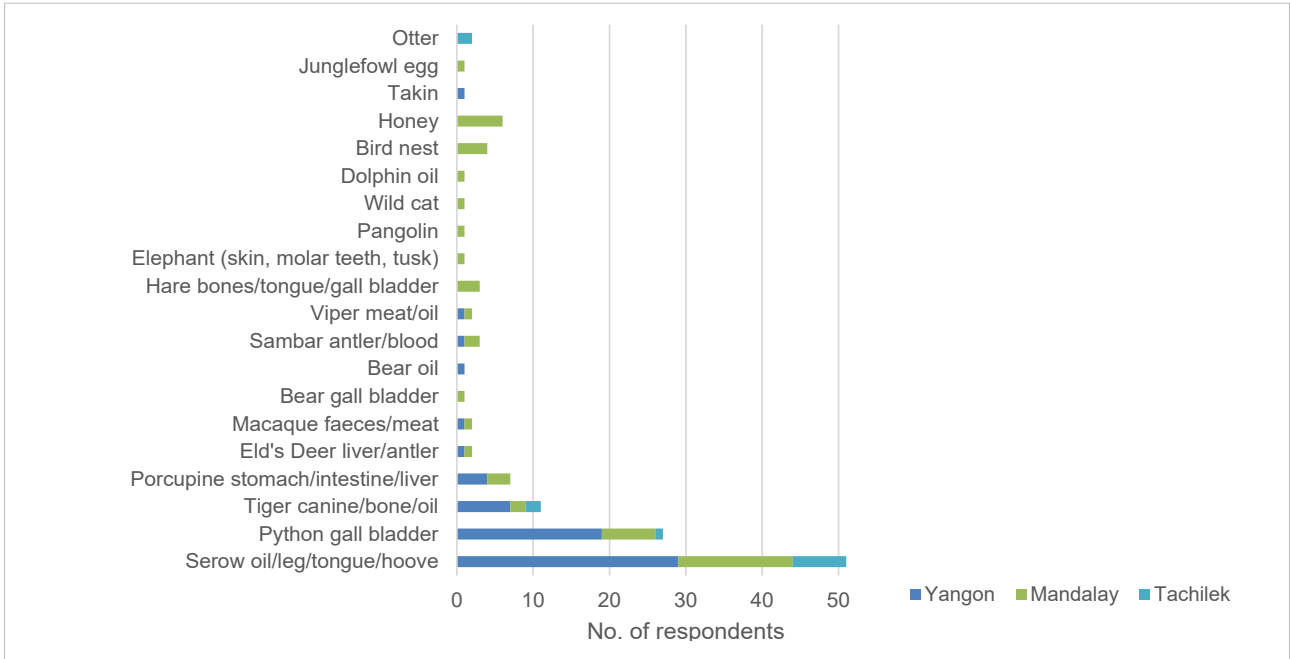


Fig. 6. Wild animal parts used as traditional medicines.

**Wild animals kept as pets**

Out of the 210 respondents, slightly over half (51%, n=107) had never kept a pet, some 29% (n=61) preferred to own or owned a domestic pet and 20% (n=42) preferred to own or owned wild animals as pets. Pet ownership/the desire to own a pet was highest among 31–50 year olds (52% of all pet owners, n=54 out of 103), and lowest among those aged 51 and above (11%, n=11). Pet ownership/desire was highest in Mandalay and lowest in Tachileik (Fig. 9).

Among the 42 who kept or preferred wild animals as pets, nine species were named (Table 1), the most popular being Burmese Hare, mentioned by 17 (40%) of respondents, followed by parrot/parakeet (36%, n=15), Hill Myna (8%, n=3), tiger (5%, n=2), hornbill, pheasant, peafowl, leopard, and macaque (all 2%, n=1).

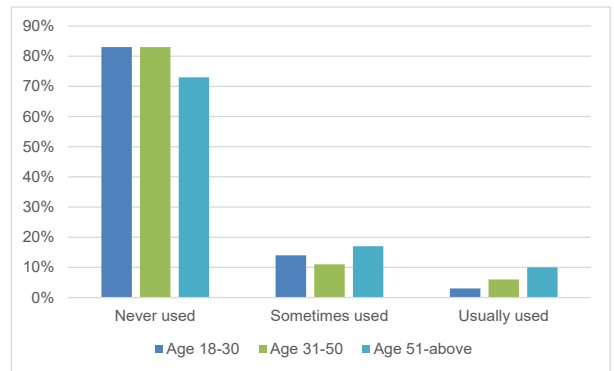


Fig. 8. Wild animal use as medicine by age group.

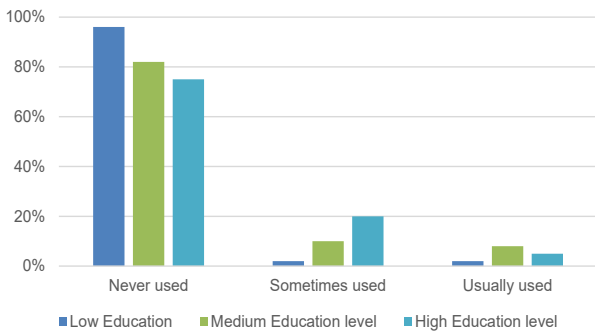


Fig. 7. Use of wild animals as medicine by education level.

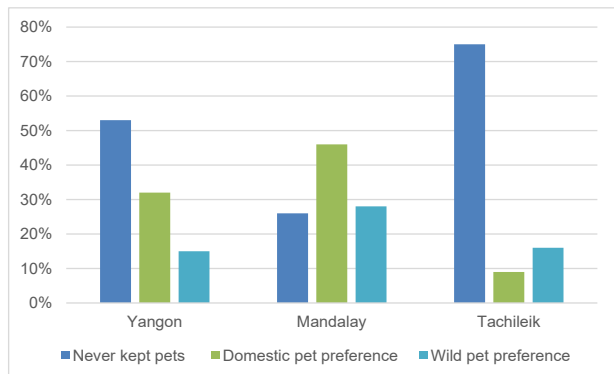


Fig. 9. Pet ownership across the three cities.



**Table 2. Wild animal items and their stated purpose as ornaments/clothing.**

| No.. | Item  | Stated purpose     |
|------|---|--------------------|
| 1    | Tiger skin                                    | Decoration         |
| 2    | Tiger canine bracelet                         | Fashion            |
| 3    | Ivory   | Fashion            |
| 4    | Ivory bracelet                                | Fashion            |
| 5    | Ivory bead necklace                           | Fashion            |
| 6    | Ivory pendent                                 | Fashion            |
| 7    | Ivory ring                                    | Fashion            |
| 8    | Elephant tail hair ring                       | Tradition (Amulet) |
| 9    | Leather coat made from muntjac skin           | Fashion            |
| 10   | Leather bag made from crocodile skin          | Fashion            |
| 11   | Leather bag made from ray fish skin           | Fashion            |
| 12   | Leather shoes (wildlife skins)                | Fashion            |
| 13   | Leather wallet (wildlife skins)               | Fashion            |
| 14   | Eld's Deer antler                             | Decoration         |
| 15   | Buffalo horn                                  | Decoration         |
| 16   | Leopard skin                                  | Decoration         |
| 17   | Clouded Leopard skin                          | Decoration         |
| 18   | Traditional hat band made from Wild Pig tusks | Fashion            |

**DISCUSSION AND CONCLUSIONS**

Myanmar is rich in natural resources and is recognised as a source for wildlife products (Nijman and Shepherd, 2014; Shepherd and Nijman, 2016; Zhang *et al.*, 2017). Each year, hundreds of millions of plants and animals are globally harvested from the wild. Live animals are often sold for fresh food, as pets or for zoological exhibits or their body parts may be used for a variety of purposes including as ingredients in medicines, as collectors' trophies, decorations and as luxury items. While some of this trade is legal and sustainable, a worrying proportion is illegal and threatens the survival of many species. Previous work in Myanmar has found wild animals on sale in markets principally intended for use as traditional medicine, for food and as souvenirs while the skins of muntjacs and serows were often used for leather clothing (Min, 2015; 2017).

The present study found only 10% of all respondents claimed not to use wild animals at all (the Type Zero consumers). Given some respondents are likely not to have revealed their actual consumption behaviour (Zhang *et al.*, 2008), the true levels of consumption are likely to be even higher than this survey suggests. The main users of wild animals across the four categories tended to be in the 31–50 age group, i.e. middle-aged adults, although there was a clear bias in medicinal use of wild animals towards the older age category.

The main reason respondents said they used wild animals was as food—some 72% or all respondents said they used for this purpose, followed by 59% who use them for medicinal purposes.

Any use of wild animals should be legal, while there is a need for greater enforcement and awareness efforts in large, commercial towns, as well as in border areas, in addition to an examination into any trade patterns that may be emerging (Martin, 1997; Davidson, 1999).

The most popular species for a variety of uses—and therefore those likely to be in highest demand—are sambar, muntjac and wild pig for food, serow for traditional medicine as well as tiger skins, ivory products and other leather products for ornaments and clothing. Birds are the most popular group of wild animals for pets—some five out of the nine pet species recorded were avian.

Based on surveys in the three cities, people in Tachileik mainly consumed wild animals as food and for ornaments or clothing, those in Yangon mainly in traditional medicine and in Mandalay the main interest was for ornaments and clothing and as pets. People's attitude towards wild animals is likely dependent on where they reside and their lifestyles.

Respondents from Yangon said they bought wild animal products from Kyaittiyo Pagoda (Golden Rock), a known centre for traditional medicine supplies. This is indicative of how different cities have different consumption patterns depending on their location and availability of wild animal products.

Perhaps most concerning were the findings from this survey that only two-fifths of respondents said they were aware of threatened and protected species, only a third considered wild animals to have some value while almost three-quarters considered the abundance of wild animals in forest had decreased over the last five years. The latter is a particularly high figure considering the respondents were all city-based, although direct experience of this was limited to those living in Tachileik.

Efforts to raise awareness about the need for protection of wild animals, their value and the need for conservation to prevent resource depletion are priority actions for the authorities in Myanmar, and such efforts need to begin at an early age. As a starting point, education programmes should be developed for basic and/or university students. Authorities and conservation NGOs need to improve co-operation with local communities, both through education (Steinmetz *et al.*, 2006) and development of opportunities for co-benefits from wildlife. Meanwhile the ongoing COVID-19 pandemic has highlighted the very real danger of wild meat consumption and its potential for the spread of zoonotic diseases. This research was predominantly conducted prior to widespread concerns of the pandemic, however wild meat markets will continue to be associated with a threat of zoonotic diseases in the future. Therefore, this study also recommends promoting public awareness to stop wild meat consumption as well as education programmes in both urban and rural areas as part of a long-term wildlife conservation strategy.

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