The Ethnozoology, Wildlife Utilisation and Hunting Practices of the Semoq Beri Tribe in Pahang

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Abstract The Semoq Beri tribe in Pahang is one of the sub-groups of the Senoi Orang Asli in Peninsular Malaysia. They are largely dependent on natural resources, especially wildlife, for their livelihood. However, no documentation has been made regarding their interactions with wildlife, such as hunting practices, and wildlife consumption and utilisation. In this paper, we provide an ethnozoological study on their cultural knowledge of wildlife utilisation by using a questionnaire and interviews as our instruments. We found that the Semoq Beri people can be categorised into five types of lifestyle, from totally nomadic to modern citizens, which are based on the types of their houses, hunting skills, food sources, income sources, and access to education. A total of 68 wildlife species, consisting of mammals, birds, reptiles, and insects, consumed by this community were documented. Their hunting tools and the uses of these tools were also documented. Due to their abundance, mammals are most frequently consumed by this community. Generally, we can conclude that the hunting lifestyle of the Semoq Beri people in Pahang is sustainable as they largely hunt for their own consumption, and not to participate in the trading of wildlife. However, we are concerned about the numerous endangered and threatened wildlife species being consumed by them. It is also apparent that their hunting

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activities are decreasing because of the changes to their lifestyle due to modernisation.

Keywords Orang Asli · Sustainable livelihood · Wildlife · Malaysia

Introduction

The Semoq Beri people are a sub-group of the Senoi Orang Asli, who are estimated to have reached Peninsular Malaysia about 8000 years ago during the second wave of migration from the mountainous areas of Cambodia and Vietnam (Zahidin et al. 2018; Baer 1999). Currently, Semoq Beri tribes can be found in few areas of Peninsular Malaysia, namely in Jerantut, Kuantan, the Maran district in Pahang, and the Hulu Terengganu and Kemaman districts in Terengganu (Abdullah et al. 2016, 2017; Masron et al. 2013) (Fig. 1). They speak the Semoq Beri language, which is an Austroasiatic language. Their primary religion is an ethnic religion, which is more closely associated to people's ethnic identity and cultural assimilation. Some of them have embraced Islam, Christianity and Evangelicalism. They used to live as nomads, but the government (the Orang Asli Development Department or JAKOA) provides them with permanent settlement, education, and healthcare.

Most of them live close to or within forested areas as they depend on natural resources to survive. This enables them to engage in rice cultivation and the trading of natural resources, such as petai, durian, resins, and rattan, mainly to generate income (Nicholas 2003). Since the forest is their source of food and income, they place importance on it. They are known to live as hunter–gatherers, consuming wildlife and largely depending on forest products to survive, resulting in them having a more developed olfaction in terms of locating food resources (Majid and Kruspe 2018). With their technological efficiency and skills in using the blowpipe, the Semoq Beri people heavily consume meat in a strategic manner, which results in them leading an active hunter–gatherer life (Kuchikura 1988). They also fish and harvest forest resources, such as wood, *chandan*, rattan, and bamboo (Kuchikura 1996). Those who still hunt tend to live in settlements located in the forests of Jerantut, Kuantan, the Maran district in Pahang, and the Hulu Terengganu and Kemaman districts in Terengganu.

Ethnozoology comes from the Greek words *ethno*, which means ethnic, and *zoology*, which means animals (Castetter 1944). Thus, ethnozoology can be simply understood as the study of the interrelationship between animals and humans of certain ethnic groups. The study of the interrelationships between the cultural knowledge of a particular ethnic group and biology is known as ethnobiology (Anderson 1988). There are three main classifications of ethnobiological study, namely ethnozoology, ethnobotany, and ethnoentomology (Fig. 2). However, it is a complex field involving different approaches and theoretical problems, which also comprise ethnoecology and ethnomedicine, among others. Besides ethnozoology,

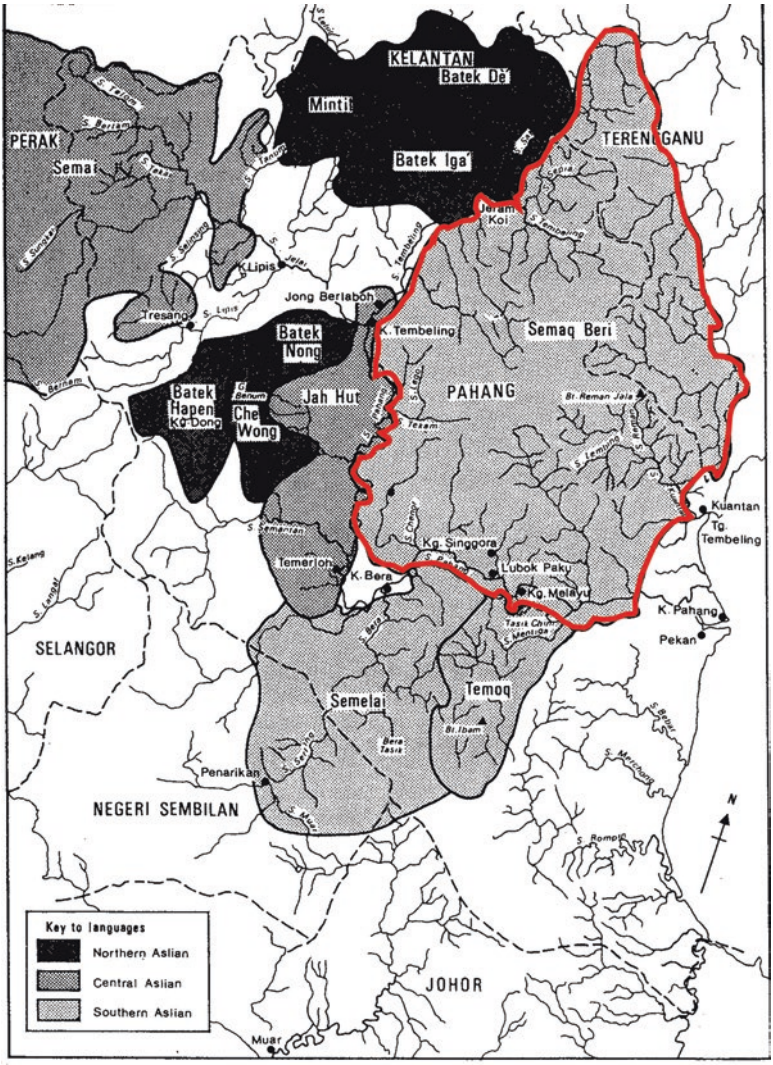

Fig. 1 Semoq Beri settlements in Peninsular Malaysia (Benjamin 1997)

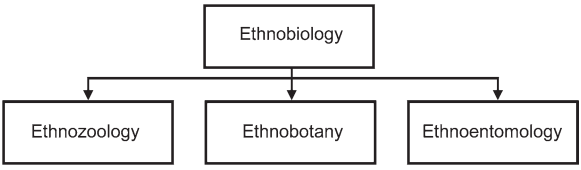

Fig. 2 The main classifications of ethnobiology

there is another discipline under ethnobiology that has emerged from anthropology, namely ethnography (Naidoo 2012). It is a study that interprets the collected data on the beliefs, social interactions, and behaviors of small societies, which involve participation and observation over a period of time (Denzin 2011; Reeves 2008; Berry 2011).

Waters et al. (2011) stated that humans have practiced hunting since at least 13,800 years ago. This is supported by the discovery of rock paintings that portray the hunting practices of prehistoric people through the drawings of human figures hunting wild animals, such as bison, horses, and deer (Alves and Souto 2011). Lim (1900) stated that the Temiar and Lanoh tribes eat python meat to remove excess body heat. However, the Semai people eat python to treat ailments. To eliminate excess body heat, the Semai people in Perak instead eat bear hearts, whereas the Semai people in Pahang eat woodworms. Some believe that pangolin meat contains certain nutrients and has medicinal value (Lim 1900). A widespread folklore about an elephant that died because of a pangolin is the source of their belief that a burned scale of a pangolin can ward off elephants due to its strong odour (Yahaya 2015). According to Azliza et al. (2012), the Temuan people use 12 animal species as traditional medicine to treat diabetes, hypertension, asthma and cold. The Orang Asli tend to consume the meat of large mammals because of the nutrient contents and the quantity of meat. Therefore, we can conclude that these tribes have their own reasons for consuming wildlife species, especially as a source of protein and cure for illnesses.

Generally, in Orang Asli hunting practices, men were the ones responsible for hunting for forest resources. Most elderly men are experts in hunting animals because of their broad experience. The knowledge of hunting among the younger generation is not practiced and it is proven by Kardooni et al. (2014) because the older indigenous people possess more knowledge in hunting skills. The Orang Asli usually capture different animals using different types of hunting tools (Bartholomew et al. 2017). Wild junglefowl are captured using snares, whereas arboreal animals, such as monkeys, squirrels, and birds, are captured using blowpipes. Birds are also caught using slingshots, not just blowpipes. Pangolins are captured using spears (Yahaya 2015). The hunting tools that are generally used are blowpipes with poisoned darts, spears, snares, slingshots and traps.

Ethnozoological Survey

We conducted a survey in a few Orang Asli Semoq Beri villages in Pahang and successfully gathered 30 respondents for interviews and questionnaires. The study was approved by JAKOA, and the community agreed to share their cultural knowledge. They were asked to sign the Free, Prior and Informed Consent (FPIC) and Access and Benefit-Sharing (ABS) forms. The documents were written in the Malay as it could be easily understood by the respondents, enabling them to date and sign the survey with the presence of one witness. We focused on male respondents, owing to

Fig. 3 An interview session with members of the Semoq Beri community

their hunting expertise. The interviews were conducted using a semi-structured questionnaire (Fig. 3). There were 29 wildlife species listed in the questionnaire as the targeted species that may have been consumed by the Semoq Beri people based on the potential distribution of the species in the area. If they provide extra information related to wildlife utilisation during the interview session, it was recorded as a species not listed in the questionnaire. Visual aids were used to help the respondents understand the questionnaire since there may be some confusion between the species name and the local name. All the information obtained from the interviews was recorded in jotter books, and in audio and video forms.

The Ethnography of the Semoq Beri

Background

The Semoq Beri people practiced nomadic living behaviors entirely before engaging with modern civilisation. Even after the independence of Malaysia, most Semoq Beri people practiced a nomadic way of living. They usually did not reside in one place in the forest for more than a few days. However, they did have permanent and fixed refuge areas, which are the caves (Fig. 4). The caves served as temporary homes or areas for family gatherings, and for customary and religious rituals.

The exposure and assimilation of the Semoq Beri people to the Malay, Chinese, and Indian communities were more active after independence. As much as the exposure helped the Semoq Beri people adapt to the industrial and technological advancements in Malaysia, most of them remained in forests and closed their doors

Fig. 4 The caves used by the ancestors of the Semoq Beri people in Pahang for refuge and religious purposes

Fig. 5 The people of the Semoq Beri in Pahang

to foreigners. Much of its people did not go outside of their forests due to several reasons, such as physical distance, customary prohibition, and a lack of interest in the outside world. Due to a lack of records and literature on the Semoq Beri people in Pahang, much is unknown about their history.

Physical Appearance

The skin color of the Semoq Beri people varies widely compared with the Negrito and Proto-Malay tribes (Fig. 5). A study conducted by Ang et al. (2012) on the skin variations of the Orang Asli in Peninsular Malaysia based on a molecular approach revealed that the Senoi tribes have the widest distribution of skin color compared with the Negrito and Proto-Malay tribes. Below are the faces of the Semoq Beri people at our study site. They are of different ages and gender. Their hair varies from curly and wavy, to straight (Ang et al. 2012).

Lifestyle

Modernisation and assimilation have changed how the Semoq Beri people in Pahang live. While they still practice hunting, the frequency of wildlife consumption has decreased. Their lifestyle has shifted to a modern way of living, which had a great impact on the types of their houses, hunting skills, food sources, income sources, and education. Based on our study, we categorised the Semoq Beri people in Pahang into five types of lifestyle (Table 1). On this note, we classified the education received by them into two, formal and informal education. Formal education is defined as "an institutionalised, chronologically graded and hierarchically structured educational system, spanning lower primary schools and the upper reaches of universities," whereas informal education is "the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment" (La Belle 1982).

The first category of lifestyle is the nomadic lifestyle, where they are almost entirely hunter–gatherers. Most of their food sources come from hunting wildlife and gathering non-timber forest products (NTFP), such as herbs, wood, and mushroom. They do not have permanent homes, and they also have never resided in one place for more than 3 days. They forage as a means to survive. One of the philosophies of the Semoq Beri people is "*Suap tara, yukdoi untuk uincha*," which translates to: "Start working in the morning to find food and return in the evening." Men in this category hunt for food to feed their families, whereas women in the family search for staple food, such as sweet potato, herbs, and mushrooms. People in this group remain highly skillful. They eat only wild animals, depending on the availability and the level of difficulty in capturing those animals. The limiting factor

Table 1 The classification of the Semoq Beri people's lifestyle

Level	Type of houses	Hunting skills	Food source	Income source	Education
1	None, hut	High	Hunting, gathering	None, wildlife and NTFP trading	Informal
2	Hut, cottage	High	Horticulture, hunting, gathering	Horticulture product, land rental	Informal
3	Village houses,	Moderate, (hobbyist)	Agriculture, horticulture, hunting, gathering	Agriculture product, horticulture product, land rental	Formal, informal,
4	Rural houses, aided by the government	Moderate, low (hobbyist)	Horticulture, trading, market	Horticulture product, government aid, small business, industrial worker, government servant	Formal, informal,
5	Rural houses, urban houses	Low	Market, retails	Business, public and private service worker, land rental	Formal

associated with their hunting activities is the decreasing number of available species and how abundant of each species is. The lifestyle explained here is almost similar to the Semoq Beri people in Terengganu as narrated by Kuchikura (1988). Their source of income is only from the trading of wildlife species (if any) and non-timber forest products. Most of the individuals who have remained in this group have barely received any formal education and depend largely on the informal survival knowledge passed down from the elders.

The second lifestyle category of the Semoq Beri people is those who have permanent homes. Their homes are in the form of huts or cottages made from rubber wood and nipah leaves (Fig. 6). The huts are built above the ground to avoid being attacked by wild boars. Permanent homes allow those in this category to start families, and the women stay at home to take care of the children. Huts or cottages signify a basic form of society. However, they are scattered and not built close to each other. Hunting and gathering are still widely practiced by this group. The common trait between the first and second groups is that their levels of hunting skills remain high, and they regularly hunt in groups. Their food source have diversified as they have ventured into horticulture in a small scale, as well as raise chicken and ducks as an extra source of food. This group also relies largely on the informal education passed from the elders of the family or society. Their sources of income varied, from horticulture products and NTFPs products, to land rentals (if any). Their hunting strategies would be discussed in the hunting behavior segment later in the chapter.

The third lifestyle category is those that have advanced further into an agricultural life, which have increased their income as they have moved from being forest-dependent to agricultural-dependent. Their houses are now in the form of standard Malay village houses, equipped with basic home supplies and facilities, such as sanitary facilities, water supply, gas stoves, beds, and other household appliances

Fig. 6 A typical hut used by the second category of the Semoq Beri people

Fig. 7 A normal Malay village house used by a Semoq Beri family in the third lifestyle category

(Fig. 7). However, with regard to electricity, only a few of the houses have their own solar panels. Based on observation, when we stayed in the villages of the people in this category, the facilities described above was available, but not all houses have it all completely. For them, the necessity for hunting has been reduced, as well as the level of their hunting skills. The people in this category view hunting as a mere hobby or recreational activity, rather than a means of survival. Since the implementation of the Aboriginal Peoples Act 1954, in which certain designated lands are put under the protection of the Orang Asli, some of the Semoq Beri people have rented out their plots of land for agricultural purposes. Thus, their sources of food have also expanded to agricultural products in addition to horticultural and forest products. This group also works in the agricultural sector and some have even hired foreign laborers for this purpose. In terms of education, they were exposed to formal education, mostly up to the secondary school level, which directly reduced the necessity for informal education on ethnozoological practices.

The fourth category consists mainly of those who live in JAKOA-initiated villages. The villages are designed to be built at the edge of a town, where other public facilities, such as police stations, schools, clinics, and mosques, are near and available. The houses are built close to each other for easier management by JAKOA. Their houses are equipped with water and electrical supplies, telecommunication coverage, and proper sewage management. The main difference between the people in this group and those in previous categories is their hunting skills, which has been reduced from a moderate level to a low level. Hunting is viewed only as a hobby or recreational activity. Their source of food has shifted to the market place and horticulture, although they occasionally consume wildlife species they obtained from recreational hunting. They work in different sectors, such as in agriculture, retail, services, industrial factories, and public agencies. Their source of income has

diversified further, and they no longer depend on forest products, except for additional income. They also receive incentives from the government through JAKOA, leading to an increased standard of living. The people in this group can easily gain access to formal education, and based on our observation, a school bus passed through one of the villages daily to transport students to school. The people in this group are also less focused on informal education compared with formal education.

The fifth category consists of those who migrated to towns, cities, or Federal Land Development Authority (FELDA) settlements. Their houses are built completely from bricks and are located in residential areas, where public facilities are near and available. The level of hunting skills ranges from relatively low to none, as they have left the forests and the traditional ways of living. Their source of food has shifted to markets and retailers. They largely depend on businesses, and the private and public sectors as their source of income. Additional income may come from land rentals (if any), and not from trading forest products. The education they receive is almost entirely formal, while informal education is limited between parents and children (if any). All of the lifestyles explained here are still practiced by the Semoq Beri people in Pahang, but the numbers varied between villages and district.

Wildlife Utilisation

Hunting Tools

As hunter–gatherers, the Semoq Beri people use their own specific tools to hunt animals. The hunting tools are part of their heritage and traditional knowledge. The tools are hand-made and using them requires extensive and detailed knowledge from the elders. The hunting tools mostly used by the Semoq Beri people are blowpipes, locally known as *sumpit*, with poisoned darts, or *damak beracun*; spears, or known as *tombak* or *lembing*; snares, or known as *jerat*; slingshots, or known as *lasik*; and, fish cages, or *bubu*. The use of the hunting tools depends on the targeted size and types of animals. Semoq Beri hunters usually use machetes (Fig. 8) as their main weapon for self-protection and handling the wildlife while hunting in forests. The Semoq Beri people practice a sustainable way of hunting, in which they kill only certain targeted animals that are matured enough to be consumed, and they will not disturb other animals.

The most common hunting tool used by the Semoq Beri people is the traditional blowpipe, which is used to hunt all species of animals. The blowpipes are made from bamboo and are used together with darts coated with the poisonous secretions of certain trees, such as the ipoh tree (*Antiaris toxicaria*) (Kuchikura 1988). They are silent and effective for the hunters to aim at arboreal animals, such as the long-tailed macaque *(Macaca fascicularis*), white-thighed surili (*Presbytis siamensis*), and dusky leaf monkey (*Trachypithecus obscurus*). A study by Kuchikura (1988)

Fig. 8 The machete is used as a general weapon in the forest

also stated that the leaf monkey was among the mammals targeted by the Semoq Beri people during their hunting activities. These animals provide a good quantity of meat and since they are social animals, several members of one group can be captured at once. One of the respondents was able to demonstrate how to call for different types of primates, indicating how immense their hunting skills are. The hunters determine the direction the targeted primates are travelling, and they position themselves under a troop as they attempt to shoot using blowpipes. The length of the blowpipes is kept at about 6 ft. (1.8 m) so it would be convenient to carry them around. The poisonous darts are stored in a canister made from bamboo and rattan. Figure 9 presents a flowchart that shows the process of making the poisonous darts.

A variety of traps and snares are used to target different groups of mammals. The hunter–gatherers prefer to capture animals like the barking deer (*Muntiacus muntjac*) and lesser Javanese mouse-deer, or kanchil, (*Tragulus javanicus*) using snares. Traps are more commonly used to capture small mammals, such as the brush-tailed porcupine (*Atherurus macrourus*) (Fig. 10), which will be consumed if no other sources of food are available. Spears are used to kill large mammals, including the bearded pig (*Sus barbatus*). Bearded pigs are targeted as they are quite numerous and their considerable size makes for a good source of food. The distinctive sound of pigs crunching on roots, and the grunts and squeals of the young make them easier to spot. On rare occasions, a sun bear, a tapir, or even an elephant may be killed. Malayan tapirs (*Tapirus indicus*) are captured with the help of dogs, and spears are used to kill them by aiming them toward the vital organs. Asian elephants are also captured using spears. The hunting of elephants involves about 20 hunters led by an experienced leader, with each hunter carrying at least four spears.

The slingshot is used to catch birds that are to be food. The frequency of consumption of white-breasted waterhens (*Amaurornis phoenicurus)* is higher than that of emerald doves (*Chalcophaps indica*). According to the respondents, doves are

Fig. 9 The making of poisonous darts to be used with the blowpipe

Fig. 10 A brush-tailed porcupine caught using a trap

fast fliers, but waterhens only fly when it is necessary, but at a slow rate due to its size and heavy feet. The Semoq Beri people also fish to fulfill their protein needs. They capture fish using fish cages made from bamboo (Fig. 11), or using a fishing line, with baits, like earthworms (Fig. 12). These tools are used by the Semoq Beri

Fig. 11 A fish cage, locally known as "bubu"

Fig. 12 One of the tools used to catch fish

people as the food sources they depend on are determined by two factors, which are availability and ease of acquisition (Kuchikura 1988).

Wildlife Consumption

The study on wildlife consumption was conducted using a questionnaire and interviews. A total of 30 respondents from the Semoq Beri community were involved in the study. Information related to the sociodemographics of the respondents was collected through the questionnaire (Table 2). The Semoq Beri people are familiar with most of the mammal species, including tigers and elephants. Based on the

Table 2 The sociodemographic characteristics of the respondents

Profile		n	(%)
Gender	Male	15	50.00
	Female	15	50.00
Age	15–20	8	26.67
	21–30	10	33.33
	>30	12	40.00
Marital status	Married	20	66.67
	Single	10	33.33
Occupation	Yes	19	63.33
	No	11	36.67

Table 3 The number of animal species consumed and utilised by the Semoq Beri people according the class

No	Classes of animals	No. of species
1	Mammals	35
2	Reptiles	8
3	Birds	22
4	Insects	3
	Total	68

questionnaire and interviews, about 68 wildlife species have been consumed and utilised by the tribe. Of the total number, mammals are consumed the most at 35, followed by birds (22), and reptiles (8), with the lowest being insects at only 3 species (Table 3).

Twenty-nine animals were listed in the questionnaire, and the majority of them can be found in Pahang. The results of the questionnaire show that of the 29 listed animals, 25 species of mammals (Table 4) and two species of birds (Table 5) have been consumed by the Semoq Beri people. None of the respondents was recorded to have consumed or utilised the remaining two listed species, which are the tropical swallowtail moth (*Lyssa zampa*) and the empress cicada. The details of wildlife utilisation are presented according to the frequency of wildlife consumption (Fig. 13). While conducting the survey, the respondents were also interviewed. The results of the interviews showed that the Semoq Beri people consumed animals not listed in the questionnaire, including 14 species of mammals (Table 4), 20 species of birds (Table 5), eight species of reptiles (Table 6), and two species of insects (Table 7).

The class of animals consumed the most by the Semoq Beri people are mammals. The results of the questionnaire are presented in the form of frequency of consumption and it shows the species that are most consumed, which are the barking deer, lesser mouse-deer, Malayan tapir, bearded pig, sambar deer, white-thighed surili, Malay civet, Sunda pangolin, and dusky leaf monkey. The species listed can be considered as those that are commonly eaten by the Semoq Beri people, probably because of their abundance and finding them in Maran, Pahang, are relatively easy. The least consumed mammal species are the Malayan gaur, oriental small-clawed

Table 4 The list of mammals consumed by the Semoq Beri people

Family	Scientific name	Common name	Local name	Uses	Notes
Felidae	*Panthera tigris*	Malayan Tiger	Harimau	d	I
	Panthera sp.	Leopard	Harimau Bintang	d	I
	Panthera pardus	Black panther	Harimau Mengkung	d	I
	Prionailurus planiceps	Flat-headed cat	Kucing Hutan	a	I
Ursidae	*Helarctos malayanus*	Sun bear	Beruang	a, d	I
Murids	*Rattus norvegicus*	Brown rat	Tikus Mondok	a	I
	Rattus argentiventer	Ricefield rat	Tikus Tedung	a	I
	Rattus tiomanicus	Malayan field rat	Tikus Ladang	a	I
Elephantidae	*Elephas maximus*	Asian elephant	Gajah	a	I
Viverridae	*Viverra zibetha*	Malay civet	Tenggalong	a, d	Q
	Arctogalidia trivirgata	Small-toothed palm civet	Musang ayam	a, c	Q
	Paradoxurus hermaphroditus	Asian palm civet	Musang Pandan	a	I
	Arctictis binturong	Binturong	Musang Tenggalong	a	I
Emballonuridae	*Emballonura monticola*	Lesser sheath-tailed bat	Kelentot/Burung asal	a	Q
Tapiridae	*Tapirus indicus*	Malayan tapir	Badak murai	a, d	Q
Cercopithecidae	*Macaca nemestrina*	Sundaland pigtail macaque	Tadik	a, c	Q
	Macaca fascicularis	Long-tailed macaque	Terau	a, c	Q
	Trachypithecus obscurus	Dusky leaf monkey	Basing	a	Q
	Presbytis siamensis	White-Thighed Surili	Cenglai	a	Q
Cervidae	*Rusa unicolor*	Samba deer	Rusak	a, d	Q
	Muntiacus muntjac	Barking deer	Kijang	a, d	Q
Tragulidae	*Tragulus javanicus*	Lesser mouse-deer	Kanchil	a	Q
	Tragulus napu	Large mouse-deer	Napuh/Pelanduk	a	Q
Bovidae	*Capricornis sumatraensis*	Serow	Kambing gurun	a, b	Q
	Bos gaurus	Malayan gaur	Seladang	a, d	Q
Tupaiidae	*Tupaia glis*	Common Treeshrew	Tupai gohoi/ curing	a, c	Q
Molossidae	*Tadarida plicata*	Wrinkled-lipped bat	Kelentot	a	Q
Pteropodidae	*Pteropus vampyrus*	Large flying fox	Kelentot/ Keluang	a	Q

a food, *b* medicine, *c* pet, *d* ornament, *e* black magic, *f* myth, *Q* questionnaire, *I* interview.

Table 5 The list of birds consumed by the Semoq Beri people

Family	Scientific name	Common name	Local name	Uses	Notes
Rallidae	*Amaurornis phoenicurus*	White-breasted Waterhen	Kawo Guak	a	Q
Columbidae	*Chalcophaps indica*	Emerald dove	Punai Tanah	a, c	Q
	Spilopelia chinensis	Spotted dove	Burung Tekukur	c	I
Psittacidae	*Loriculus galgulus*	Blue-crowned hanging-parrot	Burung Serindit	c, e	I
	Psittinus cyanurus	Blue-Rumped parrot	Burung puling	a	I
	Psittacula longicauda	Long-tailed parakeet	Burung Bayan	a	I
Bucerotidae	*Buceros* sp.	Hornbill	Burung Enggang	a, c, d	I
	Anthracoceros malayanus	Black hornbill	Burung Enggang	c	I
Pycnonotidae	*Pycnonotus goiavier*	Yellow-vented bulbul	Burung Merbah	a	I
Accipitridae	*Elanus caeruleus*	Black-winged kite	Helang	e	I
Tytonidae	*Tyto alba*	Barn owl	Burung Hantu	e	I
Sturnidae	*Acridotheres javanicus*	Javan myna	Raja Kerbau	a	I
Alcedinidae	*Alcedo atthis*	Common kingfisher	Raja Udang	g	I
Turdidae	*Copsychus malabaricus*	White-Rumped Shama	Burung Murai Batu/ Murai Temu	b, c	I
	Copsychus saularis	Oriental magpie Robin	Burung Murai Padang	a, b	I
Nectariniidae	*Nectarinia jugularis*	Olive-backed sunbird	Burung Kelicap	a, b	I
Caprimulgidae	*Lyncornis temminckii*	Malaysian-eared nightjar	Burung Tukang	e	I
Dicruridae	*Dicrurus macrocercus*	Black Drongo	Burung Cecawi	a, e, g	I
Phasianidae	*Argusianus argus*	Great Argus	Burung Kuang Raya	a, d	I
Hirundinidae	*Hirundo tahitica*	Pacific swallow	Burung Layang-layang	a, b	I
Paradisaeidae	*Paradisaea minor*	Common Aorora	Burung Cenderawasih	e	I
Cuculidae	*Centropus sinensis*	Greater Coucal	Burung but but	a, b	I

a food, *b* medicine, *c* pet, *d* ornament, *e* black magic, *f* myth, *g* indicator, *Q* questionnaire, *I* interview.

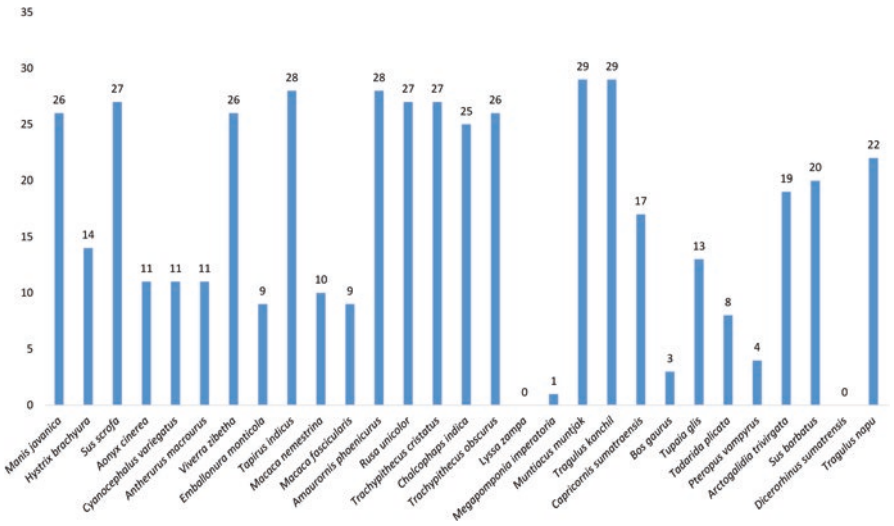

Fig. 13 The frequency of consumption by the Semoq Beri people of wildlife listed in the questionnaire according to species

Table 6 The list of reptiles consumed by the Semoq Beri people

Family	Scientific name	Common name	Local name	Uses	Notes
Trionychidae	*Dogania subplana*	Malayan softshell turtle	Labi-labi	a, b	I
Pythonidae	*Python* sp.	Python	Ular Sawa	a, b	I
Elapidae	*Ophiophagus hannah*	King cobra	Ular Tedung Selar	b	I
Testudinidae	*Manouria emys*	Brown Asian Giant tortoise	Kura-kura Baning	a	I
Varanidae	*Varanus salvator*	Asian water monitor	Leben/Cawoi	a	I
	Varanus dumerili	Dumeril's monitor		a, b	I
	Varanus nebulosus	Clouded monitor		a	I

a food, *b* medicine, *c* pet, *d* ornament, *e* black magic, *f* myth, *g* indicator, *Q* questionnaire, *I* interview.

Table 7 The list of insects consumed by the Semoq Beri people

Family	Scientific name	Common name	Local name	Uses	Notes
Cicadidae	*Megapomponia imperatoria*	Empress Cicada	Wohnyeng	f	Q
Rhinotermitidae	*Reticulitermes* sp.	Subterranean termite	Anai-anai	b	I
Apidae	*Apis* sp.	Honey bee	Lebah (pupa)	b	I

a food, *b* medicine, *c* pet, *d* ornament, *e* black magic, *f* myth, *Q* questionnaire, *I* interview.

otter, flying lemur, brush-tailed porcupine, serow, and small-toothed palm civet. This is because these species are harder to find and concerning decline in the number of consumed species. One of the respondents stated that the meat of the small-toothed palm civet makes her feel nauseous, and she felt sickened by its odour. Bats, such as the lesser sheath-tailed bat, wrinkled-lipped bat, and large flying fox, are also less consumed because of the odour of the meat, and it is claimed to trigger allergic reactions.

Surprisingly, as discovered from the interviews, the Semoq Beri hunters used to hunt for animals from the *Felidae* family, such as the Malayan tiger, leopard and black panther, as well as the Asian elephant. All these large mammals were consumed and shared by the hunters and their family with the rest of the community. However, these endangered species could no longer be found in these areas. According to them, illegal poaching by trespassers and mining activities in the nearby quarry are the primary reasons for the decline of these species. In addition, it is uncertain whether or not the binturong can still be found near the villages. Rodents, such as the brown rat, ricefield rat, and Malayan field rat, are among the least consumed species. They are not listed in the Wildlife Conservation Act 2010. Even if a lot of these animals are captured, their total population would not be affected. This is because these animals reproduce at a faster rate with higher fecundity. Presumably, the Semoq Beri people ate almost all animals found in their habitat.

As for birds, two bird species have been emphasised in the questionnaire. The most consumed bird species is the white-breasted waterhen, and the least consumed bird species is the emerald dove, as presented in Fig. 13. The rest of the bird species consumed by the Semoq Beri people were recorded during the interviews. Reptiles were not included in the questionnaire, but the interviews revealed that they were also consumed.

None of the respondents were recorded to have consumed or utilised the tropical swallowtail moth (*L. zampa*). The tropical swallowtail moth is said to have poisonous scales and is fatal when consumed. The Semoq Beri people also do not consume the empress cicada due to its poisonous scales, which can be fatal if consumed. The species is related to a myth that warns people not to imitate the sound of the cicadas as it will bring them bad luck, or locally called as *tulah*. The presence of cicadas is also believed to indicate certain things, such as the presence of paranormal entities.

Wildlife Utilisation

For the Orang Asli, wildlife is not just a source of food. Wildlife may also be used as ornaments, pets, or for medical purposes (Fig. 14). From the 68 wildlife species they were recorded to have consumed, most were utilised as a source of food, and some as medicine, especially among the older generation. The rest of the wildlife species are taken care of as pets, or made into ornaments, among others.

The Semoq Beri people have retained their knowledge and utilisation of natural resources in terms of treating ailments. Based on the interviews, the respondents

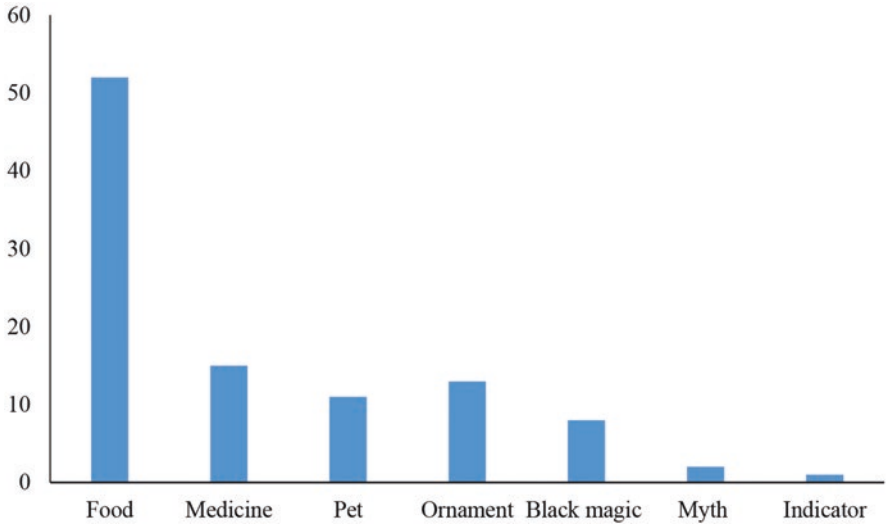

Fig. 14 The rate of the purpose of wildlife consumption and utilisation by the Semoq Beri people in Pahang

Table 8 Utilisation of animals according to parts used, uses, and mode of application

Classes	Common name	Scientific name	Part used	Uses	Mode of application
Mammals	Sun bear	*Helarctos malayanus*	1. Bile	1. Asthma	Eat
			2. Meat	2. Improve blood circulation	
	Malayan porcupine	*Hystrix brachyura*	Tail	Protection from getting sick	Amulet
	Sunda pangolin	*Manis javanica*	1. Meat	Protection from getting sick	1. Eat
			2. Scales		2. Dried and burned
	Flying Lemur	*Cyanocephalus variegatus*	Genitals	Increase woman's fertility	Eat
	Serow	*Capricornis sumatraensis*	1. Bile	Healing wounds and protection from getting sick	Grilled/boiled and drink
			2. Meat		
Reptiles	King cobra	*Ophiophagus hannah*	Bile	Asthma	Eat
	Clouded monitor	*Varanus nebulosus*	Meat	Internal body cooling	Eat

explained some of the recipes of the medicine that they use to cure their illnesses by utilising some of the wildlife species. Seven wildlife species that have been utilised for medical purposes and the methods of preparation are presented in Table 8. For example, reptiles, such as *V. nebulosus*, are usually chewed for a healthy body. They can be either grilled or cooked in a spicy curry, or locally called *masak kari pedas*. In addition, the bile of the serow is consumed to aid in wound recovery and to ward

off illnesses as they believe the animal only eats from sources that contain medicinal values and are healthy for the human body. Serow meat, especially the legs, usually contains more carbohydrates, which helps maintain steady levels of energy.

Wildlife were also used to heal diseases and balance of sex hormones. As an example, the genitals of the flying lemur can help boost the fertility of women. The bile of the sun bear and king cobra are consumed to treat asthma sufferers. Their meat is also considered as everyday food. One of the respondents said the meat of the *O. hannah* tasted like that of the common cat fish (*Clarias* sp.). Five species of mammals and two species of reptiles have been utilised for traditional medicine (Table 8). The Semoq Beri people believe that animal parts, internal or external, can cure illnesses. They have an intimate knowledge of their territory, and they believe that the forest provides ample resources for adequate nutrition. This is why the Semoq Beri people obtain most of their food requirements from the forest. Several studies have revealed that their intake of proteins and carbohydrates far exceeds the minimum requirements (Kuchikura 1988)

The Sunda pangolin and Malayan porcupine are also utilised by the Semoq Beri people for different purposes. The tail of the Malayan porcupine is used as an amulet to ward off illnesses in children. Their meat is boiled in water, and the water is used in spells, specifically for treating certain diseases. There is an enduring myth among the Semoq Beri people related to the Sunda pangolin, which says that its scales can ward off elephants when dried and burned. This myth is the same to that of the ones told by the Lanoh and Temiar tribes (Yahaya 2015), as pangolins are considered to have supernatural powers. The ways of cooking the Sunda pangolin and Malayan porcupine are pretty much the same. The scales or quills are removed, and then they can either be boiled to make a soup or grilled so that it won't get spoiled easily. Back then, the *P. tigris* was hunted by Semoq Beri hunters for its claws and fangs. They believe that the claws or fangs have mythical power, and they used them as amulets against bad luck. Every part of the Malayan tiger has medicinal values according to the Semoq Beri people, including their teeth, bones, and whiskers.

The Semoq Beri people call a solitary *S. scrofa* as *babi tunggal,* and a group of wild boars are known as *babi kawan*. Wild boar fangs are associated with handcraft accessories and superstitious beliefs, such as black magic. The meat of the wild boar contains more fat than other animals, and the meat of the Asian small-clawed otter (*A. cinerea*) is said to be an excellent source of stamina. The Semoq Beri people also consume the Malay civet as food. The meat is grilled or cooked with curry or soy sauce.

In addition, wildlife is also utilised in the production of ornaments. The antlers of the barking deer (Fig. 15) and the beak of the great hornbill are used as trophies among the Semoq Beri people (Fig. 16). The skin of the barking deer is also used to make a traditional musical instrument called *gendang*. The skin of the Malayan tapir is also used for the same purpose. But this tradition is not practiced anymore due to the erosion of traditional knowledge (TK) and the declining availability of the species. One of the bird species, the black drongo, is used as an indicator for the presence of the langur while hunting in forests.

Fig. 15 The carcass of the *M. muntjac*

Fig. 16 The beak of the *Buceros* sp. is used as a decoration in one of the houses

The Semoq Beri people also keep wildlife as pets. They prefer not to care for animals that would put them at risk of disease and physical harm, such as those that are venomous or aggressive. Usually, the Semoq Beri people keep birds as pets because of their beauty and vibrant colours, as well as ease of care compared with other animals. Examples of birds that were kept as pets are the blue-crowned hanging parrot and black hornbill (Fig. 17). They also keep as pets the young of animals they have killed, such as the pigtail macaque (Fig. 18). Some of the respondents stated that they don't consume any wildlife species they keep as pets.

Sustainable Use of Wildlife by the Semoq Beri People

The Orang Asli traditionally believe that natural resources must be harvested in a sustainable manner (Hood 1995). However, over the years, we cannot deny that there have been some changes to their livelihood strategies, which have affected the wildlife population. Generally, based on observation of the Semoq Beri people in Pahang, we can say that their hunting lifestyle is still sustainable, considering that

Fig. 17 The *L. galgulus* and *A. malayanus* being kept as pets

Fig. 18 Pigtail macaques tied with a chain and rope

they hunt for only what they need and in small quantities. For example, if they are trying to hunt for social animals, such as the white-thighed surili (*P. siamensis*) and dusky leaf monkey (*T. obscurus*), which travel together in one group, making it easy for all of them to be captured at once, only one or two will be shot. Apart from that, based on the interviews, the Semoq Beri people only hunt as much as their hands can carry, and the traditional hunting tools that they use are also one of the limiting factors.

The Wildlife Conservation Act 2010 (WCA 2010) governs the protection and management of wildlife in Malaysia, and these animals are also subjected to the International Union for Conservation of Nature (IUCN) Red List classification and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendices. WCA 2010 came into effect in December 2010, and Section 51 of this act grants permission to the Orang Asli to hunt wildlife for their sustenance. However, only 10 species listed under the Sixth Schedule are allowed to be

hunted, namely the wild boar, sambar deer, lesser mouse-deer, pig-tailed macaque, silvered leaf monkey, dusky leaf monkey, Malayan porcupine, brush-tailed porcupine, white-breasted waterhen, and emerald dove. The IUCN Red List provides a comprehensive list of the conservation status of plants and animals all around the globe. CITES, meanwhile, regulates the international trade of certain selected species, imposing certain controls, and the species covered are listed under different appendices, depending on the level of threat and needed protection.

It is important to recognise the information regarding the wildlife species consumed by the Orang Asli and the conservation status of the species. This is because with enough data, several alternatives may be provided to the Orang Asli to reduce their need to hunt the wildlife species. Referring to Table 9, there are a few threatened wildlife species that are consumed by the Semoq Beri people in Pahang. Three of the species are considered critically endangered in the IUCN Red List, including the charismatic species, the Malayan tiger, and it is alarming. The Malayan tiger and Sunda pangolin are also classified as totally protected species in the WCA 2010 and belong to the Appendix I in CITES. This is because in Malaysia, the two species are examples of wildlife species that are highly threatened by poaching due to the high demand for their parts (Clements et al. 2010). The scales and meat of the Sunda pangolin are in demand because of their uses in traditional Chinese medicine (Challender et al. 2019), and this is in accordance with the practices of the Semoq Beri people, as they use it for ward off illnesses.

Apart from that, other charismatic large mammals that are considered as endangered in the IUCN Red List but are consumed by the Semoq Beri people are the Asian elephant and Malayan tapir. They are also categorised under Appendix I of CITES because they are poached and traded for several reasons. Even though some male and all female Asian elephants lack tusks, they are heavily poached, and this is threatening their long-term survival (Choudhury et al. 2008). While the primary threat for the Malayan tapir is deforestation, they are increasingly being hunted as a food source (Traeholt et al. 2016). However, the frequency of the hunting of the two species among the Semoq Beri people has decreased as it is time-consuming and requires a lot of preparation and the participation of a large number of experienced hunters. Furthermore, more than 10 wildlife species consumed by the Semoq Beri people in Pahang are vulnerable, and only a few of the species are allowed to be hunted by them, namely, the *M. nemestrina* and *R. unicolor*. According to Simcharoen et al. (2014), the sambar deer is one of the most preferred prey species for tigers, and it is important in the tiger diet, as well as for the conservation of tigers. Unfortunately, this threatened species is one of the most consumed species among the Semoq Beri people in Pahang. In addition, several other species that are allowed to be hunted by the Orang Asli are mostly listed under the least concern group.

With the high number of threatened wildlife species being hunted by the Orang Asli that are not included in the Sixth Schedule of Wildlife Conservation Act 2010, certainly there is an urgent need to reevaluate how the species selection is made, and more study is needed to know how legislations on natural resources may affect their

Table 9 List of wildlife consumed by the Semoq Beri people and their conservation status

Scientific Name	Common Name	WCA 2010	IUCN	CITES
Panthera tigris	Malayan Tiger	TP	CR	I
Manis javanica	Sunda pangolin	TP	CR	I
Manouria emys	Brown Asian Giant tortoise	P	CR	
Elephas maximus	Asian elephant	TP	EN	I
Tapirus indicus	Malayan tapir	TP	EN	I
Prionailurus planiceps	Flat-headed cat	TP	EN	I
Orlitia borneensis	Malaysian Giant turtle		EN	II
Sus barbatus	Bearded pig	TP	VU	
Aonyx cinerea	Oriental small-clawed otter	TP	VU	I
Macaca nemestrina	Pigtail macaque	P/AC	VU	II
Rusa unicolor	Samba deer	P/AC	VU	
Capricornis sumatraensis	Serow	TP	VU	I
Bos gaurus	Malayan gaur	TP	VU	I
Arctictis binturong	Binturong	TP	VU	III
Panthera pardus	Black panther	TP	VU	I
Helarctos malayanus	Sun bear	TP	VU	I
Ophiophagus hannah	King cobra	P	VU	II
Buceros sp	Hornbill	TP	VU	II
Anthracoceros malayanus	Black hornbill	TP	VU	II
Acridotheres javanicus	Javan myna		VU	
Argusianus argus	Great Argus	TP	NT	II
Trachypithecus obscurus	Dusky leaf monkey	P/AC	NT	II
Presbytis siamensis	White-Thighed Surili	P	NT	II
Pteropus vampyrus	Large flying fox	P	NT	II
Psittinus cyanurus	Blue-Rumped parrot	P	NT	II
Psittacula longicauda	Long-tailed parakeet	TP	NT	II
Hystrix brachyura	Malayan porcupine	P/AC	LC	
Atherurus macrourus	Brush-tailed porcupine	P/AC	LC	
Sus scrofa	Wild boar	P/AC	LC	
Cyanocephalus variegatus	Sunda flying Lemur		LC	
Viverra zibetha	Malay civet	TP	LC	III
Arctogalidia trivirgata	Small-toothed palm civet	TP	LC	
Emballonura monticola	Lesser sheath-tailed bat		LC	
Macaca fascicularis	Long-tailed macaque	P	LC	II
Tupaia glis	Common Treeshrew	P	LC	II
Tadarida plicata	Wrinkled-lipped bat		LC	
Amaurornis phoenicurus	White-breasted Waterhen	P/AC	LC	
Chalcophaps indica	Emerald dove	P/AC	LC	
Paradoxurus hermaphroditus	Asian palm civet	P	LC	III
Muntiacus muntjac	Barking deer	P	LC	
Tragulus javanicus	Lesser mouse-deer	P/AC	LC	
Tragulus napu	Large mouse-deer	P	LC	

(continued)

Table 9 (continued)

Scientific Name	Common Name	WCA 2010	IUCN	CITES
Rattus norvegicus	Brown rat		LC	
Rattus argentiventer	Ricefield rat		LC	
Rattus tiomanicus	Malayan field rat		LC	
Python sp.	Python	TP	LC	
Pycnonotus goiavier	Yellow-vented bulbul		LC	II
Elanus caeruleus	Black-winged kite		LC	II
Spilopelia chinensis	Spotted dove		LC	
Tyto alba	Barn owl	TP	LC	II
Copsychus malabaricus	White-Rumped Shama	P	LC	
Copsychus saularis	Oriental magpie Robin	P	LC	
Nectarinia jugularis	Olive-backed sunbird	TP	LC	
Lyncornis temminckii	Malaysian-eared nightjar		LC	
Dicrurus macrocercus	Black Drongo	TP	LC	
Hirundo tahitica	Pacific swallow	TP	LC	
Paradisaea minor	Common Aorora		LC	II
Centropus sinensis	Greater Coucal	TP	LC	
Dogania subplana	Malayan softshell turtle	P	LC	II
Varanus salvator	Asian water monitor	P	LC	II
Loriculus galgulus	Blue-crowned hanging-parrot	P	LC	II
Varanus dumerili	Dumeril's monitor	TP	NE	II
Varanus nebulosus	Clouded monitor	TP	NE	I
Panthera sp	Leopard	TP	NE	

TP Totally Protected, *P* Protected, *AC* Aborigines Consumption, *CR* Critically Endangered, *EN* Endangered, *VU* Vulnerable, *NT* Near Threatened, *LC* Least Concern, *NE* Not Evaluated, *I* Trade in specimens of these species is permitted only in exceptional circumstances, *II* Trade must be controlled in order to avoid utilisation incompatible with their survival, *III* contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

livelihood (Aziz et al. 2013). Besides, the Semoq Beri people in Pahang are unaware of the risk of extinction faced by some of the animals they hunt, such as the Sunda pangolin and the brown Asian giant tortoise, which are now critically endangered. A general lack of awareness regarding wildlife conservation may also be a contributing factor. Hence, an effective awareness program and exposure through education among the Orang Asli need to be done extensively. This is to ensure that the Orang Asli, especially the Semoq Beri people in Pahang, can continue to practice their heritage and culture, but at the same time help in the conservation efforts in line with the vision of the National Policy on Biological Diversity.

Conclusion

In this chapter, we have discussed the ethnography of the Orang Asli Semoq Beri in Pahang, especially the classification of their lifestyles into five categories, which are connected to the pattern of wildlife consumption. Although the number of wildlife species consumed is high, we believe that we need more intensive studies on the interactions between the Semoq Beri people and wildlife to gain a deeper understanding on their needs, culture, and heritage. We reject the notion of blaming the Semoq Beri people in Pahang as the cause of animal extinction due to their lifestyle, but, rather, we believe that intensive awareness and educational programs, especially on the conservation status of the threatened and endangered wildlife species, will be a win–win strategy for conservation.

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