

# Illegal Turtle Trade in Bac Kan, Quang Ninh, Tuyen Quang Provinces and Online Illegal Turtle Trade

Tran Thi Khanh Linh<sup>1</sup>, Pham Van Thong<sup>2,\*</sup>, Le Duc Minh<sup>1</sup>, Timothy McCormack<sup>2</sup>  
Hoang Van Ha<sup>2</sup>, Nguyen Tai Thang<sup>2</sup>, Ngo Thi Hanh<sup>1</sup>

<sup>1</sup>*Faculty of Environmental Sciences, VNU University of Science, 334 Nguyen Trai, Hanoi, Vietnam*

<sup>2</sup>*Asian Turtle Program of Indo-Myanmar Conservation*

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**Abstract:** Turtle trade is a long-term conservation problem, which drives many turtle populations in Vietnam to the brink of extinction. In this study, we conducted interview surveys in three northern provinces in Vietnam, including Bac Kan, Quang Ninh, and Tuyen Quang between 2013 and 2015 to investigate the scale and trend of turtle trade in Vietnam. The results of the study show that the prices of most species increased alarmingly during the study period, probably due to the rarity of the species and the higher demand from China. More importantly, our surveys of online trading activities through social networks suggest that the new method of turtle trade dramatically rises in recently years, and overtakes the traditional networks as the most common way of trading. Based on the trend and scale of the trade, we recommend several conservation measures to mitigate turtle trade, especially formulating new regulations to stop online trading activities.

**Keywords:** Turtle trade, Bac Kan, Quang Ninh, Tuyen Quang, online trade.

## 1. Introduction

Conservation of endangered fauna and flora is an important, but complex issue at national and international levels. Despite concerted efforts of non-governmental organizations, government agencies, and other stakeholders, many species still face the prospect of extinction due to habitat loss and degradation and illegal trade of wildlife and their related products [1]. Illegal wildlife trade is a pervasive and destructive crime that results in serious biodiversity loss around the globe [2]. For

example, the illegal trade in wildlife has continued unabated since Vietnam opened its market to China in the early 1990s [3]. In this context, turtle is not an exception. Freshwater turtles and tortoises, in some cases serving as keystone species or an important link in the food web, play a crucial role in ecosystems. However, turtle populations around the world have declined drastically over the past 30 years [4]. The international trade in turtles is the biggest threat to their conservation, with turtles being harvested for food, use in traditional Chinese medicine and sale in the pet trade [5]. In Vietnam, wildlife mostly comes from protected areas in Central Vietnam [1,6,7]. Illegal traders find multiple avenues for

\*Corresponding author. Tel.: 84-912984096  
Email: phamthong@asianturtleprogram.org

trafficking species across the border between Vietnam and China. Smugglers have also begun to use private vehicles to transport contraband in order to avoid confiscation [8].

Although collecting wildlife species is illegal, Vietnam's traders exported 35.7 tons of mostly wild turtles a year during the early 2000s [1]. At the beginning, the quantity of turtles used locally was insignificant, accounting for only 10% of the harvest [3,9]. However, domestic consumption has increased recently, although it is difficult to estimate the volume of this illegal trade [10].

To better understand the evolution of the trade through time, it is important to determine the pattern and scale of the turtle trade in hotspot areas in Vietnam. To this end, this study, conducted in three provinces, namely Bac Kan, Tuyen Quang and Quang Ninh, assessed the trend of turtle trade over the last 10 years. In addition to undertaking traditional interview surveys, this study also collected data from online turtle trading, an increasingly common method for trading wildlife. The trend of the trade was clarified when two methods of trading are compared. The study also illustrated the scale of the illegal trade in turtles, raised the concerns in this critical threat, and simultaneously provided baseline data for future trade monitoring and enforcement activities vital to turtle conservation.

## 2. Methodology

Semi-structured interview survey was conducted in Yen Son district of Tuyen Quang Province from 10th May to 15th May 2011, in seven districts of Na Ri, Ngan Son, Ba Be, Pac Nam, Bach Thong, Cho Don, Cho Moi in Bac Kan Province 12th to 23rd August 2013, and in nine districts of Ba Che, Hoanh Bo, Van Don, Cam Pha, Ha Long, Tien Yen, Dam Ha, Mong Cai, Binh Lieu of Quang Ninh Province from 29th Jun to 14th July in 2015 (Fig. 1). Turtle observed were recorded using the field record form [11] with carapace length, width and turtle

weight and photos attach, and GPS the location. Turtles were identified base on the standard identification book entitled "Field Guide Turtle Identification of Freshwater Turtle and Tortoise of Vietnam" [12]. Prices of turtles were also documented [10]. The surveys focused on interviewing local hunters, traders, farmers.

Online turtle trade surveys were carried out for two months from March to May 2015 using search tools from Google and Facebook with keywords: "Buôn bán rùa", "Bán rùa online", "Page bán rùa", "Hội yêu rùa", "Hội yêu rùa Hà Nội" and "Chợ rùa market". The volume of turtle seizure in online newspapers during three years (2013-2015) was documented by Google search tool using keywords: "Buôn bán rùa trái phép 2013", "Tịch thu rùa trái phép", "Tịch thu động vật hoang dã". Some websites, such as kiemlam.org, baomoi.com, baohaiquan.vn, and cand.com.vn, also provided good sources of data for study.

## 3. Results and discussion

### 3.1. Turtle trade in Bac Kan, Quang Ninh and Tuyen Quang Provinces

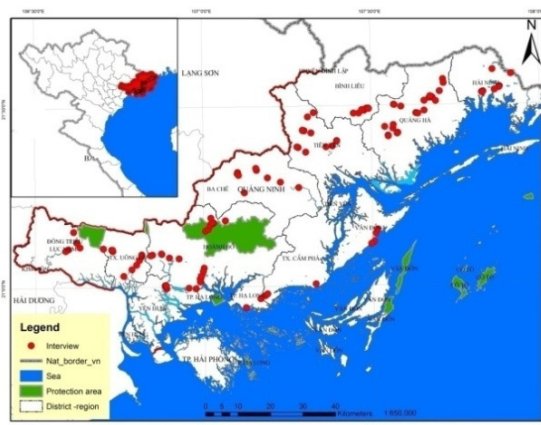
Analyses of data collected from surveyed markets were performed to determine the trade composition, turtle diversity, common species, and the differences in price between 2013 and 2015. Turtle trafficking trend was evaluated using field records to reveal any potential shifts in turtle trade. The number of individuals from each geographic region was also examined, including 11 species recorded in the trade, in order to detect any trends or changes in the composition of native species.

During the surveys in three provinces, 253 respondents were interviewed, 122 field records for 122 specimens were completed. Interviewed locations covered important areas in the three provinces (Fig. 1). Among turtles documented during the surveys, 92.6 % was living specimen, the rest was dead. In terms of the number of turtles present in the trade, the old

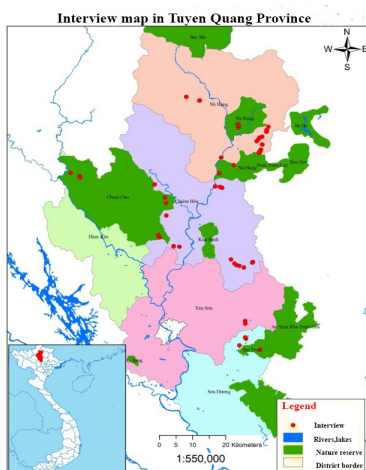
world pond turtles of the family Geoemydidae were dominant with 72,95% frequency including seven species among 17 species of the family known to occur in Vietnam such as the keeled box turtle (*Cuora mouhotii*) has the highest number (41 individuals), followed by 22 individuals of four-eye turtle (*Sacalia quadriocellata*). Especially, one individual of the Snail-eating Turtle (*Malayemys subtrijuga*) observed in Quang Ninh Province has an origin from Mekong Delta, southern Vietnam. Eleven Black-breasted Leaf Turtle (*Geoemyda spengleri*), seven Asian Yellow Pond Turtle (*Mauremys mutica*), two Chinese Striped Turtle

(*Mauremys sinensis*), five Indochinese Box Turtle (*Cuora galbinifrons*). The next most common family is Platysternidae (19,67%), a monotypic family containing only one species, the Big-headed Turtle (*Platysternon megacephalum*). Following is the family Trionychidae with the Wattle-neck Softshell Turtle (*Palea steindachneri*) and the Chinese Soft-shell Turtle (*Pelodiscus sinensis*) accounting for 5,73% frequency. The least common is the family Testudinidae (1,67%) with the appearance of only one species, the Elongated Tortoise (*Indotestudo elongata*) (Fig. 2).

### Quang Ninh Province



### Tuyen Quang Province



### Bac Kan Province

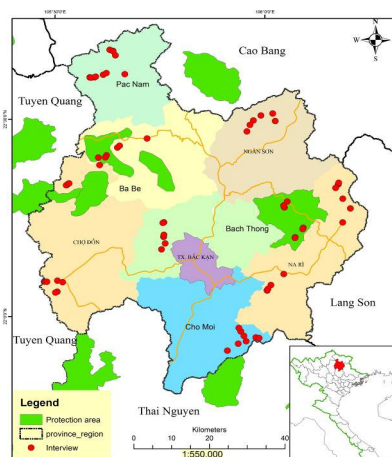


Figure 1. Interview locations in three provinces.

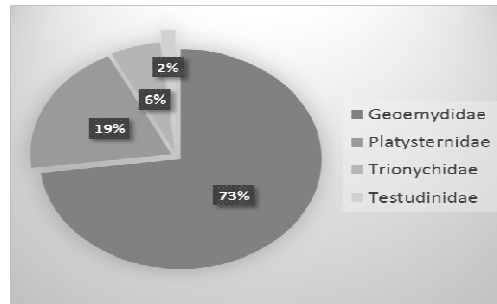


Figure 2. Number of turtles present in the trade in the three provinces as categorized by family.

The Keeled Box Turtle (*Cuora mouhotii*) appeared most frequently in Tuyen Quang, accounting for 61,53%. Because Tuyen Quang’s topography is quite complex, characterized by high mountains and rivers, which could be an ideal habitat for this species [13]. However, Tuyen Quang province had fewer observed specimen than other provinces. This might be because turtles had been overexploited in the province. Several factors could be attributable to this trend. The province is bordering with China, and therefore the turtle fauna has been under a high collecting pressure. In addition, in the early period of the trade, the turtle trade route to China went through the province. On contrary, Bac Kan is not a “border province”, and the number of recorded turtles in the province remains the highest [14]. With a large area of limestone in Ba Be and Na Ri Districts, Bac Kan is also home to many species. All the natural conditions constitute suitable habitat for the Big-headed Turtle (*Platysternon megacephalum*). As a result, the Big-headed Turtle (*Platysternon*

*megacephalum*) in Bac Kan mad up the highest ratio, with 37,5%. Meanwhile, in Quang Ninh Province, the Four-eyed Turtle (*Sacalia quadriocellata*) ranks highest in terms of frequency. This is due to the fact that there are many rivers such as Ha Coi, Dam Ha, Troi, Mip, Uong, Cam and Dam [15]. These rivers are small, short and steep slopes with many rock, containing suitable habitats for the Four-eyed Turtle.

According to interviews, most observed turtles were ready to be traded or kept as pet until they reach reasonable price. The number of recorded specimen clearly illustrate the turtle trafficking status in the region. There were 26 and 32 specimens observed in Tuyen Quang and Quang Ninh, respectively, whilst, Bac Kan had 64 observed samples, which are twice as many compared to the other two provinces. These data show that geographical location is not crucial factor in determining trade activities because only Tuyen Quang and Quang Ninh are provinces bordering with China.

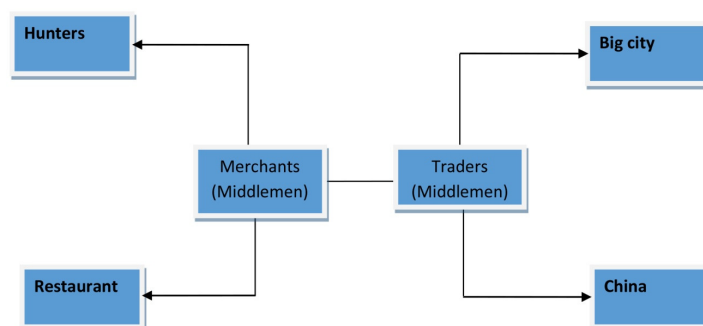


Figure 3. Turtle trade route observed in three provinces.

Furthermore, the Snail-eating Turtle (*Malayemys subtrijuga*), which originates from Mekong Delta, southern Vietnam is observed in Quang Ninh Province. This shows that some species are transported from other locations to these regions, or in other words turtle trade network is still operating effectively in many areas throughout Vietnam despite efforts to control it. During these interviews, it is also clear that there were two or three small local merchants specializing in wildlife trade in each commune. From there, wildlife would be transported to bigger traders in nearby cities. A portion of the turtles would be consumed in restaurants in provincial cities. Some are shipped to Hanoi for consumption. Most of collected turtles are trafficked to China through border areas. In many cases, Chinese traders put in order for certain species or products with very high prices to middlemen. Middlemen then ask hunters to look for them in the forests. The traders are not only the intermediate link between hunters and consumers, but also an important factor in the trade network that causes a high level of damages to turtle populations across Vietnam (Figure 3).

### 3.2. Turtle price change through time

Base on average CPI (Consumer Price Index) in 2014, an increase of 4.09% compared to those in 2013 was used [16]. Inflation in the first 10 months in 2015 rises 2.12% compared to those in the same period in 2014 [17]. The average price evaluated in 2015 was calculated based on the inflation rates in 2014 and 2015 and the average real price in 2013, then compared with the average price in 2015 surveyed in the fieldtrip (Table 1).

The real price of each species is different depending on trader decision or geographic origins. Moreover, the price calculated based on the above formulas for each species is much lower than the average price recorded in Quang Ninh in 2015. It is quite clear that the increase of price was not affected by inflation. Specifically, Indochinese Box Turtle (*Cuora*

*galbinifrons*) has its average price in 2015 of about 3.8 million VND/kg which was 5 times higher than the price of about 730,000 VND/kg in 2013. This problem might result from the high demand from domestic and international markets, leading to a steep rise in prices of the species. In general, due to overexploitation, turtle population deteriorates rapidly, leading to the scarcity of turtle. When turtle quantity decreases, the price certainly soars.

In term of the Four-eyed Turtle (*Sacalia quadriocellata*), its average price in 2015 ranges from 3 million to 5 million VND which are two times than average price in 2013. According to an interview study undertaken in Pu Mat National Park in 2002, this species was valued much lower than other species at only 25,000 dong/kg, as it is known to possess bad smell [18]. Nowadays, when other species are becoming rare, people collect all turtle species including species that was not considered valuable just few years ago (Table 1).

Additionally, there was a special species, the Black-breasted Leaf Turtle (*Geoemyda spengleri*), traded by individual not by weight as others. In 2013, the price of this species was only 50,000 VND per individual. However, the price in 2015 fetched about 250,000 VND, which is five times higher. The Black-breasted Leaf Turtle (*Geoemyda spengleri*) was preferably used as a pet or for religious release in pagoda due to its relatively low price compared to other species. The Asian Yellow Pond Turtle (*Mauremys mutica*) has the highest average price ranging from 20 million to 30 million VND, meanwhile the Chinese Soft-shell Turtle (*Pelodiscus sinensis*) costs around 500,000 VND/kg. Nevertheless, the prices of the two species remain stable with almost insignificant change over the last two years (Table 1). The price of the Chinese Soft-shell Turtle (*Pelodiscus sinensis*) seems to be unchanged or even decreases over two years because there is a large number of the Chinese Softshell Turtle (*Pelodiscus sinensis*) produced by household farms. The Chinese Softshell

Turtle (*Pelodiscus sinensis*) is a popular dish in restaurants with a reasonable price. Additionally, the Asian Yellow Pond Turtle (*Mauremys mutica*) is likely to match a high price in recently years because this species could hybridize with Vietnamese Three-striped Box Turtle (*Cuora trifasciata*) to produce crossbred animals, which look similar to Three-striped Box Turtle (*Cuora trifasciata*), the most expensive species. However, in Viet Nam, turtle farms in Bac Ninh and Thanh Hoa Provinces produce the Asian Yellow Pond Turtle (*Mauremys mutica*) in a massive numbers leading stable price for the species [19].

### 3.3. Online illegal trade

Nobody can deny that social media has dominantly influenced our lives in many different ways today. Social networking sites like Facebook, Myspace, and Twitter are transforming the ways we interact, share, communicate, and even trade. Trading has become easier and more accessible due to the new ways of networking. Online wildlife trade has become very popular because all transactions take place on social networks, and information can be shared virtually. Prices were almost quoted inbox to ensure privacy and avoid enforcement. As a result, online traders abused the networks to trade wildlife species including turtles for medicine, food, and pet.

There were 24 main online traders found during our survey from March to May 2015. In addition, Cho Rua market page, Hoi Yeu Rua Canh, Hoi Yeu Rua Kieng, Hoi Bo Sat Viet Nam can also be considered reference information channels. Ho Chi Minh and Hanoi were likely to be the biggest markets for online turtle trade with 45.83% and 25% traders originating from Ho Chi Minh and Hanoi, respectively. Moreover, traders were distributed ubiquitously throughout our nation, including Nghe An, Binh Duong, Da Lat, Da Nang, Dak Lak, and Dong Nai Provinces. Unknown provinces accounted for the remaining 25% of the online trader ratio. This suggests that online trading activities is widespread across the country, concentrating in Hanoi and Ho Chi Minh City.

The survey results show that at least 346 turtle individuals belonging to 15 different species were traded in online trade markets. The family with the largest number of traded species was Geoemydidae (57.8%), followed by is Testudinidae family (41.62%). Cheloniidae just accounted for a tiny ratio (0.58%). Of the species found in the markets, 100% are listed in 2013 CITES Appendix [20] and 100% are threatened according to the IUCN Redlist [21], i.e., listed as Critically Endangered, Endangered or Vulnerable), meanwhile 54.45% species are listed are threatened according to Viet Nam Red Book (2007) [22].

Table 1. Calculated and real price changes in turtles between 2013-2015

Species	Average price (VND) in 2013 (/kg)	Calculated price (VND) in 2014 based on CPI (/kg)	Calculated price (VND) in 2015 based on CPI (/kg)	Average price (VND) in 2015 (/kg)
<i>Cuora galbinifrons</i>	600,000-700,000	624,540-714,840	650,083-729,994	3,800,000
<i>Geoemyda spengleri</i>	50,000	52,045	53,148	100,000-250,000 20.000.000-
<i>Mauremys mutica</i>	20,000,000	20,818,000	21,259,340	30.000.000
<i>Pelodiscus sinensis</i>	500,000	520,450	531,483	500.000 800,000-
<i>Cuora mouhotii</i>	600,000-700,000	624,540-714,840	650,083-729,994	1,200,000 3,000,000-
<i>Sacalia quadriocellata</i>	2,000,000	2,008,180	2,050,753	5,000,000

According to the results of the investigation, juveniles were the most widely traded, accounting for 41.33%, followed by hatchlings (23.99%), sub-adults and adults were less preferred by customers with 22.54% and 12.14%, respectively. These sizes had different level of prices. For example, the Elongated Tortoise (*Indotestudo elongata*) was most likely to be purchased as pet with 41,62% frequency of total species number. This is probably because this species is very cute and clean, especially with the baby size. The price of hatchling individual (size 7 – 7cm) was 680,000 VND, meanwhile a juvenile individual (size 9 – 9 cm) only cost 580,000 VND. Furthermore, adult size (size 25 – 25cm), three times bigger than juvenile, was only priced at 1,350,000 VND/animal. Therefore, prices of the turtle are not affected by weight; they are influenced by the size of the animals.

In only 2 months of survey, there are 346 individuals were offered for online sale. According to the figure, the total number of the illegal online trade might reach 2076 individuals in one year. It is indeed a very high number, especially for turtles.

### 3.3. Violations and confiscations in Viet Nam from 2013 to 2015

There are 82 cases involving 18 species seized during three years from 2013 until September 2015. The total confiscated wildlife contains 1308 heads and 2418.1 kg. The highest number of cases happened in the year of 2013 with 38 violations equivalent to 886 heads and 2005.6 kg of 14 species. The number of cases decreased to 29 with 13 species seized or 252 kg in 2014. Meanwhile, in the first nine months in 2015, there are only 15 confiscations involving seven species, 150 heads and no weigh was recorded.

Coming back with assumption in online trade part, the number of turtle offer for sale in 1 year is 2076 individuals. It means that in 3 years there are 6228 turtle individuals are traded online. The calculated turtles trafficked

were more than 6228 individuals because we did not calculate off-line trade. However, this figure is already three times higher than of the number of confiscated turtle individuals. The data demonstrate that the confiscated case is insignificant compared to illegal online trade activities happening every day.

## 4. Conclusion

Turtle illegal trade in wildlife continues to be an unabated problem and turtle populations has declined severely. Illegal trade trend in Quang Ninh, Tuyen Quang and Bac Kan changes significantly compared to that in the past. There were 122 specimen belonging 11 species observed. All living species were ready to be traded, kept as pet or offered for sale when they get reasonable price. There were three main routes to trade turtle illegally, but the most common one was exporting turtles to China.

In term of prices, they increased dramatically compared to previous years due to high demand from domestic and foreign markets. Because of overexploitation, turtle populations deteriorated rapidly leading to the scarcity of turtle. When turtle quantity decreases, the price grows up significantly. However, the prices of the Asian Yellow Pond Turtle (*Mauremys mutica*) and the Chinese Softshell Turtle (*Pelodiscus sinensis*) remains stable over the three-year period because there are many household farms raising the species in recent years.

In three years, the total confiscated cases are 82 with more than 2218 kg of turtles and 1288 individuals traded. Confiscated trend tends to decrease over three years due to efficient tactics employed by traders and inadequate law enforcement. By comparison, it is clear that the confiscated number is insignificant compared to the volume regulated by illegal trade activities observed in this study.

Besides, another trading method preferred recently is online trade. This study recognized 24 traders trafficking at least 346 turtle

individuals belonging to 15 different species in online trade markets during two months of survey. This is a new trade method which appears uncommon few years ago. However, the volume of turtle illegally traded is estimated to be 2076 individuals trafficked in one year. The price is determined by size of individuals, and fluctuates strongly among traders. Online trade develops quickly and become a huge threat to wildlife because of the deficiency of the current law and regulations in punishing these cases.

In summary, conventional illegal trade method and online trade method are shown to be destructive to turtle populations. However, online trade is spreading with a breakneck speed. This is indeed alarming to conservation organizations, and the government needs more effective measures to better control the illegal wildlife trade

## 5. Recommendations

Some recommendations are suggested to mitigate the problem. According to interviews, hunters frequently use dog to collect turtles, so dogs should not be allowed in forests to hunt turtles. Education and information campaigns need to be developed to influence the wildlife eating and drinking culture, and the newly emerging pet keeping hobby young Vietnamese. In addition, rangers and protected area staff should be equipped with modern equipment to make sure their work is effective. Coordination and collaboration with law enforcement authorities in China should be improved to better control the illegal cross-border trade. Finally, new law and regulations should be formulated to effectively stop illegal online trading activities.

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## Tình trạng buôn bán rùa trái phép tại Bắc Kạn, Quảng Ninh, Tuyên Quang và buôn bán rùa trái phép qua mạng Internet

Trần Thị Khánh Linh<sup>1</sup>, Phạm Văn Thông<sup>2</sup>, Lê Đức Minh<sup>1</sup>, Timothy McCormack<sup>2</sup>, Hoàng Văn Hà<sup>2</sup>, Nguyễn Tài Thắng<sup>2</sup>, Ngô Thị Hạnh<sup>1</sup>

<sup>1</sup>Trường Đại học Khoa học Tự nhiên, ĐHQGHN, 334 Nguyễn Trãi, Hà Nội, Việt Nam

<sup>2</sup>Chương trình Bảo tồn Rùa châu Á

**Tóm tắt:** Buôn bán rùa là một vấn đề phức tạp trong công tác bảo tồn khiến các quần thể rùa của Việt Nam có nguy cơ tuyệt chủng cao. Trong nghiên cứu này, chúng tôi đã tiến hành điều tra phỏng vấn ở ba tỉnh miền Bắc Việt Nam, trong đó có Bắc Kạn, Quảng Ninh và Tuyên Quang, từ năm 2013 tới 2015 để đánh giá mức độ và xu hướng buôn bán rùa ở Việt Nam. Kết quả của nghiên cứu cho thấy giá của hầu hết các loài rùa đã tăng lên ở mức báo động trong thời gian nghiên cứu, có thể là do mức độ hiếm của các loài này và do nhu cầu ngày càng cao từ Trung Quốc. Quan trọng hơn, nghiên cứu các hoạt động buôn bán trên mạng thông qua các mạng xã hội chỉ ra rằng những hoạt động này đã gia tăng ở mức độ rất cao trong những năm gần đây và đã trở thành hình thức buôn bán phổ biến nhất. Dựa trên xu hướng và mức độ buôn bán, chúng tôi khuyến nghị một số biện pháp bảo tồn nhằm làm giảm việc buôn bán rùa, đặc biệt là ban hành các quy định mới để ngăn chặn việc buôn bán trên mạng.

**Từ khóa:** Buôn bán rùa, Bắc Kạn, Quảng Ninh, Tuyên Quang, buôn bán trên mạng.