

Burmese Amber Fossils, Mining, Sales and Profits

George Poinar¹ and Sieghard Ellenberger²

1. Department of Integrative Biology, Oregon State University, Corvallis, Oregon 97332 USA

2. Kassel, Germany

©Author(s) 2020, this article is published with open access at <http://gcr.khuisf.ac.ir/>



Corresponding Author:

George Poinar

Department of Integrative Biology,
Oregon State University, Corvallis,
Oregon 97332 USA.

<https://orcid.org/0000-0002-3479-6997>.

Email: poinarg@science.oregonstate.edu

Abstract

The present work investigates the mining and sale of fossiliferous Burmese amber to determine if the profits are being used by the Myanmar military to commit atrocities against minority groups or ethnic armies within the country, as recently implied. Our conclusion, based on the information available to us, is that the great majority of Burmese amber fossils up to 2016 were taken across the border and sold in China. At this time, the amber mines were under the control of the Kachin Independent Army (KIA) or unregulated. After heavy fighting between the KIA and the Myanmar military from June 2017 to June - July 2018, the amber mines in the Hukawng Valley were occupied by the Myanmar government and presently, most of these mines are closed or are operated illegally or worked only intermittently on a small scale. We have not been able to substantiate claims that millions of dollars from the sale of Burmese amber fossils were used by the Myanmar government to dominate minority groups within the country. At least up to 2017, there were no, or only insignificant funds, received by the Myanmar government from the mining and sale of Burmese amber. Thus we see no reason to halt the purchase of Burmese amber fossils or for editors and publishers to reject scientific papers describing these rare inclusions, which otherwise would be used for carvings or jewelry and become lost to science.

Keywords: Fossils; Myanmar; Kachin State; Yunnan Province; China

Introduction

Burmese amber has been mined in the Kachin State in northern Myanmar for nearly two millennia and an amber trade route was established between Burma and China as early as AD 100 (Poinar *et al.* 2006). The source of what was then called the “red amber from Yunnan” was unknown to the outside world until the 3rd Century. Amber trade between China and Myanmar has continued up to the present, except that in addition to jewelry and carvings, fossils have also become choice items for sale. After initial extractions of amber between 1947 and 1990,

many amber mines in the Hukawng Valley were abandoned since jade and other industrial minerals (gold, platinum) were and still are more lucrative. But in 2010, when fossils became popular, amber mining in the Hukawng Valley intensified and Chinese dealers from Tengchong (Yunnan Province) started buying amber in the Myanmar city of Myitkyina and bringing it back to China (Fig. 1).

In 1994, a ceasefire between the Kachin Independent Army (KIA) and Myanmar government was put into effect to end the conflict between the two factions. In 2011, when the new president, Thein Sein, entered office, the 1994 ceasefire was broken. The present study researches the mining and sale of fossiliferous Burmese amber after 2011 to determine if the profits were or are being used by the Myanmar military to commit atrocities against minority groups or ethnic militia within the country, as implied in recent reports.

Access this article online

DOI: [10.30486/gcr.2020.1900981.1018](https://doi.org/10.30486/gcr.2020.1900981.1018)

Received: 30 May, 2020

Accepted: 26 Jun, 2020



Figure 1. Freehand map showing major features and cities included in this paper. Grey area indicates area of amber mining in the Hukawng Valley. Arrows show movement of amber from Noije Bum to Myitkyina in Myanmar and then to Tengchong in China.

Literature review

Recent articles in *Science* (Sokol 2019), *New Scientist* (Lawton 2019a, 2019b), *New York Times* (Joel 2020) and *The Atlantic Daily* (Gammon 2019) implicate that Burmese amber fossil sales are funding inhumane actions by the Myanmar military against minority groups within the country (while the country name was officially changed from Burma to Myanmar in 1989, it is customary to still refer to mining products as Burmese, e.g. Burmese amber, and to use Myanmar for political and official subjects, e.g. Myanmar government).

Based on these reports, some scientists have stated publicly that they will not purchase any more Burmese amber fossils and publishers have indicated that they will no longer accept papers on Burmese amber. Officials of the Society of Vertebrate Pathology issued a letter in which they requested “a moratorium on publication for any fossil specimens purchased from sources in Myanmar after June 2017 when the Myanmar military began its campaign to seize control of the amber mining”. This request was sent to over 300 other journals that publish paleontological papers (Society of Vertebrate Paleontology 2020).

Method

We have examined all available evidence, written and verbal, including correspondence with amber miners and traders in Myanmar and China, in order to corroborate or refute the implication that the Myanmar military is using funds from the sale of Burmese amber fossils to commit atrocities against minority groups within Myanmar.

Result

In 2011, when the ceasefire between the Kachin Independent Army (KIA) and Myanmar government was broken, the production of amber was low and trade was conducted secretly. The financial dependency of the KIA on amber sales, coupled with the loss of profit in the Jade trade in 2014, resulted in the taxing of amber mined in Hukawng Valley at 30% by the KIA and dealers only paid a 10% tax in the Tanai trading area. Miners could undervalue the amber or just avoid taxes by not revealing amounts mined. This was the situation before the fighting started at the end of 2016 when amber mining in the Hukawng valley reached its peak, with an estimated 200,000 - 300,000 people digging, sorting and trading amber (Fig. 2)



Figure 2. Miners digging and sorting Burmese amber at Noiye Bum in the Hukawng Valley in Kachin State (photo courtesy of Sieghard Ellenberger).

The actual value of the amber, which was mainly for carving and jewelry, was based on Chinese demand and was only an estimation of the real value.

These unregulated conditions resulted in Burmese amber becoming a “mass-production gem” and operators of small gem mines in Mogok began mining amber, followed by other small-time miners from around the entire country. At that time it was not necessary to obtain an official license or pay a tax to the Myanmar government. If a tax was paid, it was to the KIA and used to fund their battles against the Myanmar military.

A new amber market was eventually established at Myitkyina, the capital of Kachin State, located near the Chinese border town Kan Pike Tee/Huaqiao. Chinese dealers from Yangon and Tengchong came to Myitkyina to purchase amber. It was also easy for Burmese amber dealers to drive to Tengchong to sell their amber since before 2016, Myanmar customs did not check for amber. When the Myanmar government started to tax amber, smuggling flourished on a large scale.

Even though movement of Burmese amber from Myanmar to China is illegal, it flourishes since the amber can be sold legally in China. Today, the great majority of Burmese amber is transported to Tengchong and sold for carvings, jewelry and fossils

in the Tengchong Cultural Industry Office, as well as numerous other shops. From Tengchong, the amber is sold to retail and wholesale customers in Beijing, Shanghai and Guangzhou. Any imposed tax is just on paper otherwise the amber trade and immense amber industry in Tengchong would not be profitable (Rippa & Yang 2017).

Because Burmese amber was smuggled into China, no official export, import or taxing occurred, or if it did, it consisted of only an estimate of what was traded. In 2015, the total amount of amber was roughly 100 tons at the Tengchong border crossing (Rippa & Yang 2017). Rippa & Yang (2017) reported that the Tengchong Cultural Industry Office roughly estimated the total turnover of Burmese amber to be between 700 million to 1 billion USD per year, which implies that the average cost of a kilo of amber was around 7,000 to 10,000 USD. However, this figure seems very unlikely because on site, it is easy to purchase mined low-grade amber for 350 USD a kilo (Thet Lwin Oo, May 15, 2020), so the estimation of the export value in Myanmar stated by Rippa & Yang (2017) seems to be greatly exaggerated. Also these numbers are in reference to the retail value and trading turnover in Tengchong and not in regards to the net export or purchase value in Myanmar.

The figure of 1 billion USD was quoted by Tsai Ji (KDNG 2019)

who also stated that estimated earnings from taxation by the Kachin Independent Organization (KIO) and the Myanmar military on Burmese amber leaving the Hukawng Valley was estimated at 30 million dollars in 2017. It appears that the great majority of profit was related to the Chinese amber trade with only a fraction resulting from taxation; most of which ended up in the hands of the KIA and not the Myanmar military (Tatmadaw). Nanjing University was able to acquire around 300,000 amber pieces with fossil inclusions (most of which are still unstudied) from the Hukawng valley, nearly all of which had been mined within the productive years of 2016/2017. After this period, the supply rapidly decreased, however there are still large amounts of Burmese amber in the Chinese market (anonymous, Tengchong dealer 2019), the majority of which was obtained at the height of the mining previous to 2017.

The conflict between the Myanmar government and the KIA in the mining area began again in 2016, intensified in 2017 and reached its peak in 2018, at which time the mines in the area were closed or abandoned (Zaw The, May 22, 2020; Thet Lwin Oo, August 16, 2019). Since that time the Myanmar government has not issued any official mining licenses in the area and it is likely that only a few hundred miners are currently illegally digging for amber in the Hukawng valley (Kyaw Kyaw, May 6, 25, 2020; Thet Lwin Oo, May 15, 2020). The only taxation of the illegally mined amber obtained from the Hukawng valley today is by military personnel that supervise the area. The only official legal Burmese amber mine in production at the time of this writing is the Khan Tee mine in Sagaing Division that is 90 km southwest of Noiye Bum (Kyaw Kyaw, May 6, 25, 2020; Thet Lwin Oo, May 15, 2020). This mine produces fine, orange-brownish amber used for carving and jewelry, however the fossils are very rare and mostly of poor quality.

Discussion

Even before the COVID-19 epidemic occurred, the amber trade was only a fraction of what it was previously and today, none of the remaining mines (including the official Khan Tee mine and the unofficial, illegally operated Hti Linn mine in Magway Division) are able to supply a significant number of fossil inclusions to meet the demand (Kyaw Kyaw, May 6, 25, 2020; Thet Lwin Oo, May 15, 2020). The Hti Linn amber contains a limited supply of poor-quality insects.

We could find no definitive evidence from verbal statements or written records of amber profits going to the Myanmar government or military during the peak mining period previous to 2016. Certainly corruption by military personnel from both sides took advantage of the opportunity to profit, but what was collected was not considered official taxation, but rather bribes for smuggling the amber into China (Kyaw Kyaw, May 6, 25, 2002; Thet Lwin Oo, August 16, 2019, May 15, 2020; Thae

Htwe Aung, May 16, 2020).

After the Myanmar government attempted to exert control over the mining and export of Burmese amber, many of the amber mines in Kachin state were closed or opened only intermittently since final agreements between the KIA and the Myanmar armed forces had not been established (Kyaw Kway, May 6, 25, 2002; Thet Lwin Oo, August 16, 2019, May 15, 2020; Zaw The, May 22, 2020).

Conclusions

Based on more than 30 visits made by us (S.E.) over the past 20 years to speak with amber workers and dealers regarding the mining and sale of Burmese amber, it was discovered that the amber miners never paid direct taxes to the Myanmar government until 2016 at the peak of the mining operations. At that time the taxes were only an estimated fraction of the actual value of the amber and most were paid to middlemen who carried the amber across the border from miners in Myanmar to buyers in China. During the boom of mining amber, the only official taxation was done by the Kachin Independence Army.

While not disputing atrocities involving military conflicts against ethnic minorities ongoing in many parts of the country (Tsa Ji 2019), we found no evidence that money from the sale of Burmese amber fossils was being used in acts of aggression against minority groups within the country. In fact, there is ample evidence showing that the great majority of fossiliferous Burmese amber was and is smuggled into China where it is legally sold in large markets throughout the country, especially in the city of Tengchong. Therefore the Chinese amber trade and not the Myanmar military has been directly profiting from Burmese amber sales. Even though the majority of profit was related to the Chinese amber trade, hundreds of thousands of local miners and workers were able to profit from the demand for Burmese amber, resulting in the improvement of their lives.

Since Burmese amber provides such a unique opportunity to study both animal and plant life that existed during the age of the dinosaurs, it should continue to be investigated by scientists. Otherwise, scientifically valuable fossils will end up in carvings and jewelry and be lost for future generations.

Acknowledgments

The authors thank Gareth Dyke, Roger Long, and others for comments on previous drafts of this paper and for supplying references dealing with Burmese amber fossils and human rights. Special thanks are extended to Thet Lwin Oo, Thae Htwe Aung, Zaw The and Kyaw Kyaw for providing firsthand information about mining practices, sales and profits of Burmese amber up to the present time.

Conflict of Interest

The authors declare that they have no conflict of interest

References

- Gammon K (2019, August 2). The human cost of amber. The Atlantic Daily, August 2, 2019. <https://www.theatlantic.com/science/archive/2019/08/amber-fossil-supply-chain-has-dark-human-cost/594601/>. Retrieved May 5, 2020.

- Joel L (2020, March 11). Some paleontologists seek halt to Myanmar amber fossil research. The New York Times <https://www.nytimes.com/2020/03/11/science/amber-myanmar-paleontologists.html?smid=em-share>. Retrieved March 25, 2020.

- Lawton G (2019a, May 1). Blood amber: the exquisite trove of fossils fuelling war in Myanmar. New Scientist, 2019. <https://www.newscientist.com/article/mg24232280-600-blood-amber-the-exquisite-trove-of-fossils-fuelling-war-in-myanmar/>. Retrieved August 30, 2019.

- Lawton G (2019b August 30). Military now controls Myanmar's scientifically important amber mines. New Scientist, 30, (3246), <https://www.newscientist.com/article/2214875-military-now-controls-myanmars-scientifically-important-amber-mines/>

- Poinar Jr G.O, Buckley R & Brown A (2006). The secrets of Burmese amber. Mid American Paleontology Society Digest. 29(3): 20-29.

- Rippa A & Yang Y (2017). The Amber Road: Cross-Border Trade and the regulation of the Burmite Market in Tengchong, Yunnan. Regional and National Studies of Southeast Asia. 5(2): 243-267. <https://doi.org/10.1017/trn.2017.7>

- Society of Vertebrate Paleontology (2020). Fossils from conflict zones and reproducibility of fossil-based scientific data. April, 21, 2020.

- Sokol J (2019). Troubled treasure. Fossils in Burmese amber offer an exquisite view of dinosaur times- and an ethical minefield. Science 364 (6442): 722-729. <https://www.science-mag.org/news/2019/05/fossils-burmese-amber-offer-exquisite-view-dinosaur-times-and-ethical-minefield>

- Tsa Ji (2019). Blood amber: military resource grab clears out indigenous peoples in Kachin State's Hugawng Valley. Report of the Kachin Development Networking Group. July, 2019. https://kdng.org/wp-content/uploads/2019/08/BloodAmber_English.pdf