Elephant Trunk Snake: The Monster from the Shallows

Indraneil Das

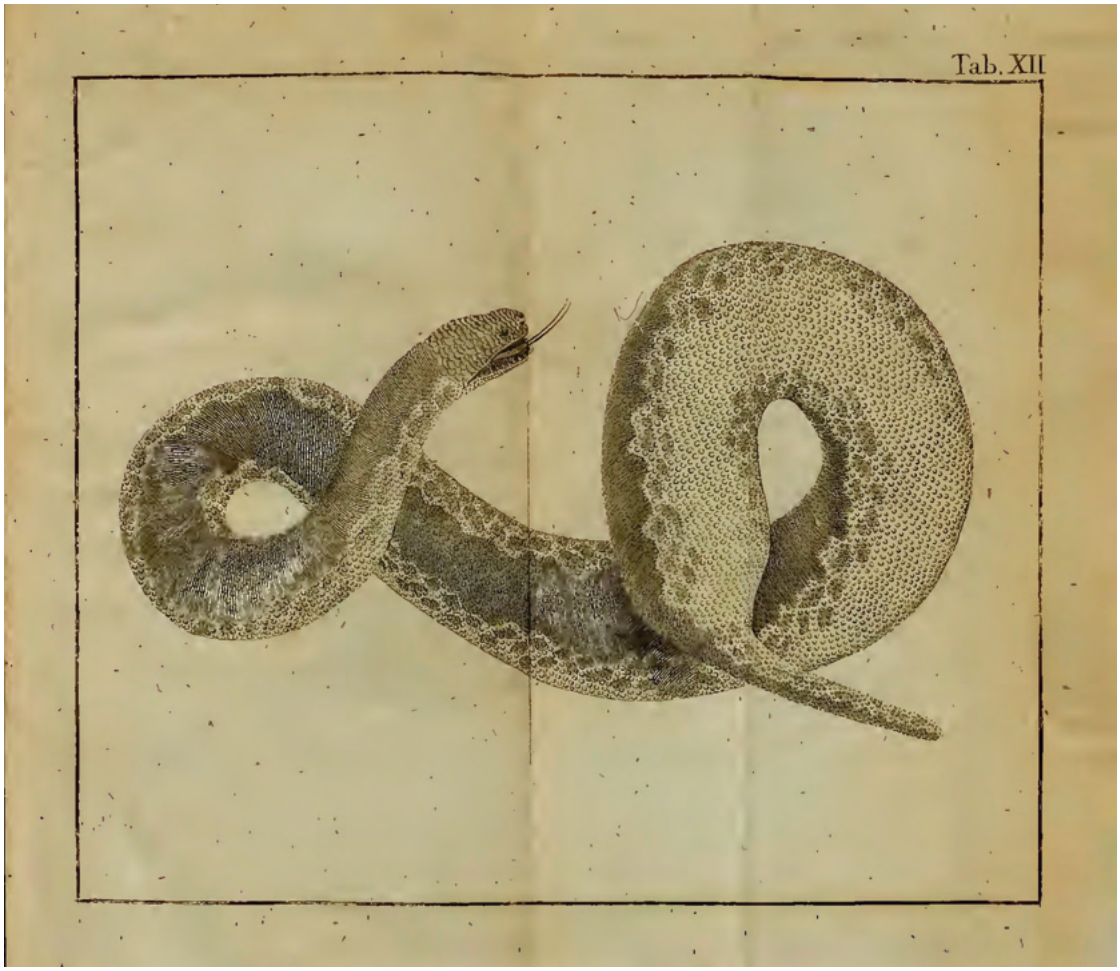


Figure 1: The original illustration of *Acrochordus javanicus* from Hornstedt (1787).

As early as 1787, Claës Fredrik Hornstedt (1758-1809), Swedish naturalist and famed botanical illustrator described a most unusual snake from the Indonesian island of Java. Impressed with the wart-like scales, and finding nothing close to it, he named the genus *Acrochordus* (Greek for warty), to which his new species (*javanicus* - hailing from Java) was placed (Figure 2). Subsequently, two further species have been added to this genus - the sea-going and coastal Little Wart Snake (*A. granulatus*) and the billabong (Australian oxbow lake) specialist, Arafura File Snake (*A. arafurae*), the former is widespread in Southeast Asia, and the latter is restricted to New Guinea and northern Australia.

Popularly called the Elephant Trunk Snake, *Acrochordus javanicus* is now known from the Southeast Asian mainland as well as the major islands of Sundaland, including Borneo. In this article, I shall attempt to cover unusual aspects of its biology, and also draw attention to the threats to its survival.

Figure 2: An adult Elephant Trunk Snake from Sarawak. @Indraneil Das

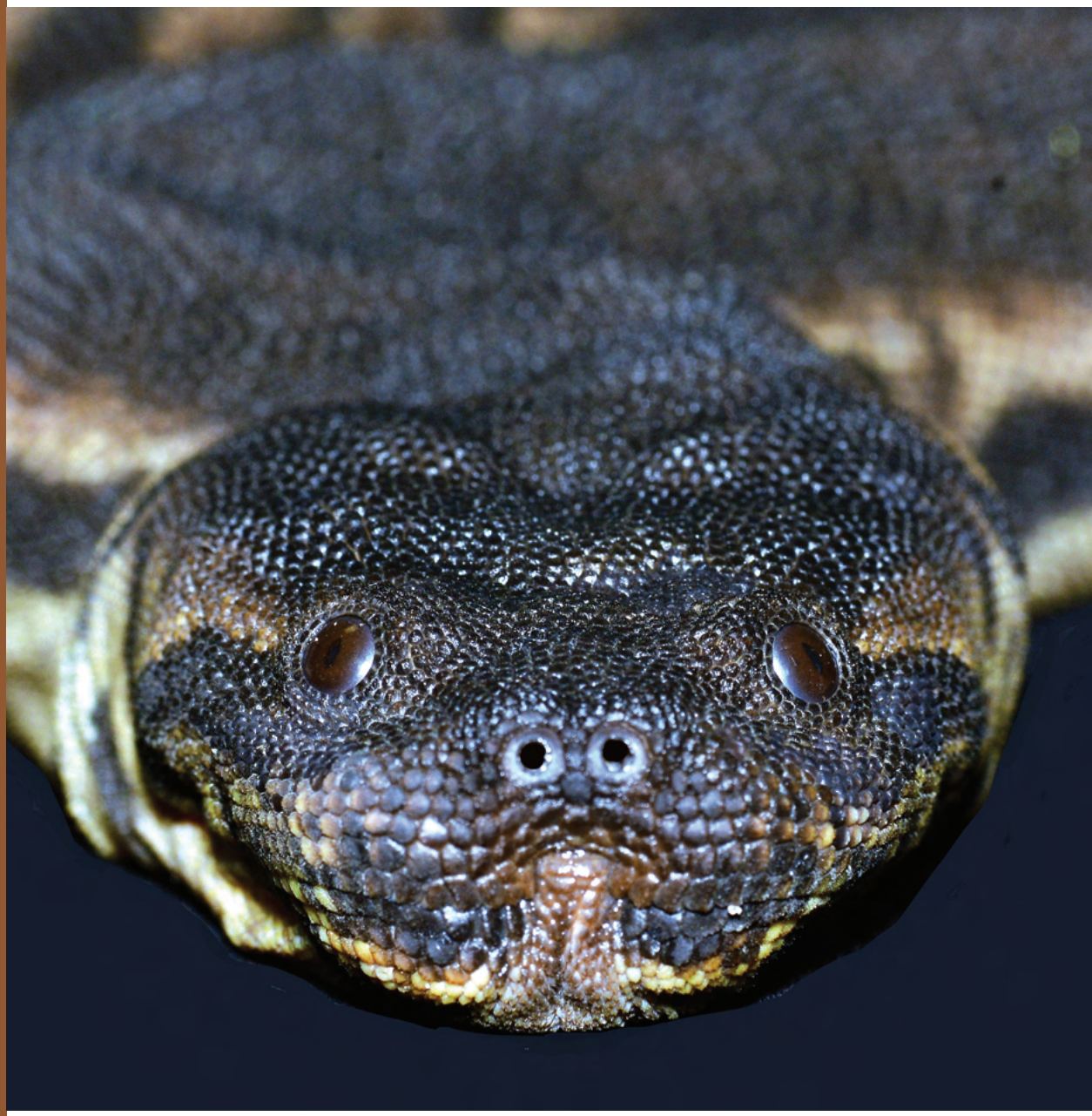
Appearance

For starters, its external appearance, which more technical folks term morphology, is most unusual. Its appearance as a dismembered trunk of an elephant is due to its relatively plump body, rough skin that is loose and baggy, starting with a 'dog-like' face (Figure 3). The functions of the extra loose skin await careful scientific enquiry, and hypotheses include increase of body surface to permit absorption of oxygen or increasing strike speed. After all, the trunk of the terrestrial pachyderm that gives the snake its common name has a similar set of folds and wrinkles that permit greater stretches, the skin itself in the snake is sufficiently stiff to influence the action required for predatory strikes. Other unusual morphological features seen include a rather short head which is as wide as is long; the tiny eyes and nostrils placed on the upper surface of the head; a very muscularly built body covered with small and rough scales (Figure 4), each with a triangular ridge and a short tail. The species shows secondary sexual dimorphism, females being twice as long and heavy relative to the males, reaching at least 2.4 m in length and 9.9 kg in weight. Females also have relatively larger heads and shorter tails; features present even as embryos.

Habitat

The Elephant Trunk Snake inhabits shallow blackwater and brackish water swamps and slow-moving rivers; it is frequently in acid-rich habitats of the lowlands, but not in coastal or marine environments. In such habitats, one can encounter its more familiar cousin, the Little File Snake (*Acrochordus granulatus*). Here, it hides under fallen and decomposing vegetation, such as uprooted trees and other large vegetation debris, soft mud, or uses roots of larger trees on banks of rivers. In suburban habitats, it has also been recorded to use support structures of bridges as places of concealment, and two to 12 individuals may share such 'quarters'.

The diet of the snake has been noted to be the common freshwater eel (*Monopterus albus*), as well as species of catfish (*Clarias* spp.) and apparently also, crustaceans. Prey capture apparently relies more on chemoreception and tactile sensation than vision. Morphological features that support the idea include the presence of sensory, bristle-bearing tubercles on the skin and the sensory organs (sensillae) on the scales themselves, which heighten the sense of prey movement, as seen in the fish lateral line systems. In



captivity, they are nocturnal ambush predators, and turn to the prey with mouth open only upon physical contact, the tail is used to herd prey towards its head in a whipping motion. They are also known to corner prey with the body and employ constriction, apparently to position prey in an appropriate position prior to swallowing. It has been suggested that the rough scales may be an adaptation to this particular behaviour in these snakes, in addition to the small ventral (belly) scales and the relatively small vertebrae.

Reproduction

The reproductive biology of the species is worthy of note. Ovoviviparous, like most highly aquatic snakes, it produces as few as five and as many as 52 live young from eggs that hatch within the mother's body after about half a year. Reproduction is seasonal, coinciding with the 'winter' monsoonal showers, females producing young ones about once every other year. Further, at least one scientist has observed that a long-term (seven years) captive produced a

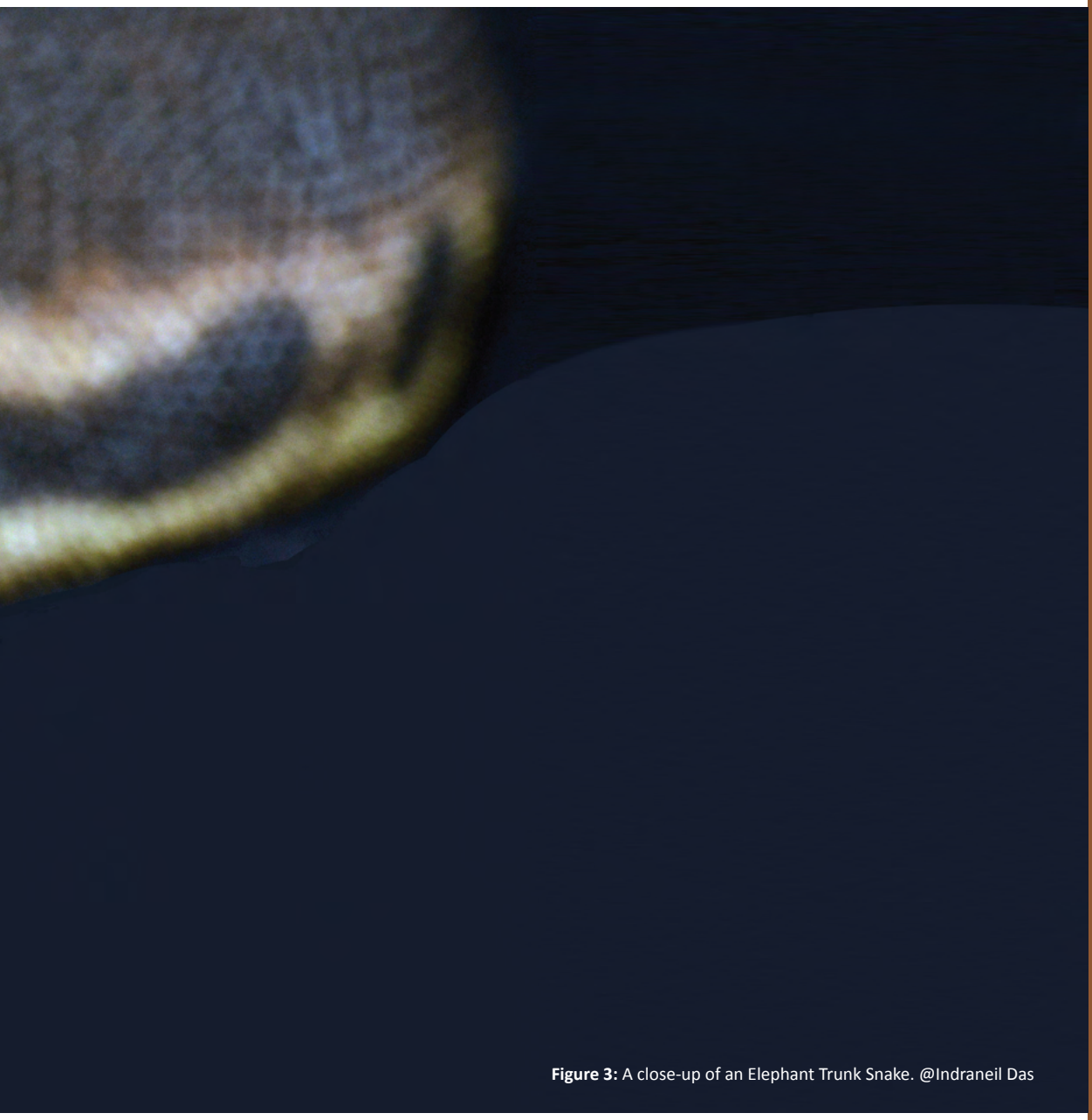


Figure 3: A close-up of an Elephant Trunk Snake. @Indraneil Das

live young without mating, and suggested either of sperm-retention (as known for a variety of unrelated reptiles and other animals) or parthenogenesis, or 'virgin-birth' (documented in a number of reptiles, including the congeneric *A. arafurae*). More recent studies show that female Elephant Trunk Snakes can retain dead oviductal offsprings for long periods of time. Hatchlings of the Elephant Trunk Snake are 280 to 360 mm in length and weigh 25 to 37 gm.

Another interesting trivia concerning its life history include its capacity to remain submerged for up to 40 minutes, emerging for 15 to 20 seconds to breathe. Its long abstinence from breathing (technically referred to as the apneic period) can be eight to 32 minutes per day, and heart rate is low. One can therefore assume a resting phase for these snakes during daylight hours. However, by night, snakes are behaviourally active, with periods of desisting

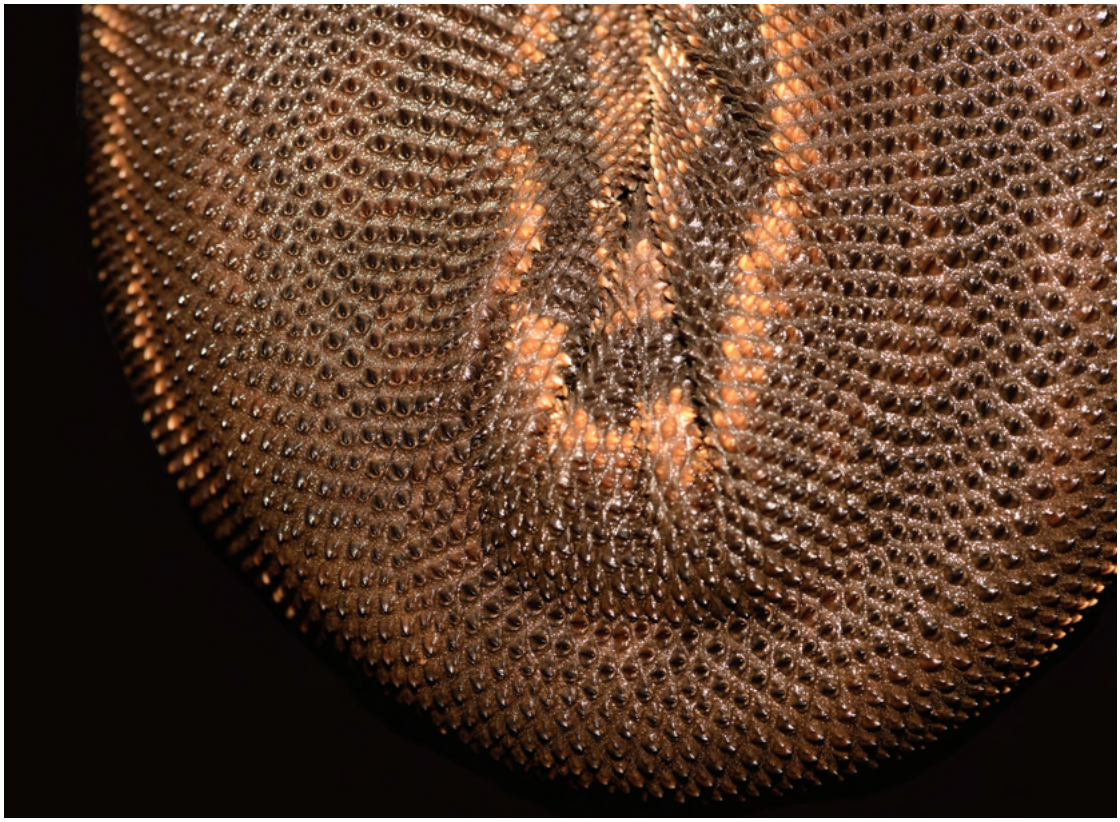


Figure 4: A close-up of the rough scales of the Elephant Trunk Snake. @Indraneil Das

from breathing reduced to 20 to 40 seconds, and a corresponding increase in heart rate. These snakes are also noted for their shyness, although those carelessly handling them may receive a well-deserved bite, owing to their sharp, fish-catching teeth. Notably, in this particular species, the teeth at the back of the lower jaws have extra sharp edges. In captivity, the species is prone to stress, but a record exists of a lifespan of five years at a zoo. The snake sheds once every few months.

Conservation status

Fishermen within its home range have been quick to recognize its places of concealment and its economic value: the most famous product derived from the snake is a special, highly durable leather known as *karung* (Malay and Indonesian for sack, presumably for its pleasing, rough texture). Products advertised as *karung* appear not only in consumer websites (Figure 5) but also high-end leather product catalogues (such as those of Bulgari, an Italian luxury brand). Indonesia exports as many as two million snakes annually for the leather trade. At present, trade in the species is permitted due to its non-listing in the list of restricted species in international trade (specifically CITES), listed under a relatively low threat category in the IUCN Red List (Least Concern), due to its widespread distribution. Nonetheless, trade for meat can be brisk; where the sale of pythons is banned, the obvious snake sold to supply restaurants specializing in snake soup is the Elephant Trunk Snake. A number are harvested for supply to semi-rural markets and food outlets in western Sarawak.

In the mid-1960s, the famous Malaysian zoologist, Lim Boo Liat described the species as common in the rivers and canals in the heart of Kuala Lumpur city. Half a century later, the once abundant species has disappeared from most of its former range in Malaysia, presumably from the combined pressure of habitat loss, pollution and hunting.

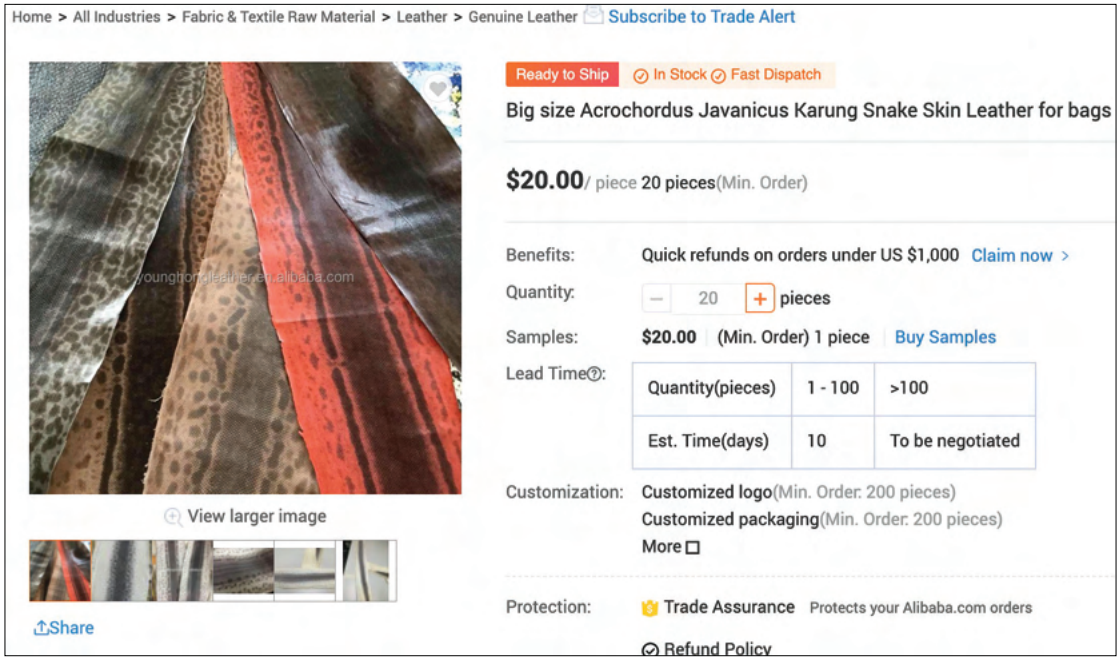


Figure 5: An example of an online advertisement for *karung*, the process leather derived from the Elephant Trunk Snake. @Indraneil Das

Acknowledgements
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