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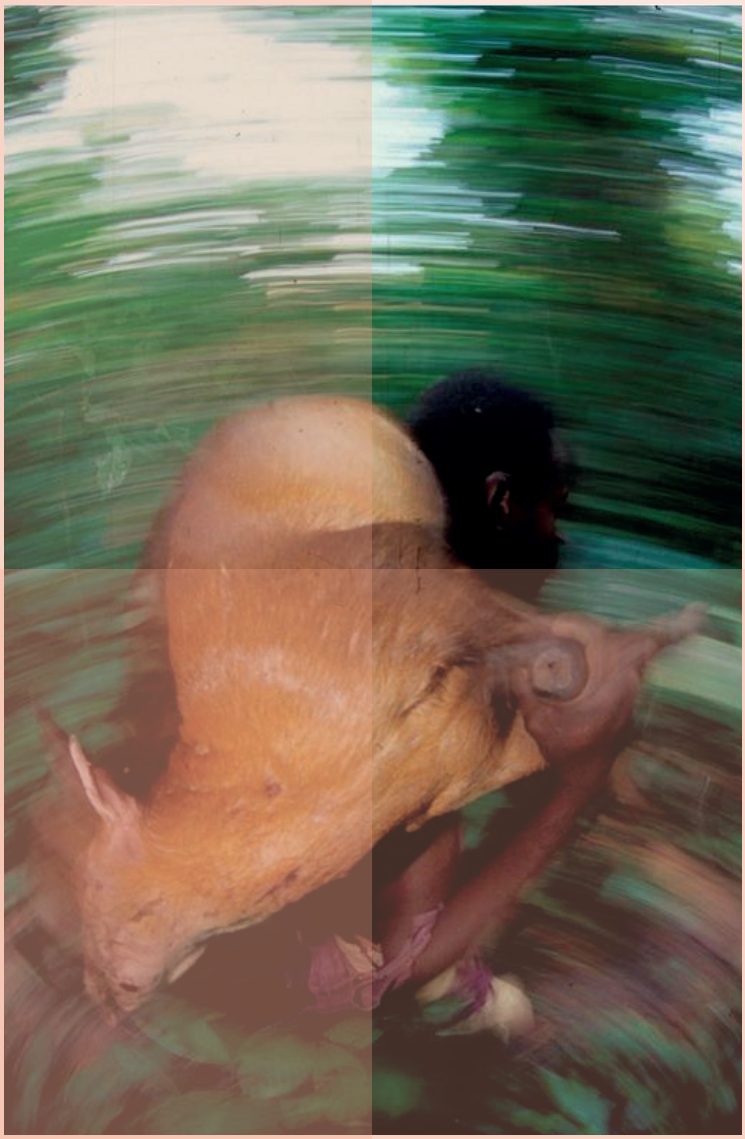
Bushmeat

Information and identification guide

A collaboration of the Federal Food Safety and Veterinary Office and Tengwood Organisation



1. Introduction

The term “bushmeat” stands for meat that has been sourced from wild animals and is meant for human consumption. It mainly refers to meat from Africa, but it can also be used for “wild” meat from Asia or south America.

The consumption of bushmeat as such is nothing new. However, the amount of meat as well as the global distribution of bushmeat has increased drastically. There are various developments and changes that have contributed to the increased amount of bushmeat such as population growth, more efficient hunting through more sophisticated weapons and the accessibility of formerly isolated/ remote forest areas. The high demand in the urban regions means that the bushmeat trade has become a lucrative business. Nowadays, regional foods are not only available at the local market anymore, they can be distributed and sold around the globe within a matter of days. What used to be a means to self-sufficiency and feeding a family has now become a global market with a growing demand.

Bushmeat consumption is by no means sustainable: Projections suggest that the take-off of wild animals from nature in Africa is six times higher than a sustainable use would be[II,III]. Nearly 5 million tons of bushmeat are being traded in Central and West Africa[IV,V].

The trade is not restricted to Africa: According to a study, five tons of bushmeat are transported into France via Paris airport every week. Of these five tons, a third are estimated to be species protected by CITES[VI] (The Convention on International Trade of Endangered Species of wild flora and fauna)[VII]. In the UK, 25’000 lots of bushmeat were confiscated from passenger traffic[VIII] in 2005 and it is well known that bushmeat is openly sold at markets in New York, London and Paris. These facts show that the “bushmeat crisis” also affects us here in Europe.

International trade in bushmeat is problematic for two main reasons:

1. Species conservation: The growing trade and demand fuel an unsustainable offtake of wild animals. This endangers the survival of many animal species and populations in their natural habitat. The offtake of animals from nature is a huge driving force in the loss of biodiversity[IX].

2. Risk of diseases: Importing dead animals brings a huge risk in terms of importing infectious diseases with them. For example, there are an array of zoonotic diseases, that can be transmitted by being in contact with bushmeat[X].

The places where the import of bushmeat from a third country through travel can be prohibited are airport checkpoints. A problem here is that identification of bushmeat based on appearance is often difficult, if not close to impossible. This is why actual bushmeat is often classified as “meat from third countries” and does not appear in the statistics of bushmeat import. Furthermore, there are different hygienic precautions to be taken when dealing with fresh meat from wild animals, especially at a highly frequented place like an airport.

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Hunter piecing a gorilla (left) and (on right), the possibility of disease transmission from exposure to blood is high.

2. Goal of this brochure

The goal of this brochure is to provide customs personnel, border guards and CITES inspectors, or any other persons that might come into contact with bushmeat, with guidance in the identification of bushmeat. A further goal is to standardize the hygiene process, as well as to increase the success rate of correct identification. This will increase safety standards, reduce the import of bushmeat and make it possible to collect reliable data on bushmeat import into Switzerland.

The employees working at the airport and borders play a very important role in this process, it is their work and experience at the point of inspection that is most effective in the process of combating the illegal import of bushmeat.

3. Safety precautions

3.1 Hygiene standards and protocol

Approximately 75% of newly emerging diseases are zoonotic- meaning that they can be transmitted from animals to humans (and vice versa). Most of these diseases originate from wild animals[XII]. Infectious diseases such as Ebola, SARS, Anthrax and HIV-AIDS are likely to have been transmitted to humans while processing and consuming bushmeat[XIII]. But the invasion of new diseases is not just a threat to humans- diseases can also be transmitted to domesticated animal species (avian influenza; swine flu). Since bushmeat is being imported illegally, there is no control mechanism in place and there are no regulations that need to be fulfilled before import of the meat. Therefore it presents a potential risk. The amount of people travelling is constantly rising, and with this the risk of new diseases being introduced is also rising. Therefore, it is all the more important to maintain safety precautions and guidelines, in order to reduce the risk of disease transmission as much as possible. The following protocol should be used as a guideline in this process.

4. Identification of bushmeat

In some cases, it is relatively easy to identify bushmeat. For example, when the animal is imported as a whole, fresh carcass from a country where bushmeat consumption is known to be common. In the majority of cases however, it is difficult to identify bushmeat, for example when the carcass is pieced or chopped. This is becoming a very frequent way to transport the meat, because it is easier to handle and also more difficult to identify the species. However, there are some features that can indicate whether the meat is actually bushmeat and which species it belongs to.

The following criteria should be helpful in identifying bushmeat

4.1 The meat is being imported from WEST and CENTRAL AFRICAN countries

The majority of bushmeat comes from **WEST** and **CENTRAL AFRICAN** countries, but it can also come from other African regions (i.e. North Africa, South Africa and East Africa). A proportion of the bushmeat comes from **ASIAN** and **LATIN AMERICAN** countries. All of these are regions which have large tracts of undisturbed forest remaining, and a known problem in regard to illegal bushmeat hunting.

4.2 The meat is fresh meat, or is preserved through smoking (which may or may not fully cook the flesh), drying or salting.

a.) Fresh meat:
Bushmeat is often bought close to a passenger's travel, and smuggled to Europe fresh.
Any meat that has not undergone commercial processing and comes from Africa as 'fresh' meat has the potential to be bushmeat.
Fresh bushmeat may be found as a whole, fresh carcass, chopped pieces, or filet-type cuts.

b.) Smoked meat:
Smoking is the most common preservation technique for meat in Africa, including bushmeat.
Any meat from Africa which is smoked (i.e. has a blackened/charred look to the outside surface) is potentially bushmeat. Carcasses can be quick-smoked at very high temperatures to remove hair and partially preserve the meat (the meat inside these carcasses is still partially fresh). Carcasses may be smoked at high temperatures for long periods of time to dry and preserve the meat.

4.3 A whole or partial carcass is present

The presence of a whole or partial carcass of an animal species in a passenger's luggage is indicative of bushmeat. A partial carcass would be some part of an animal's body that includes some identifying features that can sometimes allow one to recognize a species.

a.) **A recognizable head** – If a head or part of a head or facial features (i.e. teeth, eyes, etc.) is present, it is likely to be bushmeat.

b.) **Recognizable body parts or appendages** – Appendages (i.e. arms/hands, legs/feet, hooves, paws, claws/nails, tail, etc.) are not typically present in a commercially prepared piece of meat. Any such recognizable part connected to a piece of meat indicates a high potential to be bushmeat.

4.4 Additional identifying features for bushmeat

a.) **Pelt or hair is present on pieced meat** - If a piece of meat is present with the pelt/hair still attached, this is indicative of bushmeat. Pelts are typically removed from an animal in commercial meat processing and preserved through a tanning process that cleans meat/tissue from the pelt.

b.) **Skin or hide is present on pieced meat** – For most bushmeat pieces, the hide/skin is still present on the meat pieces, even after smoking. For most commercially processed meats, the hide/skin is typically removed (the exception to this being poultry and some specialized types of processed meats, i.e. pigs/bacon).

c.) **Bones are present in the meat** – Bushmeat often has multiple bones or pieces of bones present/visible in the meat. Most commercial processing of meat removes bones.

d.) **A foul odour is present** – Bushmeat often smells very bad. A characteristic 'stink' or rotted/rancid odour to the meat is often present.

e.) **Mold or other indications of aging/distress are visible** – Bushmeat must travel far to reach Switzerland – Animals are killed in the forest and must travel to markets where they are sold and buyers must bring them on domestic and international flights. Preservation techniques for bushmeat are typically crude. This may result in signs of aging on the meat, such as mold or maggots being present on/in the meat. Other signs of distress may be present; such as meat appearing very dry/dehydrated, or grayish in color.

4.5 Identifying bushmeat summary

1. The meat comes from a west and central African country
2. The meat is fresh or smoked (blackened/charred colour)
3. The meat is being imported as a whole or partial carcass;
   for partial carcasses the following features might be present:
   a) Head or facial features (teeth, mouth, eyes)
   b) Appendices (arms/ hands, Legs/feet, hooves, paws, claws/ nails etc.)

4. Meat is pieced when imported, but one of the following features is present:
   a) Hair/ hide
   b) Skin
   c) Bones
   d) Foul odour
   e) Mold or other indications for aging meat (i.e. grey colour)

Some species in the bushmeat trade are very expensive and sought after (i.e. primates and big cats). It is very likely that meat from those species designated for the luxury market shows less of the above criteria but rather is imported as fresh, processed meat which looks more like a “filet”. Here, DNA analysis is necessary for species identification.

A pile of smoked bushmeat in a market in Nigeria. Animals visible in photo include African Brush-tailed porcupine, duikers and other artiodactyls, a drill monkey, and unidentified species.

5 The most commonly used animal species in the bushmeat trade and identification aids

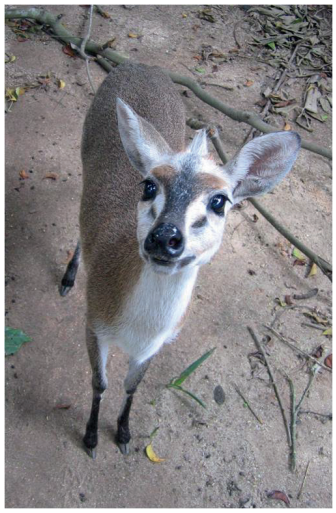
The most frequently consumed species in the bushmeat trade are endemic to the tropical forests of western Africa. Nevertheless, there are also species in other regions that are threatened by the bushmeat trade. For example, many species from Asia are being hunted and consumed for their meat. The following part shows an overview of the most commonly used species in the bushmeat trade, with a description and images for identification.

5.1 Artiodactyls (even-toed ungulates)

- Duiker (**CITES**: Appendix I, II and also non-**CITES**)
- Antelopes (some **CITES**)
- Red river hog or bush pig
- Hippopotamus (**CITES**: Appendix II)
- Sitatunga, non- **CITES**

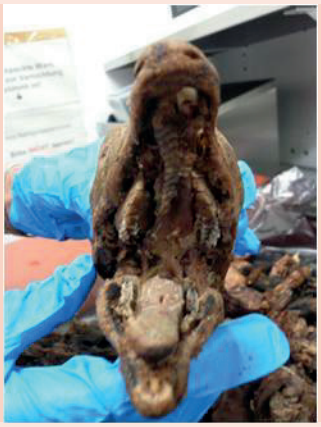
5.1.1 Identifying features

- larger body size so usually pieced with multiple pieces in a confiscation
- hooves/bones/long bones/ribcages often present in meat pieces
- meat may be lighter in color in some species
- long muscle fibers may be present in meat
- Can look similar to beef from domesticated cows



5.1.2 Bushmeat examples: Duiker

HEAD


RIBS



PIECES



FUR



Further examples of Duikers: smaller pieces of meat







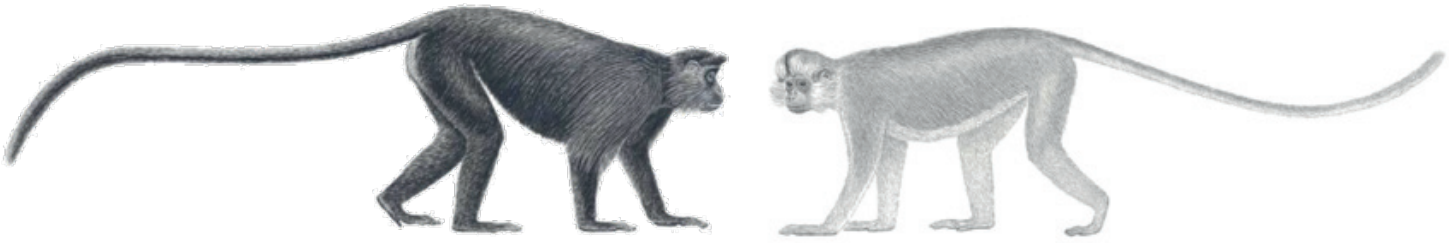

5.2 Primates (Monkeys)

All primates and monkeys are listed in the **CITES** Appendices (I or II)

- Guenons (Cercopithecus species)
- Mangabeys
- Colobus monkeys
- Baboons, Mandrills, Drill Monkeys
- Great Apes
- Other primates

5.2.1 Identifying features

- Entire carcass possible
- Presence of arms/hands with a visible opposable thumb (only primates have a thumb)
- Long tail
- Filet-type cuts for high-end, expensive species. Be aware of “nice” looking meat coming from high risk countries



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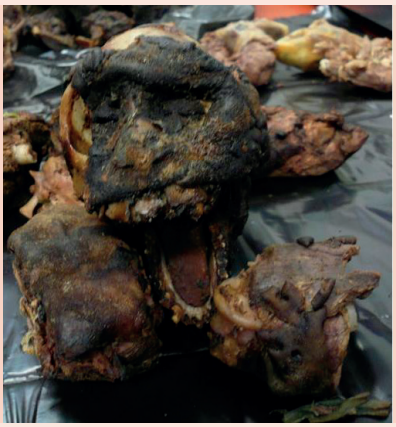
5.2.2 Bushmeat examples: Primates

FRESH → SMOKED

HEAD

HEAD



VARIOUS PIECES

WHOLE CARCASS

HAND WITH OPPOSABLE THUMB

VARIOUS PIECES

A WHOLE, PIECED CARCASS
HAIR HAS BEEN BURNT OFF
FRESH MEAT

5.3 Pangolins

All 8 species are listed in Appendix II of **CITES**

- African pangolins (4 species)
- Asian pangolins (4 species)

5.3.1 Identifying features

- Scales that cover the entire body
- Characteristic look to de-scaled skin – diamond shaped pattern
- Tail length and presence/extent of scales on legs can indicate species
- Muzzle long and tapered
- Front feet have long, strong digging claws
- Scales are also traded (for traditional Chinese medicine)
- Bushmeat: Fresh or smoked; whole or pieced animal

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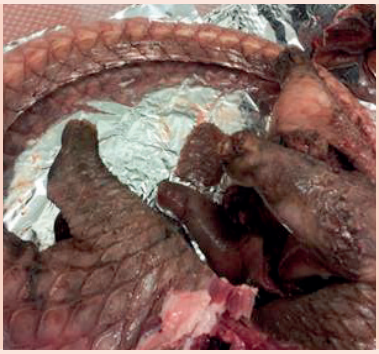
5.3.2 Bushmeat examples: Pangolins

FRESH → SMOKED



WHOLE CARCASS



HEAD



PARTS



PIECED MEAT

5.4 Rodents (not protected by **CITES**)

Most commonly consumed in the bushmeat trade:

- Porcupine
- Cane rats
- Other rodents (Giant rat, Gambian pouched rat, squirrels, etc.)

5.4.1 Identifying features

- Whole fresh or dried carcasses often present
- Common in 'preparations'/soups with spices/greens
- Skin of porcupine has unique 'diamond' pattern, similar to pangolins, Cane rat skin is more similar to chicken skin
- porcupine 'brush-tail' very characteristic
- large front teeth – flatter/wider in cane rats than in porcupines
- Canerat: The forefoot has three well-developed central digits; the first and fifth digits are smaller and almost non-functional. Hind foot with larger digits, first digit is absent.
- African porcupine: 5 toes on the front feet, the first toe being reduced to a small stump without a claw. 5 toes on the hind-feet each have a claw.

Left: Nutria (Myocastor coypus) a South American rodent that is similar/related to the Cane Rat.
Right: African porcupine (Hystrix africaeaustralis).

5.4.2 Bushmeat examples: Cane rat

FRESH → SMOKED



WHOLE CARCASS



PARTS



PIECED MEAT

5.4.3 Bushmeat examples: Porcupine

FRESH → SMOKED



WHOLE CARCASS



PARTS

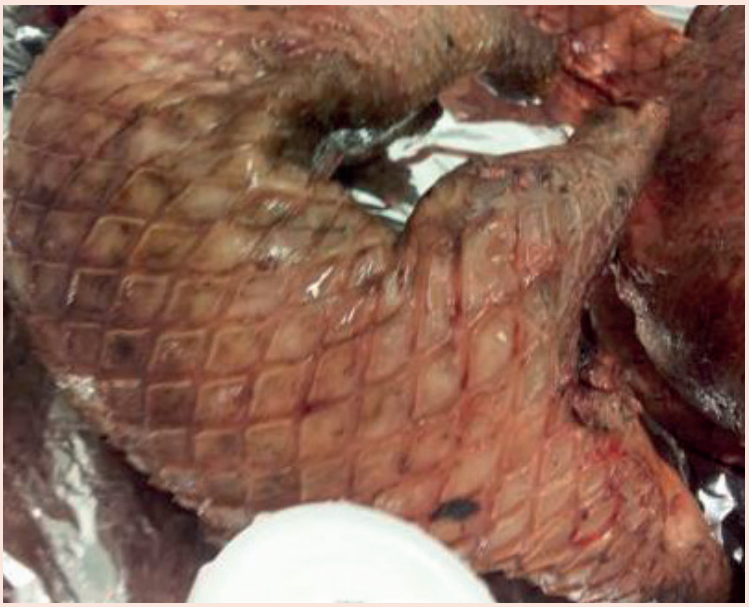


PARTS



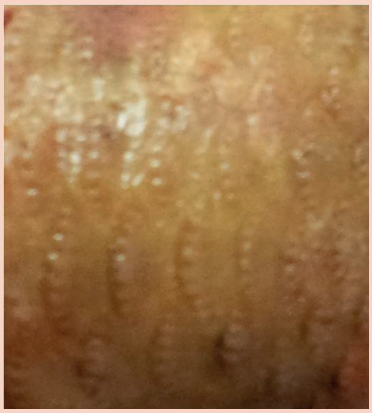
PIECED MEAT

5.4.4 Differences between pangolin-, porcupine- and cane rat skin



Pangolin

Skin of the pangolin shows a diamond pattern, after the scales have been removed



Porcupine

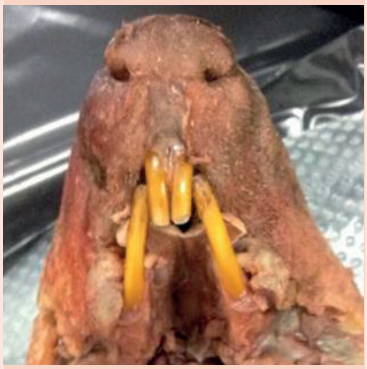
Porcupine skin is similar to pangolin skin, but the diamonds are not as prominent and more dented inwards with less strong ridges. Holes in the porcupine skin, where quills have been plucked out, may be visible

Cane rat

Cane rat skin has tiny bumps and is more similar in appearance to chicken skin

5.4.5 Differences between pangolin-, porcupine- and cane rat: fresh and smoked meat

Pangolin	Porcupine	Cane rat	
			FRESH
			
			
			SMOKED

	Pangolin	Porcupine	Cane rat
TEETH	 Pangolins as anteating mammals, lack teeth		
FRONT LEG			
BACK LEG			
FOOT			

5.5 Carnivores (Wild Canids or Felids)

Most common as bushmeat:

- African Civet Cat (**CITES** III)
- Genets (non-**CITES**)
- Palm civets (**CITES** III)
- Mongoose species (some **CITES**)
- Big cats e.g. lion or tiger (**CITES**)
- Otters (**CITES** I, II and non-**CITES**)

5.5.1 Identifying features

- Appearance/body type is similar to dog or cat
- long muzzle with dog-like or cat-like nose
- Paws may look similar to a dog or cat
- if pelt is present, spots, bands or patterns may be visible
- Expensive meat for luxury market can look similar to a filet

5.5.2 Bushmeat examples: Carnivores

African palm civet

A number of other small, African carnivores that are found as bushmeat have a similar appearance

African palm civet

Example of the dog-type muzzle

African palm civet

Example of carnivore paws.
The African Palm Civet lives in trees and has paws that are more cat-like and adapted for climbing

Clawless otter

Because of their diet, the paws of the otter resemble primate hands, and for its aquatic environment the pelt is thick and the ribcage very distinctive

ATTENTION:
Expensive, valuable bushmeat from big cats (or also primates) often does not show any typical bushmeat attributes and could look more like a filet of meat.

5.6 Reptiles

Most common as bushmeat:

- Tortoises (All tortoises are protected by **CITES**), seawater turtles (All are listed in Appendix I) and many freshwater turtles are protected by **CITES**
- Crocodilians (All **CITES**)
- Snakes (Many **CITES**)
- Lizards (Many **CITES**)

5.6.1 Identifying features

- Skin may have unique pattern
- meat may appear lighter in color
- skin may have scales or appear similar to fish skin
- presence of horny projections or scales on skin

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5.6.2 Bushmeat examples: Reptiles

Snake

Example of pieced snake meat

Snake

Snakes have characteristic patterns on their skin that may still be visible on meat

Turtle / Tortoise

Example of pieced tortoise meat

Turtle / Tortoise

Tortoises and turtles have a characteristic head shape

5.6.2 Bushmeat examples: Reptiles

Tortoise

Front leg with hard keratin scales which form bony spurs

Tortoise

Back leg: Not bent like the front leg

Tortoise

Tortoise tail

5.7 Bushmeat from invertebrates

It is common to eat invertebrates in western Africa and Asia. Although often not protected by **CITES**, they are also commonly imported into Switzerland.

5.7.1 Examples: invertebrates

Giant African Land Snail
(non **CITES**)

Unknown insect larvae
(non **CITES**)

Butterfly larvae (non **CITES**)

7 References

Photo credit: If not indicated otherwise (below): Kathy L. Wood/ Bruno Tenger, Tengwood Organisation. Drawings: www.cites.org

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- XV Picture: Karl Ammann „Consuming Nature“
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