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Veterinärwesen BLV  
**Institut für Virologie und Immunologie IVI**

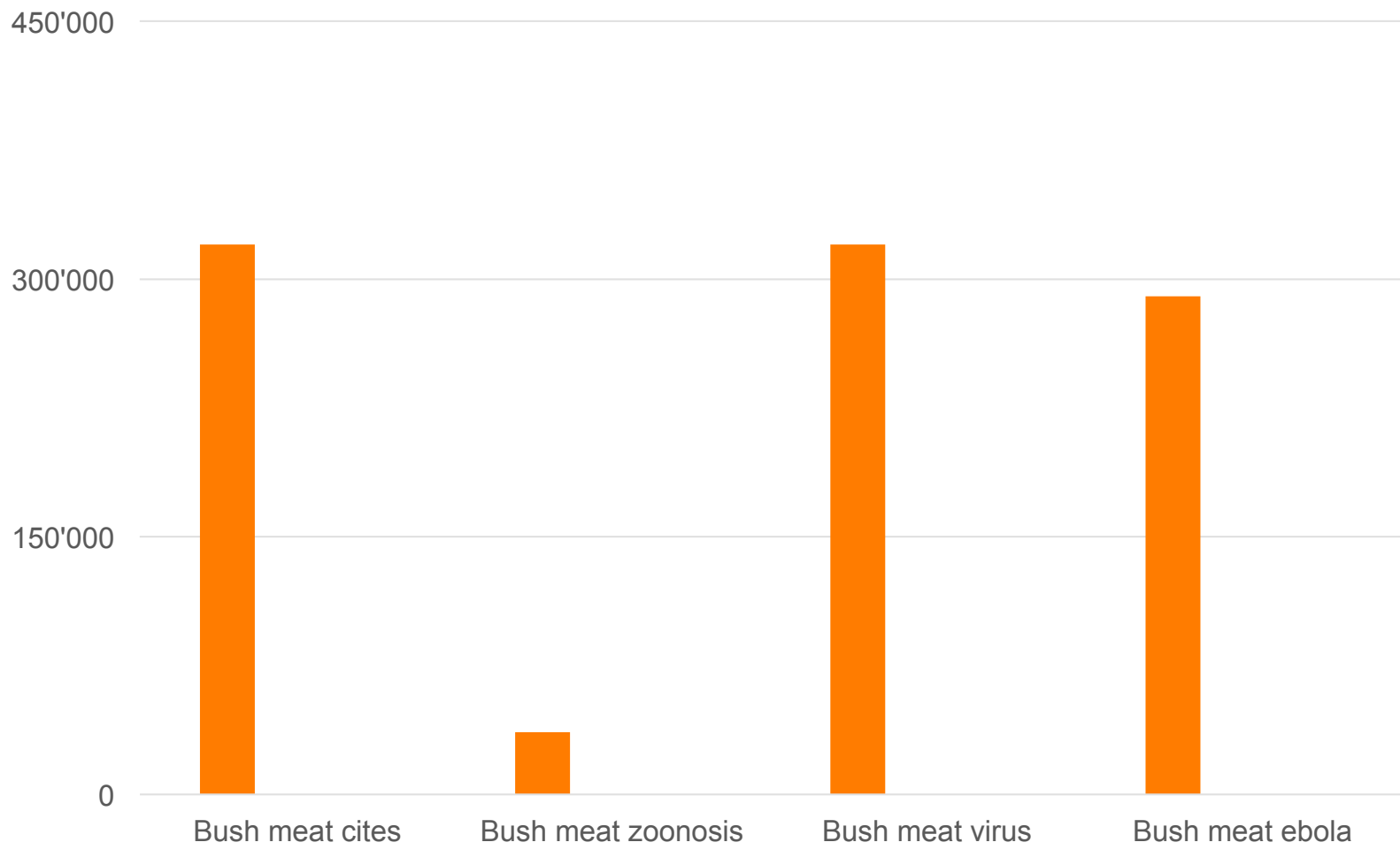
u<sup>b</sup>

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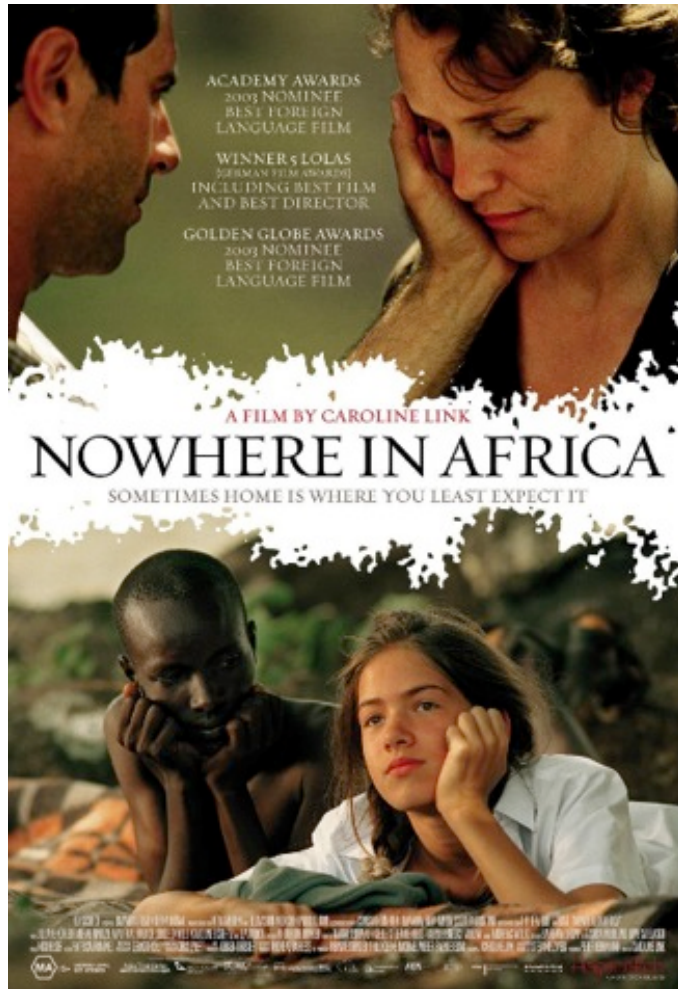
# Bushmeat; ein Risiko?

Christian Griot  
Institut für Virologie und Immunologie  
3147 Mittelhäusern





# In und aus Afrika?



## **Can diseases be transmitted by the consumption of wild animals?**

Obviously bushmeat is not part of veterinary monitoring and can be regarded as a disease risk for people. Wild animals and especially primates are the carriers of different viruses that are very dangerous to people. So far, we do not know all the pathogens. Who knew of Ebola and HIV 40 years ago?

A high infection risk exists if freshly killed chimpanzees or other primates are dissected or prepared for food, with humans that are in contact with their blood. Most viruses get killed when cooked - but not all!

***WILD CHIMPANZEE FOUNDATION***

# Tiere die konsumiert werden

+++ Grasnager, Eichhörnchen

++ Stachelschweine

+ Affen und andere Tierarten

# Von welcher Tierart geht ein Risiko aus?

15 Arten, die häufig von Jägern gefangen/geschossen bzw. auf den Märkten angeboten wurden

Deutsche Bezeichnung	Lateinische Bezeichnung (Rote Liste der IUCN)	A	B	C
Blauducker	<i>Philantomba monticola</i> (LC)	264	37.577	25,1
Pinseloherschwein	<i>Potamochoerus porcus</i> (LC)	143	1.731	13,6
Petersducker	<i>Cephalophus callipygus</i> (LC)	117	6.712	11,2
Ogilby-Ducker	<i>Cephalophus ogilbyi</i> (LC)	86	5.597	8,5
Schwarzrückenducker	<i>Cephalophus dorsalis</i> (LC)	66	3.801	6,3
Afrikanischer Elefant	<i>Loxodonta africana</i> (VU)	66	24	6,3
Westafrikan. Quastenstachler	<i>Atherurus africanus</i> (LC)	50	16.982	4,8
Große Weißnasenmeerkatze	<i>Cercopithecus nictitans</i> (LC)	31	6.115	3,0
Gelbrückenducker	<i>Cephalophus silvicultor</i> (LC)	30	480	2,8
Schwarzer Stummelaffe	<i>Colobus satanas</i> (VU)	24	2.194	2,3
Sitatunga	<i>Tragelaphus spekei</i> (LC)	23	275	2,2
Waldhamsterratte	<i>Cricetomys emini</i> (LC)	23	14.856	2,2
Stachelrand-Gelenkschildkröte	<i>Kynixis erosa</i> (DD)	6	3.344	0,5
Weißbauchschuppentier	<i>Manis tricuspis</i> (NT)	6	2.950	0,6
Blaumaulmeerkatze	<i>Cercopithecus cephus</i> (LC)	7	1.775	0,7

**A** Nach Lebendgewicht-Biomasse häufig aufgetretene Arten in 26 Feldstudien (Tonnen pro Jahr)

**B** Individuen-Anzahl der Art pro Jahr in 26 Feldstudien

**C** Prozentanteil der Art (Biomasse) am Gesamtfang

# Gründe für den Verzehr

- Billiger als Fleisch (Rind, Geflügel), nicht in den Städten
- Teil der Jagdkultur (die älter als Ackerbau ist)
- Zentralafrika 50% Proteinanteil
- Liberia 75%



# Every country with confirmed Ebola cases

Sources: WHO, CDC



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## Health

### Ebola: Is bushmeat behind the outbreak?

By Melissa Hogenboom  
BBC Health Check

19 October 2014 | Health



Bushmeat is believed to be the origin of the current Ebola outbreak. The first victim's family hunted bats, which carry the virus. Could the

#### Health Check

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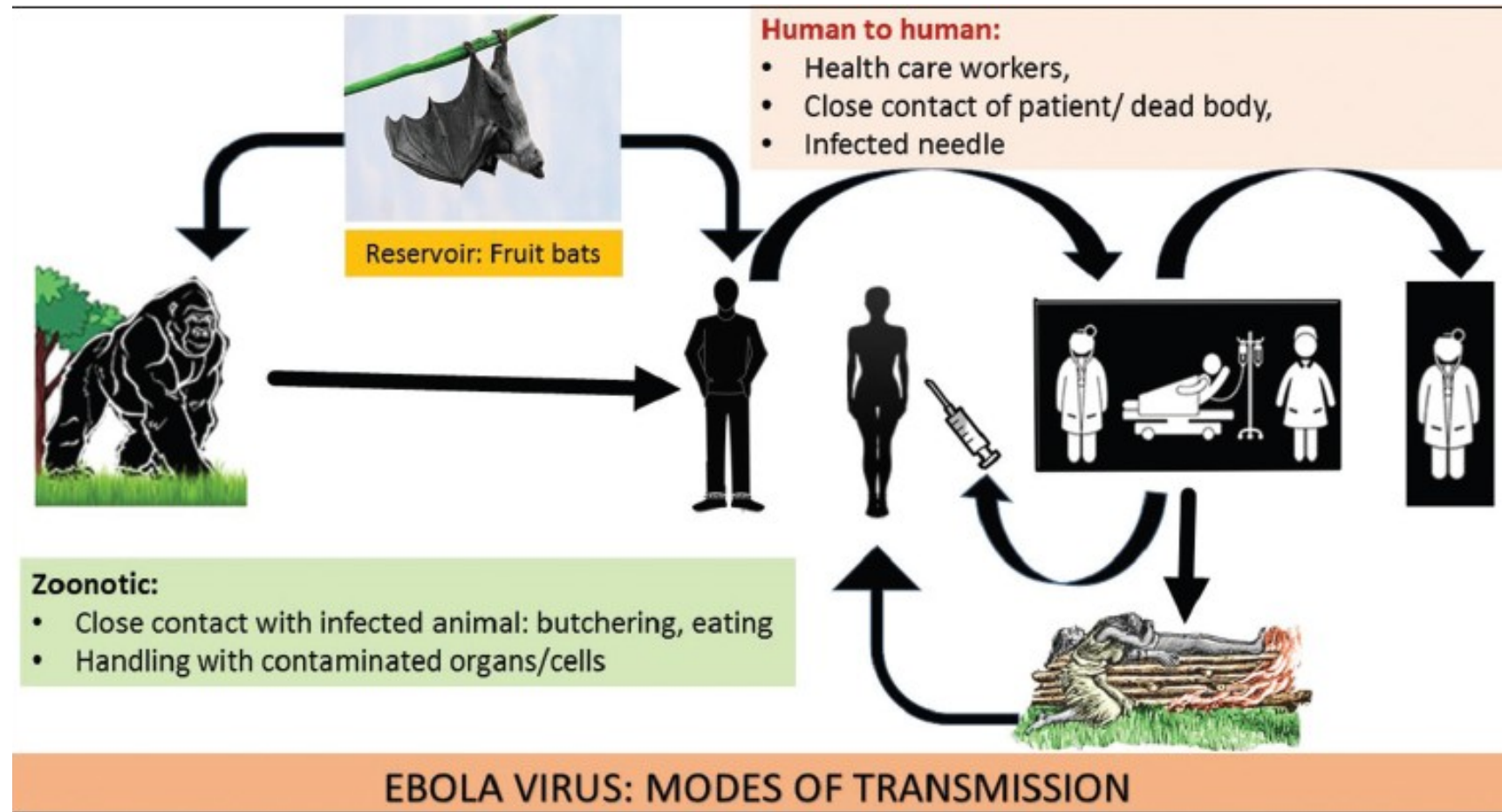
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# Zoonosen

## BCTF FICHE D'INFORMATION Septembre 2006

L'objectif principal de la Bushmeat Crisis Task Force (BCTF) est de faciliter le travail de ses membres pour identifier et mettre en place des solutions efficaces et appropriées au problème de l'exploitation commerciale des espèces menacées.

Domaine concerné:

### SANTÉ HUMAINE

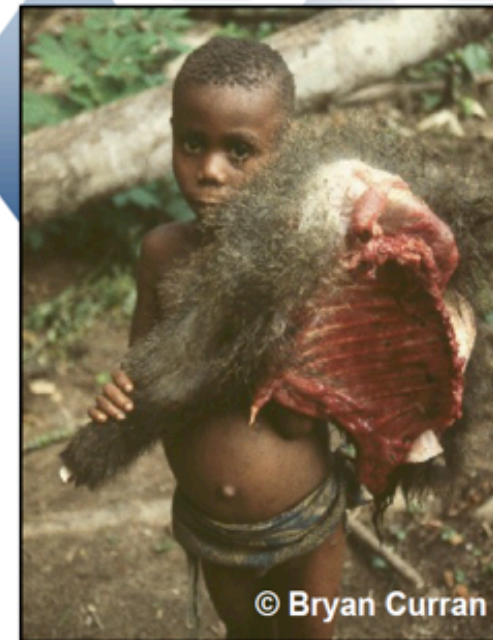
**Espèces concernées :** Primates non humains, hommes, autres espèces réservoirs/vecteurs

**Acteurs impliqués :** Communautés rurales et urbaines en Afrique, population mondiale, Centers for Disease Control (USA), employés de santé publique en Afrique, universités et chercheurs en médecine dans le monde, sociétés privées engagées dans des activités d'extraction et/ou de construction/transport dans les zones de forêt tropicale

#### Concepts clés

◆ De nombreuses maladies peuvent passer

de combustibles fossiles ont ouvert de nouvelles zones de forêt à la chasse



## **Zoonotic disease risk and the bushmeat trade: assessing awareness among hunters and traders in Sierra Leone.**

Subramanian M.

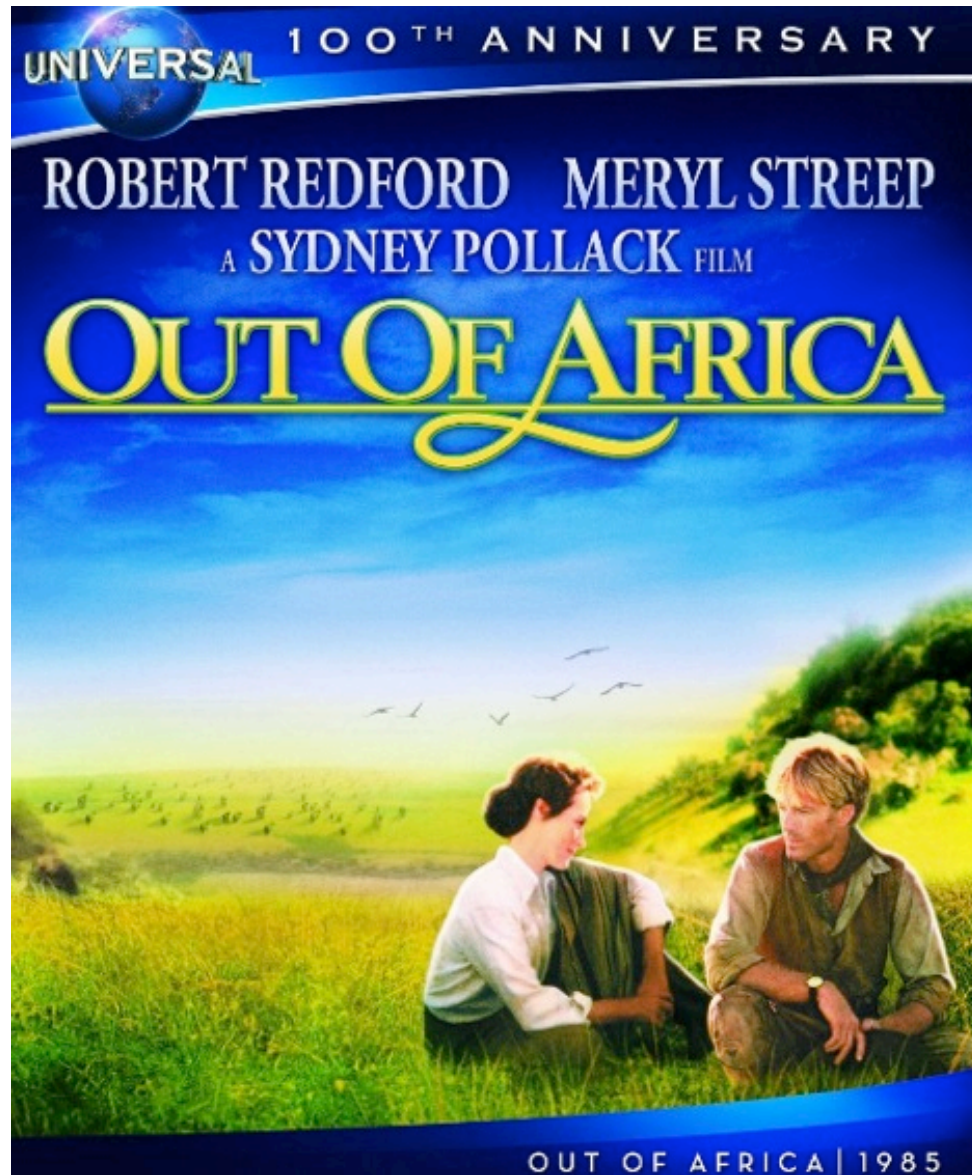
### **⊕ Author information**

#### **Abstract**

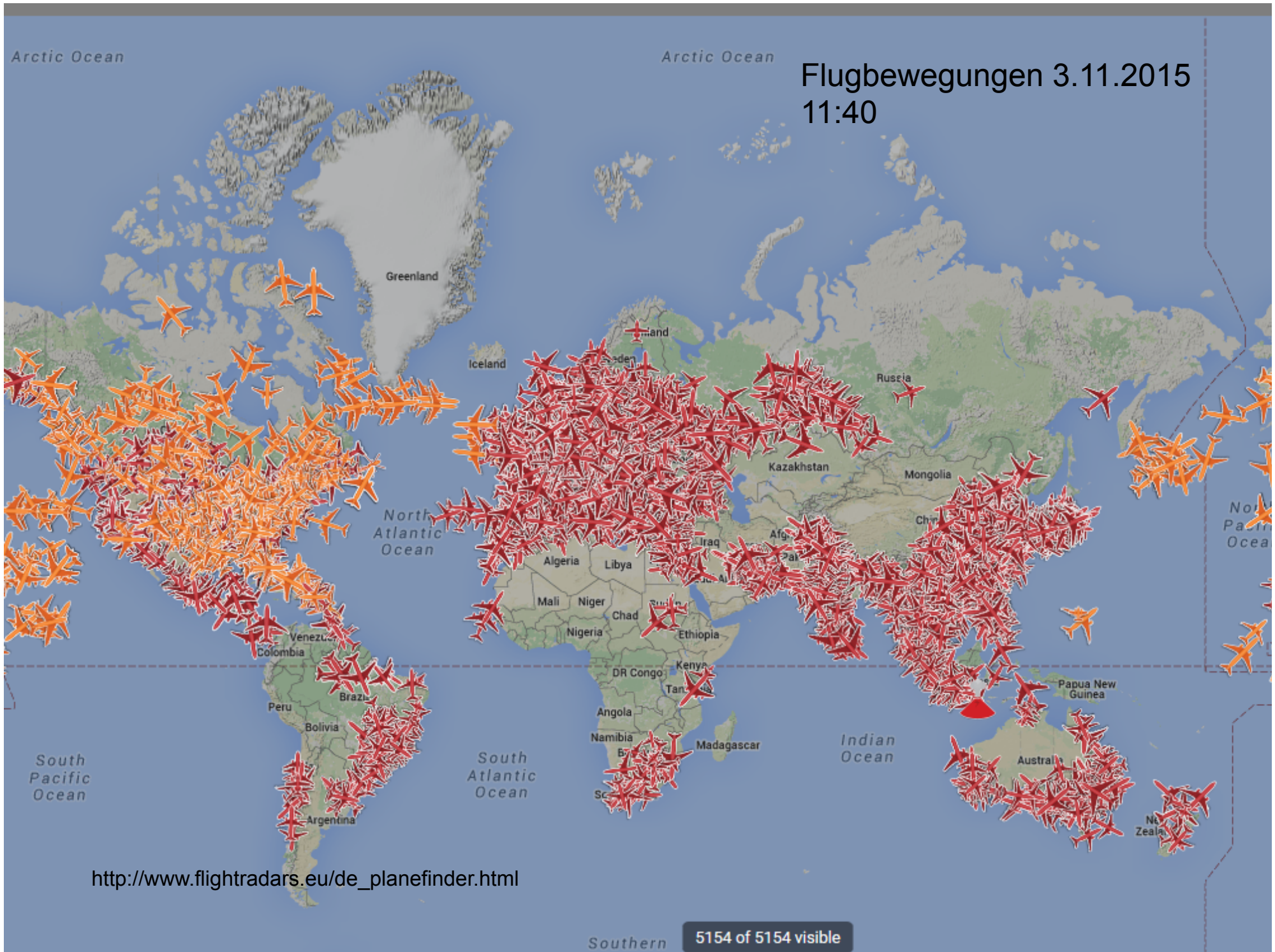
The bushmeat industry has been a topic of increasing importance among both conservationists and public health officials for its influence on zoonotic disease transmission and animal conservation. While the association between infectious diseases and the bushmeat trade is well established in the research community, risk perception among bushmeat hunters and traders has not been well characterized. I conducted surveys of 123 bushmeat hunters and traders in rural Sierra Leone to investigate hunting practices and awareness of zoonotic disease risk associated with the bushmeat trade. Twenty-four percent of bushmeat hunters and traders reported knowledge of disease transmission from animals to humans. Formal education did not significantly affect awareness of zoonotic disease transmission. Individuals who engaged exclusively in preparation and trading of bushmeat were more likely to accidentally cut themselves compared to those who primarily engaged in bushmeat hunting ( $P < 0.001$ ). In addition, women involved in the bushmeat trade were at greater risk of exposing themselves to potential zoonotic pathogens through accidental self-cutting compared to men ( $P < 0.01$ ). This study collected preliminary information on risk perception among bushmeat hunters that could guide the creation of a future public health-based education program to minimize zoonotic disease transmission risk among vulnerable communities.

# Zoonosen aus dem Wildtierreservoir

Krankheit	Reservoir	Risiko
Dengue, Gelbfieber	zahlreiche	Aufenthalt in Endemiegebiet
Ebola	Affen, u.a.	Jagd
Affenpocken	Nager	Jagd
HIV (SIV)	Affen	Jagd
Anthrax	Antilopen	Schlachtung
Gelbsucht (Herpes)	Affen	Jagd



# Flugbewegungen 3.11.2015 11:40



[http://www.flightradar.eu/de\\_planefinder.html](http://www.flightradar.eu/de_planefinder.html)

5154 of 5154 visible





EUROPEAN COMMISSION  
HEALTH & CONSUMERS DIRECTORATE-GENERAL  
Directorate G – Veterinary and International Affairs  
Director

Brussels  
SANCO/G2/PB/lp (2014) 1258942

**FAX – 15/04/2014**

<b>To:</b>	CVOs of all Member States + Norway, Iceland, Switzerland, + all Permanent Representations	<b>Telephone:</b>	
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<b>Number of pages:</b>	1		

**Subject: Ebola haemorrhagic fever in Western Africa and illegal imports of fresh meat into the EU**

**Message:**

As you may already know, an outbreak of Ebola haemorrhagic fever is currently ongoing in Guinea and Liberia, while suspected cases have been detected in Mali and Sierra Leone. So far the biggest outbreak is located in Guinea, where, as of 9 April, a cumulative total of 158 clinically compatible cases in humans, including 101 deaths have been officially reported (WHO).

It appears that human infection can also occur by contact with living infected animals (e.g. monkeys, chimpanzees, forest antelopes and bats) or their carcasses or meat.

Taking into account this situation, and considering that **import into the EU of any fresh meat from the countries in question is not authorised**, attention should focus on the illegal introduction of meat in personal luggage of passengers and in particular of “Bush meat”.

I would therefore like to ask you to alert your entry points and border inspection posts to intensify the controls on personal luggage of passengers entering the EU as provided for in Article 5 to Regulation (EC) No 206/2009 from the African continent and particularly from Guinea, Liberia, Mali and Sierra Leone.

I will keep you informed about further developments.

Yours faithfully,

  
Bernard Van Goethem

Cc: H. Vassallo (Cabinet Commissioner Borg), F. Vincent (DG COMM), P. Testori Coggi, B. Gautrais, M. Valletta, A. Ajour, T. Gumbel, J. Ryan, L. Terzi, M. Scannell, K. Van Dyck (SANCO).

# GT Dienst Zürich

*„Im Moment oder besser gesagt schon seit langer Zeit ist die ganze Bushmeat Thematik komplett verschwunden.*

*Der Zusammenhang liegt vermutlich an den Flügen und an den Stichproben des Zolls. Swiss hat vor knapp zwei Jahren die Flüge aus Kamerun gestrichen. Im „Arrival“ 1 wo diese Flüge bzw. deren Gepäck ankommt, ist die Zollpräsenz auf ein Minimum herunter gefahren. Ich bin überzeugt, dass die Ware dadurch vermehrt auf diesem Weg hereinkommt“.*

*Dr. med.vet. R Müller, Leiter GTD, Flughafen Zürich*

# Emerging diseases



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RESEARCH ARTICLE

## Zoonotic Viruses Associated with Illegally Imported Wildlife Products

Kristine M. Smith , Simon J. Anthony , William M. Switzer, Jonathan H. Epstein, Tracie Seimon, Hongwei Jia, Maria D. Sanchez, Thanh Thao Huynh, G. Gale Galland, Sheryl E. Shapiro, Jonathan M. Sleeman, Denise McAloose, Margot Stuchin, [ ... ], Nina Marano [ [view all](#) ]

Published: January 10, 2012 • DOI: [10.1371/journal.pone.0029505](https://doi.org/10.1371/journal.pone.0029505)

Article	Authors	Metrics	Comments	Related Content

Abstract

...

Abstract

Species <sup>2</sup>	Common name	Sample number <sup>1</sup>	Tissue	LCV	CMV	SFV	Origin of package	Destination of package
<i>Chlorocebus sabaues</i>	green monkey	CII-040	Bone marrow	+			Guinea	Staten Island, NY
<i>Chlorocebus sabaues</i>	green monkey	CII-051	Bone marrow	+		+	Guinea	Staten Island, NY
<i>Chlorocebus sabaues</i>	green monkey	CII-044	Trachea	+			Guinea	Staten Island, NY
<i>Chlorocebus sabaues</i>	green monkey	CII-144	Trachea	+			Guinea	Staten Island, NY
<i>Cercopithecus nictitans</i>	greater white-nosed monkey	BM002	Muscle		+		Nigeria	Dallas, TX
<i>Papio papio</i>	baboon	CII-013	Bone marrow	+			Guinea	Staten Island, NY
<i>Papio papio</i>	baboon	CII-028	Spinal nerve			+	Guinea	Staten Island, NY
			Muscle		+			
<i>Papio papio</i>	baboon	CII-046	Right eye			+	Guinea	Staten Island, NY
<i>Papio papio</i>	baboon	CII-163	Optic nerve		+	+	Guinea	Staten Island, NY
			Right eye	+	+			
			Trachea	+		+		
<i>Cercocebus atys</i>	sooty mangabey	BM008	Muscle	+		+	Liberia	Philadelphia, PA
<i>Cercocebus atys</i>	sooty mangabey	BM010	Muscle			+	Liberia	Philadelphia, PA
<i>Pan troglodytes ellioti</i>	Nigeria-Cameroon chimpanzee	BM013	Muscle			+	Nigeria	Queens, NY

<sup>1</sup>Only samples testing positive are listed. All other rodent and simian samples were negative for all pathogens tested.

<sup>2</sup>Species identification inferred with phylogenetic analysis.

doi:10.1371/journal.pone.0029505.t001

# Labor

- Labor Spiez hat Proben erhalten (Flughafen Zürich)
- PCR Nachweis für Speziesbestimmung
- Virus Genomnachweis
  - Ebola
  - Pocken
  - SIV
  - Influenza etc.

# Diagnostik

*„Die Bushmeat Probenanalyse gestaltet sich schwierig, insbesondere die Aufreinigung und Konzentration von Pathogen DNA auf dem Hintergrund der Tier-DNA. Wir arbeiten weiter daran und informieren sobald wir etwas haben.“*

*Stephen Leib, Labor Spiez (bis 9/2015)*

*„Wir wurden schon über die Ebolagefahr informiert. Zum Glück sind unsere Zöllner schon lange auf Bushmeat sensibilisiert, schon wegen des Artenschutzes. Auch wurde schon länger von der Schweiz (Tengwood) auch bei der EU interveniert, das Bushmeat wegen der gesundheitlichen Risiken für Mensch und Tier strenger zu kontrollieren und zu bestrafen.“*

*E. Forrer-Müller, GTD Flughafen Zürich*

