

Estimate of the risk due to the import of illegal meat and meat products including bushmeat into Switzerland by private air travel and the risk of introduction of exotic diseases to man and livestock

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ABSTRACT:

The illegal import of meat can present substantial risks for public health and for the introduction of exotic animal diseases. Studies conducted in different European countries have estimated the volume of meat imports including bushmeat from non-EU countries into Europe by air travel at approximately 5 tonnes weekly. The objective of this study was to estimate the quantity of meat illegally imported into Switzerland by air travel. Because meat from wild animals (bushmeat) has a great potential for the introduction of exotic diseases, the amount of illegally imported bushmeat was estimated separately. Data was obtained by participating in several intervention exercises at the two international airports of Switzerland where meat imports are regularly seized, and by analyzing data on seizures from the last four years. A stochastic model with the software @Risk was applied to estimate the total amount of illegally imported meat. A wide array of animal species including domesticated and wild species (some of which are CITES listed) were imported into Switzerland. The total weight of annual meat seizures averaged 5'500kg from which 1.3% was bushmeat. The main contributors to illegal meat imports from domestic species were Eastern European countries and for bushmeat Western African countries and particularly Cameroon. The total annual inflow of illegal imports was estimated by the model to be 1013 tonnes (95% CI 166, 5494) for meat and 8.6 tonnes (95% CI 0.5, 88.5) for bushmeat, respectively. This study only addressed the entry for illegal meat import via private air-travel and did not look into the other channels like air or ship freight or road. To get a broader picture of the magnitude of illegal meat imports into Switzerland and to obtain an accurate risk estimate of these products for public health, a larger study is recommended which covers all possible modes of entry.

METHODOLOGY

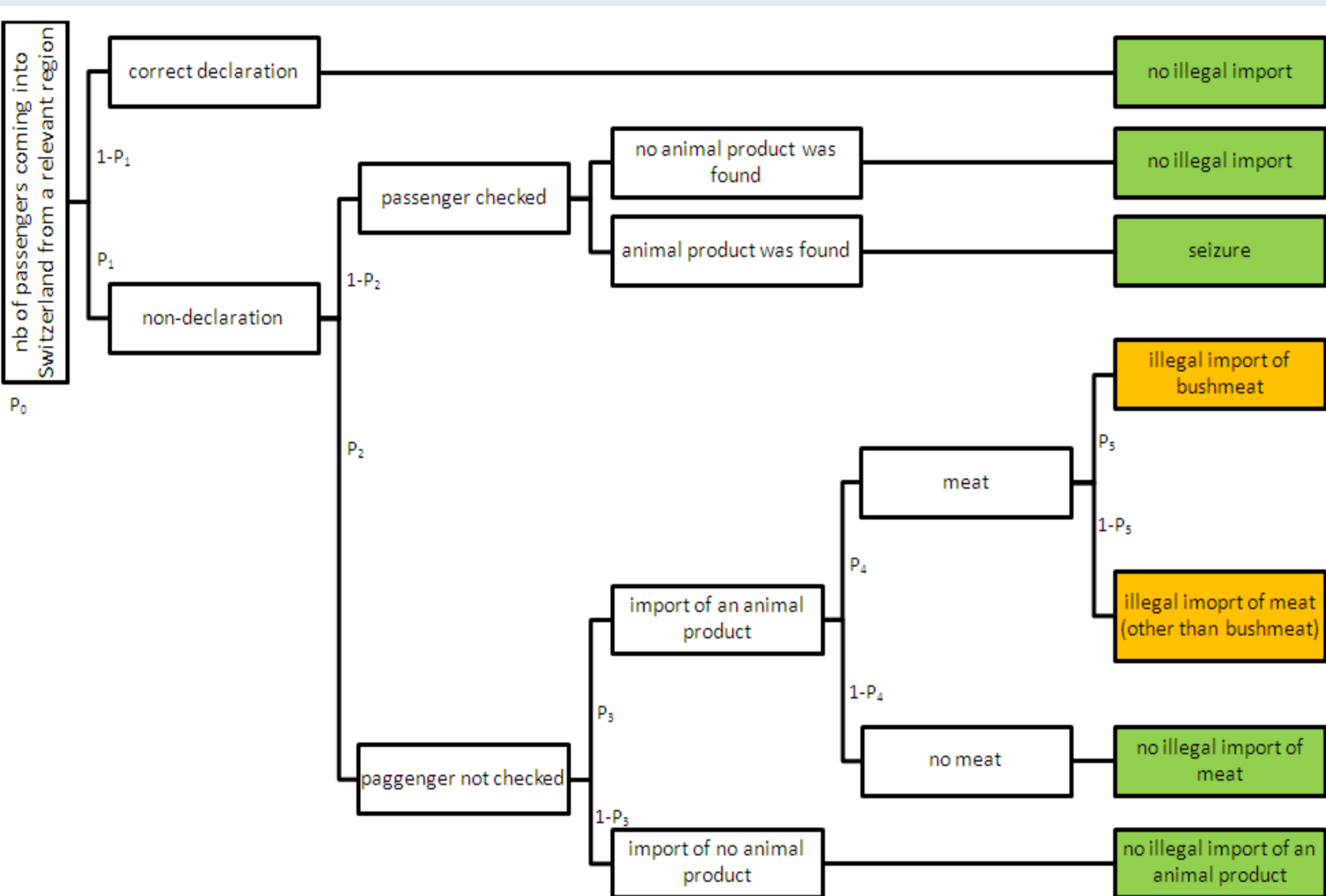


Figure 1: Scenario tree for the illegal import of meat and bushmeat, modified from Laeubi 2010

Name	Description	Value	Source
Number passengers	Total annual number of passengers entering Switzerland via the airports Zurich and Geneva	34,000,000 persons	Swiss Federal Statistics Office (2011)
P1	Probability that the passenger will not declare anything	1- Pert (0.0033, 0.0039, 0.0049)	Expert opinion ; sum of passengers declaring something* / total incoming passengers
P2	Probability that the passenger will not be checked at the Swiss custom borders	1- Pert (0.0025, 0.0041, 0.0060)	Expert opinion; mean of values from ZH and GE airports
P3	Proportion that the checked passenger imports an animal product	Pert (0.023, 0.037, 0.077)	Annually confiscated animal products from the databases of ZH and GE (mode: monthly meanx12, min - max: mode 10%) divided by the total number of checked passengers
P4	Probability the imported animal product is meat	Pert (0.54, 0.68, 0.72)	Min, median and max of the yearly proportion of confiscated meat products among all confiscated animal products at the airports of Zurich and Geneva
P5	Probability the imported meat is bushmeat	Pert (0.0035, 0.005, 0.006)	Rounded min, median and max of the yearly proportion of confiscated bushmeat products among all confiscated meat products at the airports of Zurich and Geneva

Table 1: Values and sources of the input parameters of the stochastic model estimating the total amount of illegally imported meat and bushmeat imported into Switzerland

RESULTS

The main contributors to the illegal import of meat other than bushmeat can be seen in Figure 2. For bushmeat, the major import country was Cameroon which contributed more than 50% of all bushmeat imports. Other countries from where bushmeat emanated were Ivory Coast, Benin, Ghana, South Africa, China, Thailand, Ecuador, Chile and Columbia.

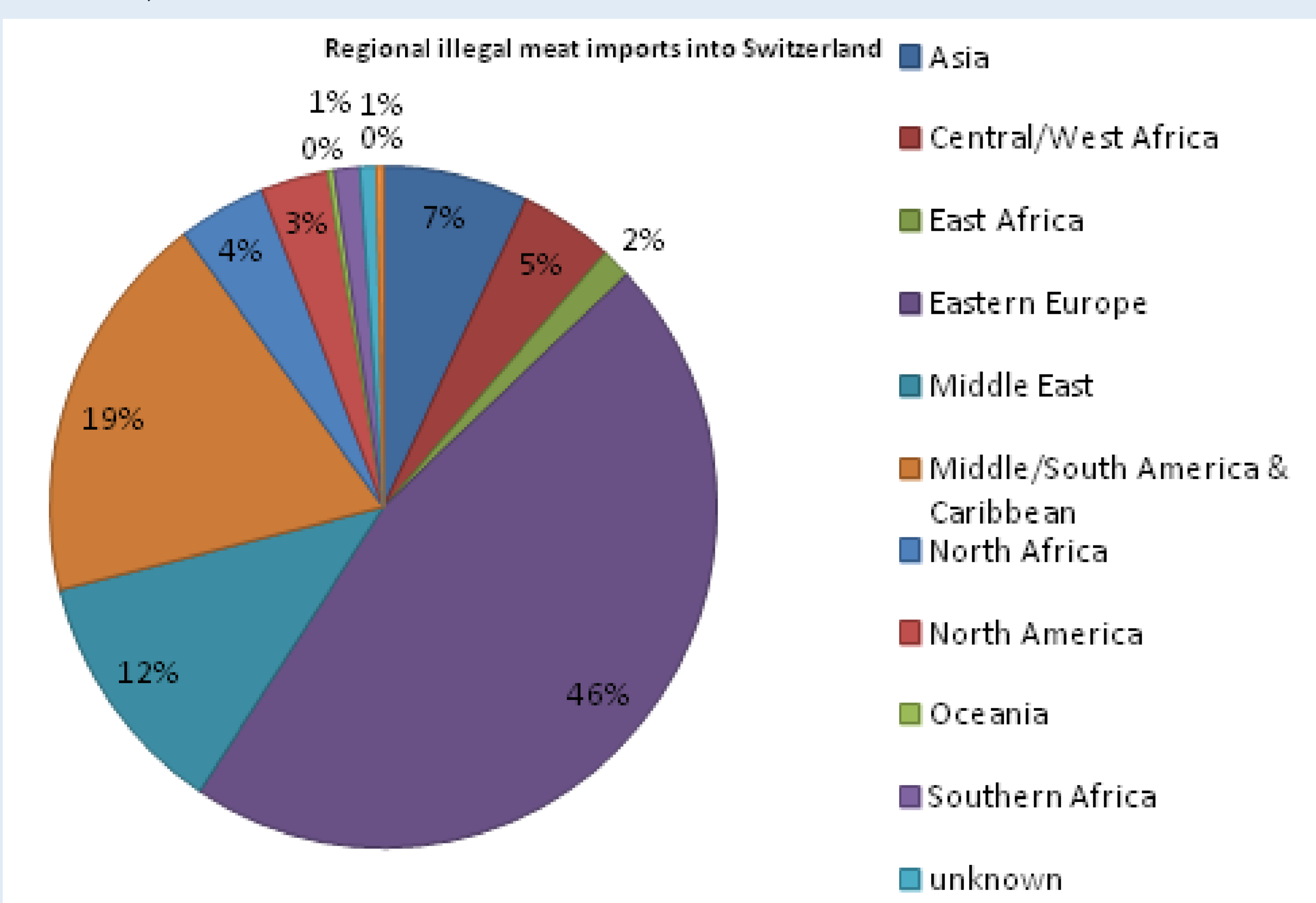


Figure 2: contribution by percentage to the inflow of confiscated meat products into Switzerland from different geographical regions of the globe.

region of origin	estimated volume of illegally imported meat (tonnes)			estimated volume of illegally imported bushmeat (tonnes)		
	2.5 %ile	median	97.5 %ile	2.5 %ile	median	97.5 %ile
Asia	15.5	94.2	510.9	0.07	1.4	14.8
Middle East	20.6	125.4	680.0	0	0	0
North Africa	5.1	31.4	171.4	0	0	1.6
East Africa	2.0	11.9	65.8	0	0	1.7
Central/West Africa	4.9	30.0	164.6	0.4	5.6	51.2
Southern Africa	3.8	23.5	128.4	0	0.8	9.5
Eastern Europe	73.5	449.2	2430.9	0	0	0
Western Europe	0.3	2.0	12.0	0	0	0
North America	5.6	34.6	186.7	0	0	0
Central and South America & Caribbean	33.9	207.0	1122.9	0	0.8	9.7
Oceania	0.6	3.6	20.7	0	0	0
total	165.8	1012.8	5494.3	0.5	8.6	88.5

Table 2: estimation of the total annual volume of illegally imported none confiscated meat/meat products into Switzerland via private air travel to the Zurich and Geneva International airports.

DISCUSSION AND CONCLUSION

This study revealed that illegal bushmeat import via air-travel is in existence in Switzerland. However, the volume of bushmeat imports compared to illegal meat imports from domestic animals is low. The Swiss human and livestock population has not undergone an exotic disease outbreak due to illegal meat imports, yet. However, since international air travel has increased over the past years, we expect an increase in illegal meat imports. This will also result in an increased risk of introduction of exotic diseases. Many of the intercepted meat importers claimed not to be aware that imports from non EU countries into Switzerland are forbidden. It therefore is recommended that policy makers take steps to make the public aware that meat imports are strictly forbidden. In addition, appropriate measures should be taken to prevent purposive illegal imports. This will be a good investment as it will help to keep exotic disease entry into Switzerland at bay. However, this study only addressed the entry for illegal meat import via private air-travel and did not look into the other channels like air or ship freight or road. To get a broader picture of the magnitude of illegal meat imports into Switzerland and to obtain an accurate risk estimate of these products for public health, a larger study is recommended which would cover all possible modes of entry.

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